APPENDIX P. PUBLIC COMMENT SUMMARY AND AGENCY RESPONSES

P.1 INTRODUCTION

The main function of this appendix is to provide the Bureau of Land Management's (BLM) response to comments received on the *Gasco Energy Inc. Uinta Basin Natural Gas Development Project Draft Environmental Impact Statement* (Draft EIS). This appendix contains two main sections in addition to this introduction.

Section P.2 provides a brief introduction and an overall summary of the process of soliciting, receiving, and evaluating comments on the Draft EIS.

Section P.3 provides instructions for finding specific comment letters, facsimiles (faxes), e-mails, and testimony (henceforth collectively referred to as comment letters) as well as agency responses to those letters. Table P-1 contains respondent information for all comment letters received on the Draft EIS. Table P-2 contains a summary of substantive comments arranged by category or resource discipline, and the agency response to each comment.

P.2 PUBLIC COMMENT PROCESS

The National Environmental Policy Act of1969 (as amended) (NEPA) requires that agencies "make diligent efforts to involve the public in ... NEPA procedures" (40 CFR 1506.6(a)) and that the agency assess and consider comments both individually and collectively in preparing its response (40 CFR 1503.4(a)). The following subsections summarize the effort undertaken to solicit comment of the draft EIS from the public, and the methods used for processing, analyzing, and responding to those comments.

Although this appendix deals primarily with comments received on the Draft EIS, the reader should also be aware that public involvement preceded the release of the Draft EIS, which included comments on the scope of issues that should be addressed in this EIS (see Chapter 5 for more information about the scoping process).

P.2.1 PUBLIC AND AGENCY MEETINGS

The CEQ regulations (40 CFR 1503.1) require that federal agencies invite review and comment on the Draft EIS. The BLM NEPA Handbook H-1790-1 specifies a comment period of at least 45 days. A notice of availability (NOA) was published in the *Federal Register* (Vol. 75, No. 14) by the BLM on October 1, 2010, announcing the availability of the Draft EIS for public review and comment. The original close of the comment period was November 15, 2010; however, the comment period was subsequently extended until December 30, 2010, to allow additional review time for updated air quality model technical support documents and an errata sheet containing minor revisions to the Draft EIS.

Following the release of the Draft EIS, the BLM Vernal Field Office (BLM Vernal FO) hosted three public meetings in the region to provide the public with an opportunity to comment on the information contained in the Draft EIS. The meetings were held on Tuesday, October 26, 2010, in Price, Utah; Wednesday, October 27, 2010, in Duchesne, Utah; and Thursday, October 28, 2010, in Vernal, Utah. Chapter 5 of this EIS contains more information about the public meeting.

P.2.2 COMMENT PROCEDURE

During the 90-day comment period, written comments were accepted through a variety of formats, including submission at public meetings. Chapter 5 of this EIS contains a list of all methods of comment. Individuals who submitted oral comments at the public meeting were advised that for the comment to be considered and included in the document, it needed to be submitted in writing. Comment forms were provided at public meetings on October 26, 27, and 28, 2010.

P.2.2.1 COMMENT PROCESSING

In all, 4,170 comment letters were received during the comment period for the Draft EIS. Email form letters (emailed comments containing the exact same verbiage—or very similar—from respondents) comprised 4,133 of these responses. All form letters received were from individual respondents. BLM personnel reviewed all comments for unique remarks, which were analyzed and included in a comment matrix.

All comment letters not identified as form letters were numbered sequentially (beginning with 1) and labeled with a code indicating the type of entity from which it was received (i.e., individual, government agency, tribe, business, or nongovernmental organization). This combination of number and entity code resulted in a unique alphanumeric identifier (letter ID) for each individual letter or form submitted, which was then cross-referenced with the respondent contact information. The table in Section O.3 below contains the letter ID, respondent name, and entity name (if applicable) for all non–form letter comments received.

Because of the volume received, form letters were not given unique alphanumeric identification codes and were not entered into the database; however, the comments contained in the form letter were included in the comment analysis process. Contact information for form letter respondents can be obtained by contacting the Vernal FO.

P.2.2.2 COMMENT ANALYSIS AND SUMMARY

Each unique letter and one form letter "master" were reviewed for the specific comment(s) it contained. Comments from each letter were sequentially numbered, then identified and organized into resource or discipline categories. This form of analysis allows specific comments to be captured and grouped by general topic or resource issue.

Comments on the spreadsheet are identified by letter ID for cross-referencing with the contact information table, which is included as Table P-1. Table P-2 consists of a comment matrix of all comments extracted from letters and their associated responses, organized by topic.

The full text of each comment letter received from individuals or groups is available via the BLM's Vernal FO project files, and may be viewed upon request.

P.2.2.3 COMMENT RESPONSE

Consistent with NEPA regulations (40 CFR 1503.4(b)), this appendix focuses on substantive comments on the draft EIS. Substantive comments include those that challenge the information in the draft EIS as being accurate or inaccurate, or that offer specific information which may have a bearing on the decision. Possible responses to substantive comments are:

- Modify alternatives including the Proposed Action.
- Develop and evaluate alternatives not previously given serious consideration by the agency.
- Supplement, improve, or modify its analyses.
- Make factual corrections.
- Explain why the comments do not warrant further agency response, citing appropriate sources or authorities. (40 CFR 1503.4(a))

Comments that merely express an opinion for or against the Proposed Action were not identified as requiring a response. In cases where the comment was substantive but appeared to indicate that information in the draft EIS was either misunderstood or unclear, a response was prepared to clarify the information.

P.3 READER'S GUIDE

P.3.1 INSTRUCTIONS FOR REFERENCING COMMENTS

Readers wishing to find specific comments and responses should refer to the following tables:

Table P-1, Draft EIS Respondents. This list assigns a Letter ID to all letter respondents, who are listed by first and last name and/or entity name. Contact information is also provided for agencies, businesses, tribes, and non-governmental organizations; contact information for individuals has been redacted.

Table P-2, Draft EIS Comments and Responses. Each entry in this table is a distinct comment extracted from a letter and contains the Letter ID (column A); the comment number in the letter (column B); the resource discipline or category to which the comment was coded (column C); the actual comment (column D); the subcode within column D's resource discipline or category to which the comment was further coded (column E) and its response (column F).

Readers may find all comments and responses associated with each respondent contained in Table P-2 by matching the letter ID number with the respondent name/entity listed in Table P-1. Responses referring readers to information contained in another comment/response entry cite the referenced comment's letter ID (column A) and comment number (column B). For example, a response guiding the reader to see the response to 030-G-3 is referring the reader to the third comment from respondent 30-G. Cross references within the same resource discipline and subcode of the table (for example, Air Quality/Ozone) contain only the referenced response's letter ID and comment number (e.g., 030-G-3). Cross-references across resource disciplines and/or subcodes further identify the table section where the response may be found. Form letter respondents are not included in Table P-1, but are available by contacting the BLM Vernal FO.

Table P-1. Draft EIS Respondents

ID No.	Name	Organization	Address	Resource Category Comments (number of comments)
001-I	John Ruple	_	Personal contact information redacted	No substantive comments
002-I	Larry Fagot	_	Personal contact information redacted	No substantive comments
003-O	Steven J. Slater	HawkWatch International	2240 S. 900 E., Salt Lake City, UT 84106	Special Status Species (2)
004-G	Mike Hyde	Duchesne County Commission	P.O. Box 270, Duchesne, UT 84021	Air Quality (1), Alternatives (2), Special Designations (1), Wilderness Characteristics (1)
005-B	Dave Smith	Nielson Construction	330 S. 700 E., Price, UT 84501	No substantive comments
006-B	Wayne McCandless	Nielson Construction	P.O. Box 620, Huntington, UT 84528	No substantive comments
007-B	Chuck Rich	Nielson Construction	P.O. Box 620, Huntington, UT 84528	No substantive comments
008-B	John E. Corrent	Bronte Consulting	10224 S. Loridan Lane, Sandy, UT 84092	No substantive comments
009-B	T. Olsen	Warrior Energy	1990 W. 1760 S., Roosevelt, UT	No substantive comments
010-I	Steven K. Tanner	_	Personal contact information redacted	Cultural (3), Cumulative (1), Water (1); Process (3)
011-G	Julie Sharp	National Park Service	P.O. Box 25287, Denver, CO 80225	Air Quality (13)
012-I	Tyler Kokjohn	_	Personal contact information redacted	Cultural (1), Cumulative (1)
013-B	Bret A. Sumner	Gasco Energy	216 16th St, Ste. 1100, Denver, CO 80202	Air Quality (14), Alternatives (4), Geology (1), Process (1); Purpose and Need (4), Recreation (1), Socioeconomics (2), Wilderness Characteristics (4)
014-O	UMC Board Members	Uintah Mountain Club	P.O. Box 782, Vernal, UT 84078	Air Quality (1), Alternatives (1), Recreation (2), Socioeconomics (1),
015-G	County Commissioners	Uintah County	152 E. 100 N., Vernal, UT 84078	Air Quality (1), Alternatives (1), Socioeconomics (1)
016-O	Pamela W. Miller	Nine Mile Canyon Coalition	P.O. Box 402, Price, UT 84501	Alternatives (3), Cultural (12), Cumulative (2), Process (2), Recreation (1), Transportation (2),
017-O	Kathleen M. Sgamma	Western Energy Alliance	410 17th St, Ste. 700, Denver, CO 80202	Purpose and Need (1), Socioeconomics (1), Wilderness Characteristics (1)

Table P-1. Draft EIS Respondents

ID No.	Name	Organization	Address	Resource Category Comments (number of comments)
018-O	National Outdoor Leadership School • Outdoor Industry Association • Adventure Bound • Bill Dvorak's Kayak and Rafting Expeditions, Inc. • Holiday Expeditions • Colorado River and Trail Expeditions • Moki Mac River Expeditions • River Runners Transport		Multiple addresses; information for each organization is available by contacting the BLM Vernal FO	Air Quality (1), Recreation (2), Socioeconomics (1)
019-I	Richard Artley	_	Personal contact information redacted	Land Use (3),Water (3), Process (1)
020-O	Stephen Bloch	Southern Utah Wilderness Alliance	425 E. 100 S., Salt Lake City, UT 84111	Air Quality (6), Alternatives (2), Cultural (2), Cumulative (6), Geology (1), Noise (6), Process (2), Recreation (2), Special Designations (4), Special Status Species (1) Visual (6), Water (1), Wilderness Characteristics (2)
021-O	Ti Hays	National Trust for Historic Preservation	55 16th Street, Ste. 750, Denver, CO 80202	Cultural (2), Cumulative (1), Process (5), Transportation (3)
022-O	William Eckerle	Backcountry Hunters and Anglers	P.O. Box 520134, Salt Lake City, UT 84152	Recreation (1), Wildlife (3)
023-I	Ivan White	_	Personal contact information redacted	Air Quality (2), Cultural (1), Cumulative (1), Process (1)
024-O	John Weisheit	Living Rivers and Colorado Riverkeeper	P.O. Box 466, Moab, UT 84532	Special Status Species (1), Wilderness Characteristics (1)
025-O	Ken Kreckel	Attachment to SUWA letter, but separate author	425 E. 100 S., Salt Lake City, UT 84111	Alternatives (7), Socioeconomics (1), Wilderness Characteristics (1)
026-G	James Devine	USGS	Mail Stop 440, Rm. 5A326, 12201 Sunrise Valley Dr., Reston, VA 20192	Special Status Species (3)
027-O	Tony Frates	Native Plant Society	P.O. Box 520041, Salt Lake City, UT 84152-0041	Special Designations (1), Special Status Species (12), Vegetation (4)
028-O	Megan M. Williams	Attachment to SUWA letter, but separate author	756 Cottage Ln., Boulder, CO 80304	Air Quality (43), Cumulative (1)
029-I	Herm Hoops	_	Personal contact information redacted	Noise (1), Recreation (1), Socioeconomics (1), Visual (1)
030-G	field supervisor	U. S. Fish and Wildlife Service	2369 W. Orton Ci., Ste. 50, West Valley City, UT 84119	Alternatives (9), Special Designations (2) Special Status Species (24), Water (1)
031-G	John Harja	State of Utah	P.O. Box 141107, Salt Lake City, UT 84114	Alternatives (4), Geology (1), Special Status Species (1), Water (6)

Table P-1. Draft EIS Respondents

ID No.	Name	Organization	Address	Resource Category Comments (number of comments)
032-G	James Martin	Environmental Protection Agency	1595 Wynkoop St., Denver, CO 80202	Air Quality (29), Alternatives (24), Cumulative (1), General (1), Process (5),Socioeconomics (4), Special Status Species (2), Transportation (1), Water (26), Wildlife (1)
033-I	Megan M. Williams	_	Personal contact information redacted	Air Quality (7)
034-B	M. Hurley	DalboRNI	355 South 1000 East Vernal, UT	No substantive comments
035-I	E. Carper	_	Personal contact information redacted	No substantive comments
036-I	N. Botting	_	Personal contact information redacted	No substantive comments
037-I	R. Donaldson	_	Personal contact information redacted	No substantive comments
NA	Form Master 1	Contact information for form letter respondents can be obtained by contacting the Vernal FO		No substantive comments
NA	Form Master 2	Contact information for form letter respondents can be obtained by contacting the Vernal FO		No substantive comments
NA	Form Master 3	Contact information for form letter respondents can be obtained by contacting the Vernal FO		No substantive comments

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	37	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.	Air Quality	Adaptive management	BLM is hesitant to assign a value to the concept of significant emission inventory increase as it relates to the need to conduct additional modeling, as the ozone issue in the Uinta Basin is a dynamic situation about which much is still being learned. It is simply unknown at this time what the mechanics of winter ozone formation are. BLM will evaluate any emission inventory increase associated with management actions identified in the Gasco EIS in light of future modeling and studies and respond accordingly. As stated in the response to comment 032-G-22 (located in the "Air Quality/Methodology-Model" section of this table), BLM will, under the air resource management (ARM) strategy, remodel the Gasco project along with other existing and proposed development in the Uintah Basin, which will then be used to inform any decisions related to additional mitigation or emission inventory trigger levels.
032-G	38	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.	Air Quality	Adaptive management	BLM is not requiring project specific air monitoring at this time. A vastly expanded ozone monitoring network in being put into place in the Uinta Basin, and additional project specific monitoring requirements are not warranted. BLM is pursing joint industry funding for analysis and monitoring however, and fully expects significant support from industry for this effort.
032-G	39	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.	Air Quality	Adaptive management	As mentioned in the response to comment 032-G-22 (located in the "Air Quality/Methodology-Model" section of this table), BLM will be conducting regional ozone modeling in the near future which will include the Gasco project. It is anticipated EPA will have either promulgated or proposed a new ozone standard by that date, and this will of course be taken into consideration for that modeling exercise. If based on that modeling enhanced mitigation is determined to be needed, BLM would appreciate and look forward to a close working relationship with EPA on determining the appropriate mitigation.
013-B	4	Gasco's commitment to control ozone precursors result in approximately a 33% decrease in potential incremental ozone impacts (a decrease of 0.1 ppb to 0.2 ppb due to ACEPM controls, compared to potential incremental impacts of 0.3 ppb to 0.6 ppb without ACEPM controls). These commitments are sufficient and BLM need not restrict development further in its attempts to reduce air quality impacts.	Air Quality	Applicant-committed measures/mitigation	Comment noted.
013-B	5	Centralized Compression Facilities. Gasco committed to the use of centralized compression facilities as the only compression option analyzed for the EIS. Gasco committed not to employ well site compression.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	6	Employ Tank Emissions Controls for Compressor Stations. Gasco commits to employ controls on central tank emission (likely via a flare). We	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		estimate that this measure will reduce VOC emissions from this source by approximately 95%.			
013-B	7	No well site dehydrators.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	8	Low-bleed pneumatic valves. Gasco commits to installing low-bleed dump valves on newly installed separators at well sites and compressor stations. We estimate that installation of these low-bleed valves reduces the amount of VOC emissions by approximately 95% from these emission sources.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	9	Replacement of existing high-bleed pneumatic dump valves. Gasco committed to replacing existing high-bleed dump valves on existing facilities, and has recently completed these replacements. As with the new facilities, we estimate that these replacements will reduce VOC emissions from these existing sources by approximately 95%.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	10	Catalysts on compressor engines. Gasco commits to utilize catalysts on compressor engines. We estimate that this measure will reduce VOC emissions from this source by approximately 76%. Please note that Gasco is planning on using lean-burn engines, thus NOx emissions are minimized by the engine design.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	11	Controls (flare) on central dehydrator emissions. Gasco commits to employ controls on central dehydrators (likely via a flare). We estimate that this measure will reduce VOC emissions from this source by approximately 95%.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	12	Tier II drill rigs. Gasco commits to utilizing Tier II drill rigs. Gasco estimates that use of Tier II drill rigs will reduce NOx emissions from this source by approximately 55%.	Air Quality	Applicant-committed measures/mitigation	Comment noted. Table 2-1 of the FEIS has been expanded to include Gasco's commitment to use Tier II drill rigs.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
013-B	13	Use stock tank emission controls on tanks with a throughput of 14 bbls/day or greater. Gasco will employ controls to achieve a 95% efficiency level on emissions.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	14	Use solar powered chemical pumps in place of pneumatic pumps.	Air Quality	Applicant-committed measures/mitigation	Comment noted. This applicant-committed measure has been added to Table 2-1 of the FEIS.
013-B	15	In sum, Gasco has committed to substantial air quality emission controls for its project, and these controls will result in a significant decrease in potential emissions, particularly ozone precursors such as VOCs and NOX. Gasco's commitments and these emission control measures are sufficient to reduce and mitigate potential impacts to air quality and BLM need not apply further restrictions on development.	Air Quality	Applicant-committed measures/mitigation	Comment noted. Applicant-committed environmental protection measures as identified were incorporated into the air quality analysis.
028-O	1	The BLM's air quality modeling analyses performed for the DEIS indicate that adverse impacts on air quality would occur due to the proposed project sources alone and cumulatively when considering other sources in the region. These adverse impacts will further exacerbate existing air quality conditions that threaten violation of air quality standards. Background data and other BLM analyses indicate that compliance with National Ambient Air Quality Standards (NAAQS) is threatened, significant air quality deterioration is not being prevented and visibility impairment is already occurring due in part to current development in the Vernal planning area in Utah. An analysis of the area impacts is detailed in the attachment to this letter. Further, the air quality analyses presented in the DEIS and accompanying air quality technical documents are deficient as detailed in the attachment to this letter. As a result of these deficiencies, it is likely that air quality impacts would be predicted to be even more severe than what is presented in the DEIS.	Air Quality	Applicant-committed measures/mitigation	The analysis does show that existing air quality, with the possible exception of ozone, will meet the NAAQS. For ozone impacts, the BLM will require Gasco to adhere to the proposed adaptive management plan, which will require Gasco and other operators to enact measures which are designed to protect air quality in the area.
028-O	2	The BLM has not fully and accurately evaluated the air quality impacts from the proposed development and has not proposed adequate enforceable mitigation measures to assure no	Air Quality	Applicant-committed measures/mitigation	The BLM will require Gasco to adhere to the proposed adaptive management strategy plan, which would require Gasco and other operators to enact measures designed to protect air quality in the area.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		adverse impacts on air quality are occurring or will occur in the affected area. In fact, the BLM does not put forth any alternative in the DEIS that fully protects air quality in the area.			Any mitigation measures selected by the BLM Utah State Director would be attached to the ROD as Conditions of Approval. In addition to the adaptive management strategy plan, the alternatives include several salient environmental protection measures and mitigation measures that are specific to reduce air quality effects. These include the following: • All new and replaced pneumatic controllers would be a no-bleed or low-bleed design. • Best management practices would be employed during completion operations to minimize emissions to the atmosphere as a result of well flowback. The preferential best management practice shall be "Green Completion" where the well flowback is captured, separated, and sold as product. When Green Completions are not technically reasonable, flaring or other control practices would be employed to minimize venting emissions directly to the atmosphere. • Emissions from engines would be controlled utilizing Best Available Control Technology (BACT) in accordance with Utah Division of Air Quality regulations. Emissions controls may consist of lean-burn technology, catalysts, air/fuel ratio controllers or other technologies as they become commercially available. Engines located at facilities outside of Utah Division of Air Quality jurisdiction (EPA jurisdiction) would be controlled in a like manner. • BLM would require the following as a Lease Stipulation or Condition of Approval for APDs: • All new and replaced internal combustion oil and gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 gms of NOx per horsepower-hour. This requirement does not apply to oil and gas field engines of less than or equal to 40 design-rated horsepower. • All new and replacement internal combustion oil and gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gms of NOx per horsepower-hour.
028-O	3	All alternatives fall short of establishing enforceable mitigation measures to ensure that there are no violations of the applicable state and federal requirements (e.g., compliance with the National Ambient Air Quality Standards). The BLM must propose a detailed and enforceable mitigation plan, using any and all means, prior to issuance of the Final EIS that will ensure no violations of Clean Air Act standards. If the BLM authorizes this project, its actions will not protect air quality. The BLM must prepare a proper air quality analysis and then must develop an alternative that ensures no violations of Clean Air Act standards.	Air Quality	Applicant-committed measures/mitigation	The air quality analysis showed that existing air quality, with the possible exception of ozone, will meet the NAAQS. For ozone impacts, the BLM will require Gasco to adhere to the proposed adaptive management plan, which will require Gasco and other operators to enact measures which are designed to protect air quality in the area.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
028-O	5	To meet its obligations under NEPA and FLPMA, BLM must identify an allowable level of emissions for the proposed project that would not cause or contribute to violations of pollution standards in the ambient air or adverse impacts on air quality related values in Class I areas, and identify mitigation measures to achieve those emission levels. NEPA explicitly requires that the EIS for the project "shall include discussions of: (h) Means to mitigate adverse environmental impacts (if not fully covered under § 1502.14(f))." Where "[m]itigation includes: (a) avoiding the impact altogether by not taking a certain action or parts of the action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation." 40 CFR 1508.20. Furthermore, the requirement of FLPMA to "provide for compliance" with these standards re-enforces the requirement of NEPA that the EIS identify the measures available to BLM to provide for compliance with CAA requirements. In its EIS analysis, BLM must include all information relevant to reasonably foreseeable significant adverse impacts and must fully justify any incomplete or unavailable information per the requirements of 40 CFR 1502.22. The BLM has failed to accomplish this in this DEIS. Importantly, all alternative scenarios are shown to violate at least one, if not several of the air quality standards laid out by the CAA and mandated for NEPA projects under FLPMA. Even Alternatives B and E, the reduced development alternatives, are shown to result in adverse impacts to air quality and air quality related values. Specifically, the DEIS and associated support documents report exceedances of the PSD increments for $PM_{10,}$ the potential to contribute to ozone NAAQS exceedances and numerous vis bility impacts. Even more troublesome is the fact that the modeling does not fully evaluate impacts and does not fully disclose the maximum potential impacts. Further, background concentrations understate wintertime air quality in the area meaning that the adverse air quality impacts would likely be much worse, in reality, than what is shown in this DEIS.	Air Quality	Applicant-committed measures/mitigation	See response to comment 028-O-2. In order for BLM to meet its obligations under NEPA and FLPMA, the ROD would require adherence to the adaptive management strategy plan, thus achieving these goals. A PSD increment analysis is the respons bility of the permitting authority. The EPA is respons ble for operating permits for applicable sources in the project area. If a proposed facility meets the PSD criteria, EPA has the regulatory authority and requirement to perform a PSD increment analysis. Any comparisons to PSD increments presented in the EIS is for informational, impact disclosure purposes. An air quality analysis in an EIS does not constitute a PSD increment analysis because BLM does not have the authority to perform a PSD increment analysis. Therefore, this NEPA analysis cannot be used to determine compliance with a PSD increment standard.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
028-O	37	The DEIS Assumes Certain Emissions Controls That Are Not Identified as Enforceable Mitigation Measures. The BLM's emissions estimates are, in some cases, based assumptions on emissions controls that must be made enforceable if they are to be the basis for the BLM's final decision. As part of this DEIS the BLM must assess the direct, indirect and cumulative air quality impacts of all emissions sources affecting the planning area (i.e., model all relevant emissions to determine air quality concentrations throughout the affected area). If the emissions characterization from these sources is based on assumed controls then those controls must be established as specific enforceable mitigation measures in the DEIS. The emissions estimates assumptions are not justified without being identified as mitigation measures and made enforceable by the BLM when finalizing this DEIS. For example, the DEIS assumes 50% control of fugitive dust emissions. (FOOTNOTE: See, e.g., DEIS Appendix K Proposed Action Inventory, for Well Pad/Access Road/Pipeline Construction Fugitive Dust Emissions.) An enforceable requirement to cut fugitive dust emissions in half through watering or other treatment should clearly be specified in the DEIS if the BLM plans to base decisions for resource development in the area on such an assumption. If the BLM is going to assume a certain control technique with a certain control efficiency for reducing fugitive dust then it must specify that level of control as an enforceable requirement in the mitigation measures in the DEIS. The potential underestimation (e.g., if the operators do not achieve 50% control of fugitive dust during construction, for example) places an even greater emphasis on the importance of ensuring future compliance with the PM NAAQS. Any assumptions considered as mitigation from uncontrolled air emissions should be clearly detailed in the DEIS, so that government officials that will subsequently be authorizing actions under the resource management plan and issuing air quality permits for the air pollution sources will	Air Quality	Applicant-committed measures/mitigation	All assumptions and ACEPMs are identified in Chapter 2 (Table 2-1) of the FEIS. All applicant-committed environmental protection measures and modeling assumptions will be attached to the ROD via Conditions of Approval.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		incorporate those mitigations into permits and other requirements to make sure the mitigations actually occur. Implementation of these measures will not be assured otherwise.			
028-O	44	The BLM Must Include Adequate Plans to Protect and Restore Air Quality in the Area as Part of This DEIS. The DEIS is proposing an Adaptive Management Strategy to ensure continued attainment of the NAAQS. DEIS at 4-355. This process is set up to allow for additional modeling for ozone as the inventory is refined and lays out a series of potential "enhanced" mitigation measures that may be needed based on this future modeling. In addition to these, the BLM should consider implementing a set of specific thresholds that would trigger prearranged mitigations and shutdowns. These actions should ensure protection of the NAAQS and all other CAA standards and requirements based on the EIS modeling that is finalized for the project. The BLM is implementing a similar strategy in the Upper Green River Basin in Wyoming and should consider implementing a similar strategy in Utah (FOOTNOTE: See, e.g., the NO_x emissions threshold of 693.5 tons per year established in the Pinedale Anticline FEIS to ensure that emissions do not exceed the EIS scope of analysis. Pinedale Anticline FEIS Section 3 at 16.)	Air Quality	Applicant-committed measures/mitigation	The Adaptive Management Strategy that Gasco would be required to adhere to would address BMPs for ozone reduction. Based on model results and/or monitored ozone events, the Adaptive Management Strategy will include the BLM enacting an ozone action plan to address ozone issues.
032-G	5	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 NOx and VOC emissions, which may include selection of a produced water disposal alternative that avoids or reduces use of surface evaporation pits.	Air Quality	Applicant-committed measures/mitigation	For ozone impacts, the BLM will require Gasco to adhere to the proposed adaptive management plan, which will require Gasco and other operators to enact measures designed to protect air quality in the area. In response to public comment, the BLM has proposed and analyzed an Agency Preferred Alternative (Alternative F) that reduces NOx and VOC emissions, and reduces the use of surface evaporation ponds. At this time, there is not enough information to determine the feasibility of alternative water management techniques, so Alternative F allows enough evaporative disposal capacity to accommodate approximately five years' worth of development. After that time, disposal techniques that could potentially include the treatments methods suggested by the commenter could be used.
032-G	20	Table 1-1 of Appendix J presents emission from the Proposed Action and emissions from the Proposed Action with ACEPMs. EPA appreciates	Air Quality	Applicant-committed measures/mitigation	Please refer to Table 4-184 of the FEIS and Appendix K (GHG Emission Inventory) for specific information concerning the source category and number of units used in the emissions inventory. For ozone impacts, the BLM will require Gasco to adhere to the

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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 NOx 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. On-site air monitoring programs (e.g., O3, NOx, VOC, aldehyde), source emission monitoring (i.e., FLIR camera), and emission control recordkeeping should also be considered.			proposed adaptive management plan and ozone action plan as appropriate. As a result, the BLM is not requiring project-specific air monitoring at this time.
028-O	36	The near-field analysis incorrectly assumes that development and operation activities will not occur simultaneously. The BLM must ensure by enforceable means that these activities will not occur in parallel. If these activities do occur at the same time—as the DEIS assumes in several places—it is possible that the combined impacts will result in modeled exceedances of the 24-hour PM10 NAAQS, as well as the 24-hour and/or annual PM2.5 NAAQS. In fact, the BLM assumes that these activities do occur at the same time for the far-field analysis. The BLM must address the impacts from concurrent development and operation in the DEIS or, alternatively, ensure through enforceable measures that development and operations activities will not occur simultaneously.	Air Quality	Assumptions	The analysis performed does assume that concurrent development and operation activities will occur simultaneously. This is a reasonable assumption for the near-field analysis. The far-field analysis, for the purposes of conservatively analyzing far-field impacts, did assume the possibility of simultaneous activities. The developmental impact analysis conservatively assumed that well pad and access road construction, drilling, and completion activities would occur simultaneously. No violation of NAAQS was predicted under these modeling scenarios.
028-O	6	The BLM must acknowledge the existing air quality concerns in the Uinta Basin and recognize that high background levels of air pollutants can mean that even if the activities analyzed in the DEIS will result in only minor increases in certain pollutants, the aggregate level of pollution that could result might have significant detrimental effects on human health and the environment (e.g., visibility and ecosystems).	Air Quality	Background concentration data	The air quality analysis did not indicate potential violations of NAAQS except for the possible exception of ozone. Revised background values collected from monitoring stations located in the Uinta Basin were used in the air quality analysis. Ozone issues in the Uinta Basin will be addressed by the BLM through the Adaptive Management Strategy plan, to which Gasco and other operators would be required to adhere.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Background concentrations of ozone and $PM_{2.5}$ in the Uinta Basin are at or exceed the NAAQS and leave virtually no room for additional growth in emissions. Visibility in nearby Class I areas is already impaired. For the BLM to present alternatives for the Gasco Energy development project that allow for growth in the emissions that contribute to these existing air quality concerns is inconsistent with the CAA's goal to improve human health and the environment. These issues must be dealt with in this DEIS by ensuring overall air quality compliance throughout the affected area. Specifically, the BLM must acknowledge and address the areas of concern described in more detail below.			
032-G	26	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).	Air Quality	Background concentration data	The best available, approved meteorological data w used on the modeling effort for the air quality analysis at the time of the analysis. Ambient air background concentration values used in the analysis were provided by the Utah Department of Environmental Quality. BLM does not the authority to establish background values for Air Quality. Recent monitoring data have been incorporated in the Gasco EIS where available.
028-O	18	Based on a National Park Service modeling analysis there are existing violations of the Class I SO2 increment occurring in Capitol Reef National Park. During the permit review process for the proposed Unit 3 of the Intermountain Power Plant located in Delta, Utah, the National Park Service conducted a Class I SO2 PSD increment consumption analysis and determined that existing sources in Utah are causing violations of the 3-hour average Class I SO2 increment in Capitol Reef National Park. Specifically, on March 25, 2004, the National Park Service submitted a letter to the Utah Division of Air Quality that provided, among other things, the National Park Service's formal findings that the 3-hour average SO2 increment was being violated by existing sources in Utah at Capitol Reef National Park.	Air Quality	Class I and II areas-PSD	Prevention of Significant Deterioration (PSD) analyses for major sources that have occurred years ago at locations far removed from the project area have little to nothing to do with the Gasco analysis. PSD increments are analyzed and presented in the DEIS for informational purposes only, as PSD increment consumption is not relevant to the Gasco project under the Clean Air Act, nor is it possible for a project such as this to "violate" PSD increment as defined under the Clean Air Act.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		(FOOTNOTE: National Park Service Comments on the Intermountain Power Agency Prevention of Significant Deterioration Permit Application for the Addition of Unit 3 at its Intermountain Power Plant, March 2004, attached to its March 25, 2004 letter to Rick Sprott, Utah Division of Air Quality, at 5.) In May of 2003, the Assistant Secretary for Fish and Wildlife and Parks submitted a letter and accompanying Technical Support Document that reiterated the NPS claim that existing sources are causing violations of the 3-hour average SO2 increment at Capitol Reef National Park (FOOTNOTE: National Park Service Supplemental Technical Comments on the Intermountain Power Agency Prevention of Significant Deterioration Permit Application for the Addition of Unit 3 at its Intermountain Power Plant, May 2004, attached to its May 2004 letter from the Assistant Secretary for Fish and Wildlife and Parks to Rick Sprott, Utah Division of Air Quality, at 8-9.) The amount of increment already consumed in the Class II area of the proposed project is largely unknown. The recent updates to the RMPs in the Vernal, Moab, Price, Richfield and Monticello planning areas did not include any assessment of the impacts from the areas' proposed development on Class I or Class II PSD increment consumption. It is certainly plausible that the air quality in this heavily developed area of Utah has degraded enough to cause concern with regard to compliance with certain PSD increments.			
028-O	19	Several recent modeling analyses performed by the BLM for project-specific EISs, Environmental Assessments (EAs) and Resource Management Plans (RMPs) that assessed visibility impacts in the Class I areas that will be impacted by the Gasco development project indicate that visibility in several Class I areas is threatened by ongoing development. • The BLM's far-field modeling analysis for the near-by West Tavaputs Plateau oil and gas development EIS indicated that the impacts from project sources alone would result in 87	Air Quality	Class I and II areas-PSD	The far-field analysis for visibility under the Agency Preferred Alternative predicted no impacts above 0.5 dv at Flat Tops Wilderness (Appendix I, Table 6.1), and no impacts above 1.0 dv in any Class I area in the modeling domain (which includes distant Class I areas such as Canyonlands National Park). The visibility analysis predicted impacts over 1.0 dv to the "sensitive Class II areas" of Ouray National Wildlife Refuge and Dinosaur National Monument (186 and 57 days respectively). Additional mitigation to address regional ozone contr butions will also reduce these predicted Class II area impacts; although since they are not recognized Class 1 areas a subsequent refined analysis is not required. The emission inventory and modeling assumptions used to complete this analysis represented the best available data and practices at the time the analysis was conducted, including adherence to the Federal Land Managers' Air Quality Related Values Workgroup (FLAG 2000) guidance document.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		days above a 1.0 deciview (dv) change in visibility at Ouray National Wildlife Refuge and 7 days above 1.0 dv at Dinosaur National Monument, both considered sensitive Class II areas. These same areas would see over 156 days and over 53 days above a 0.5 dv change in visibility. Cumulative impact modeling predicted numerous visibility impacts in every single Class I and sensitive Class II area assessed, except three. These areas are the same areas that will be impacted from the proposed Gasco development. • Several recently revised RMPs in Utah have identified concerns with visibility impacts from oil and gas development in several Class I areas including Canyonlands National Park and Capitol Reef National Park. September 2007 draft Price RMP reports that if compressors associated with the oil and gas development in the Price planning area are fueled by natural gas, the standard visual range could be reduced by more than 10% for 11 days at Capitol Reef National Park and 2 days at Canyonlands National Park and the standard visual range reduction could range from 5% to 10% for 47 days at Capitol Reef National Park and 16 days at Canyonlands National Park. Price RMP states that "the potential for cumulative visibility impacts (increased regional haze) is a concern" in the area. October 2007 draft Richfield RMP indicates concern with the reduced vis bility resulting from increased recreational activities in the area. However, neither of these RMPs (for Price and for Richfield) specify the extent of the vis bility issues nor do they analyze the effects of reasonably foreseeable development in the planning areas on visibility in affected Class I areas. • In the final EA for the five oil shale Research Development and Demonstration (RD&D) test sites in Colorado, the BLM showed that there will be significant adverse effects on visibility at the Flat Tops Wilderness Area Class I area			No deficiencies in emission inventories or assumptions prepared by the BLM were identified in the comment to respond to.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		when considering all oil shale research projects along with the ExxonMobile Piceance Development Project activities. Specifically, the BLM's analysis predicted there would be greater than a 1.0 deciview change in vis bility on 13-20 days. Thus, the potential air quality impacts of the oil shale RD&D sites are already quite significant with respect to vis bility in the Flat Tops Wilderness Area in Colorado, which is also predicted to have impacts from the Gasco development project. In all of these cases the visibility impacts predicted by the BLM were likely underestimated due to deficiencies in the emissions inventories as well as assumptions used in the modeling analyses.			
028-O	20	And while the BLM has used a change of 1.0 dv to denote vis bility impairment in these EISs, a threshold of 0.5 dv is much more protective of visibility in Class I areas. All of the Federal Land Managers (i.e., those agencies with an affirmative respons bility under the Clean Air Act for protecting the air quality related values of mandatory Class I areas) including the U.S. Forest Service consider a 0.5 dv change to be a Limit of Acceptable Change threshold.(See Federal Land Manager's Air Quality Related Values Workgroup Phase I Report, December 2000 (FLAG guidance) at 26-7.) Thus the potential impacts to visibility from the ongoing development in the areas impacted by the Gasco development are l kely even more than those briefly summarized above. This DEIS must fully consider these existing visibility concerns along with the impacts of the increases in air pollutants that contribute to vis bility impairment (e.g., sulfates, nitrates, dust, etc.) that will come from the proposed oil and gas development under the various proposed alternatives.	Air Quality	Class I and II areas-PSD	There were no changes in vis bility that exceeded 1.0 deciview LAC on more than one day per year at any Class I area. Additional mitigation specific to visibility impacts is therefore not warranted. It should be noted however that mitigation directed at ozone and particulate matter also reduces potential visibility impacts (particularly related to nitrogen oxide emissions).
028-O	28	The BLM's Near-Field, Far-Field and Cumulative Analyses Predict Class II Increment Violations and Visibility and Ecosystem Impacts The BLM has not properly analyzed whether the proposed Gasco development project will prevent significant deterioration (PSD) of air quality, as required by the	Air Quality	Class I and II areas-PSD	See response to comment 020-O-21 (located in the "Air Quality/visibility" section of this table).

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Clean Air Act. The BLM must complete an analysis to determine how much of the incremental amount of air pollution allowed in clean air areas (i.e., PSD increment) has already been consumed in the affected area and how much additional increment consumption will occur due to the proposed development. Without this analysis, the BLM is not ensuring that air quality will not deteriorate more than allowed under the CAA. The DEIS predicts near-field 24-hour PM_{10} concentrations from project operations that consume almost 300% of the Class II PSD increment. DEIS at 4-13. The DEIS states that the "maximum PM_{10} impacts result from truck traffic" and then erroneously states that PSD increments do not apply to mobile sources and therefore "PSD Class II increments are not exceeded". DEIS at 4-12. The BLM is stating that the predicted PSD increment violations in the FEIS analysis should not be considered as real increment violations because they include mobile source emissions. However, since emissions from major stationary sources which commenced construction or modification after the applicable "major source baseline date" and emissions increases from minor, area and mobile sources that occurred after the relevant "minor source baseline date" affect the allowable increment, the Gasco project does appear to consume more than is allowed of the PM_{10} increments.46 The correct way to determine compliance with the PSD increments is to complete a modeling analysis of all increment consuming and increment expanding sources that impact the same area impacted by the Gasco project. As mentioned above, FLPMA and related regulations specify that all CAA requirements be met in the development of land use plans and subsequent authorizations. The BLM is required to "provide for compliance with" all CAA requirements, and cannot authorize an action that would violate the PSD increments, which are a CAA requirement under Section 163. The DEIS does not evaluate PSD increment consumption from development sources stating that "[b]ecause development activities are temporary and short-term in nature, comparisons to PSD increments are not appropriate" DEIS at 4-6. While it is true that			

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		temporary emissions are not included in PSD increment analyses, it is questionable whether the drilling activities that will continually occur for the Gasco development project starting in 2011 and continuing through 2026 can really be considered "temporary". The BLM must consider the PSD increments as important and legally binding Clean Air Act requirements and it must provide for compliance with these requirements in the DEIS. The PSD increments are separate ambient air quality standards not to be exceeded, as set out in §163 of the Clean Air Act, that apply in addition to the national ambient air quality standards in clean air areas. The BLM is required under FLPMA, 43 U.S.C. § 1712(c)(8), to "provide for compliance with" all Clean Air Act requirements, and thus the BLM cannot authorize an action that would allow the PSD increments to be exceeded. See also 43 CFR 2920.7(b)(3) (requiring the same for land use authorizations). Table 4-6 on page 4-13 of the DEIS shows the predicted proposed action concentrations compared with Class II increments for NO_2 and $PM_{10.}$ Even without the proper analysis (one that looks at the impact of all increment consuming and increment expanding sources in the area in addition to the proposed action sources) the BLM's analysis shows that this project alone consumes almost 300% of the available Class II PM_{10} increment. Specifically, the BLM's modeling predicts that operations sources alone consume 287% of the available Class II 24-hour PM_{10} increment. The Class II 24-hour PM_{10} increment will, therefore, also be exceeded when considering all other increment consuming sources in the area that impact the same area impacted by the Gasco development area.			

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
028-O	29	The BLM's far-field direct project and cumulative impact analyses at Class I and sensitive Class II areas show significant visibility impacts. Specifically, the BLM's farfield modeling indicates that the preferred alternative (A) alone will result in one day above a 1.0 deciview (dv) change in visibility at Canyonlands National Park (Class I), 57 days above 1.0 dv at Dinosaur National Monument (Class II) and 186 days above 1.0 dv at Ouray National Wildlife Reserve (Class II). DEIS at 4-43. These same areas would see over 7 days (Canyonlands National Park), over 137 days (Dinosaur National Monument) and over 237 days (Ouray National Wildlife Reserve) above a 0.5 dv change in visibility as well as an additional 2 days above 0.5 dv at Arches National Park (Class I) and 1 day above 0.5 dv at Capital Reef National Park (Class I). See Table 6-1 of Appendix I of the DEIS. In addition to these areas, the BLM's analysis of the preferred alternative (A) along with "cumulative sources" predicts numerous visibility impacts in every single Class I and Class II area assessed, except three. DEIS at 4-351. There is more than one day above a 1.0 dv change in visibility at Arches National Park (3 days), Black Canyon of the Gunnison Wilderness Area (5 days), Canyonlands National Park (2 days), Flat Tops Wilderness Area (15 days), Maroon Bells-Snowmass Wilderness Area (5 days), West Elk Wilderness Area (4 days), Colorado National Monument (5 days), Dinosaur National Monument (188 days), Flaming Gorge National Recreation Area (42 days), High Uintas Wilderness Area (39 days), Ouray National Wildlife Reserve (353 days) and Ragged Wilderness Area (5 days). These visibility impacts must be addressed in the DEIS. The BLM should rely on a 0.5 deciview (dv) change as defining whether there would be significant visibility impacts at the Class I area receptors. Again, since all of the Federal Land Managers consider a 0.5 dv change to be a Limit of Acceptable Change threshold the BLM must base its decisions on this threshold.	Air Quality	Class I and II areas-PSD	See response to comment 028-O-20.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
028-O	30	Since FLPMA requires that the BLM provide for compliance with CAA requirements the BLM must not authorize the Gasco development project if it will cause or contribute to adverse impacts on visibility. The DEIS fails to provide an adequate mitigation scenario that would remedy the adverse visibility impacts predicted for several Class I and sensitive Class II areas. This is necessary to meet BLM's obligation under NEPA to ensure the professional and scientific integrity of the DEIS, as well as its obligations under the Clean Air Act to not only prevent future impairment of visibility, but to also remedy existing impairment. See 40 CFR 1502.24, 42 U.S.C. 7491(a)(1).	Air Quality	Class I and II areas-PSD	See response to comment 028-O-20.
028-O	31	The deposition impact assessment shows cumulative nitrogen and sulfur deposition at certain Class I and sensitive Class II areas that could be considered significant, depending on the significance criteria used. The BLM should consider impacts significant when compared to the National Park Service's Class I area "Deposition Analysis Thresholds" of 0.005 kg/ha-yr for both nitrogen and sulfur deposition. Using the Deposition Analysis Thresholds, the DEIS predicts significant cumulative impacts on both sulfur and nitrogen deposition.	Air Quality	Class I and II areas-PSD	The far-field analysis for deposition under the Agency Preferred Alternative predicted no impacts above 0.005 kg/ha-yr in any Class I area in the modeling domain (Table 4-39). The deposition analysis predicted impacts over the National Park Service's deposition analysis threshold (DAT) to the "sensitive Class II areas" of Ouray National Wildlife Refuge and Dinosaur National Monument (0.076 and 0.02 respectively). Additional mitigation to address regional ozone contr butions will also reduce these predicted Class II area impacts. The FEIS has been modified to clearly include the National Park Service's DAT to disclose these impacts and further inform the reader.
032-G	44	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.	Air Quality	Climate	Section 4.2.1.1.2 has been added to the FEIS to provide an analysis of the GHG emissions resulting from the Proposed Action and its alternatives. The understanding and prediction of potential impacts related to climate change are not well enough understood to apply to a specific project. However, BLM does and will continue to comply with federal, state, and agency requirements regarding climate change disclosure and mitigation. BLM does and will continue to require emission reduction and control based on recognized air quality issues associated with oil and gas projects, which also have benefits related to GHG reduction, and will continue to encourage reductions of GHGs consistent with federal, state, and agency guidance. Section 4.18.3.1.8 of the Final EIS includes a discussion of impacts from GHGs on climate, and resulting environmental impacts of climate change.
011-G	9	We urge BLM to take the time to work with National Park Service modelers and EPA to address significant questions with the work supporting this DEIS.	Air Quality	Cooperating agencies	The recently signed Memorandum of Understanding (MOU, June 2011), between the Department of Agriculture, Department of the Interior, and the US EPA, identifies a standardized approach with which the BLM and NPS can use to address issues for this analysis.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
020-O	5	The DEIS does not consider the air quality impacts that might result from additional development inside of the project area boundaries in locations that are not under lease to Gasco. As Mr. Kreckel explains, these areas are no less geologically desirable than the other areas proposed for development in the project and it is l kely that they will be developed. Kreckel Comments. The DEIS should, therefore, evaluate those potential impacts.	Air Quality	Cumulative impacts	There are no proposed NEPA actions within the project area boundaries at this time, therefore potential impacts cannot be analyzed without details of proposed development.
023-I	4	Cumulative impact is not modeled in the DEIS since it ignores projects such as the Greater Chapitas Wells Natural Gas Infill Project which will contain more than 7,000 wells. EPA Region 8 sent scoping comment to the Vernal FO in 2009 with detailed comments on the potential air pollution impact of this project and listed numerous mitigation measurements.	Air Quality	Cumulative impacts	The cumulative impacts analysis contained in the DEIS was based on the Mineral Potential Report (MPR) prepared as part of the Vernal RMP which predated both the Greater Chapita Wells and Greater Natural Buttes Scoping Notices. The MPR provided estimates of well development, acres of current and future surface disturbances and other elements of oil and gas development. Air quality cumulative impacts analysis of the FEIS has been revised to include by reference the Greater Natural Buttes Supplement to the Draft EIS, which did analyze the cumulative impact based on RFD at the time the GNB analysis was conducted.
028-O	38	The DEIS Does Not Include a Comprehensive Regional Inventory for Use in Determining Cumulative Air Quality Impacts. The DEIS does not contain details of the reasonably foreseeable development sources in the inventory for the cumulative modeling analyses. In addition to a comprehensive inventory of oil and gas activities and other BLM-administered activities in the area, the BLM must inventory (and include in the technical support documents for public review) all pollutants from all other air pollution sources in the area as well as all sources expected to impact the same areas impacted by emissions from the Gasco development project as well as all reasonably foreseeable development projects. The reasonably foreseeable development projects inventory should include all sources recently permitted or which have recently submitted complete PSD permit applications but which are not yet operating, that will have an impact on the same areas impacted by the Gasco project. In addition, the BLM must include any emissions from NEPA projects in Utah and in other states that could be impacting the same area as the impacted area of the Gasco development project. The BLM must make sure that the projected growth in all of the adjacent planning	Air Quality	Cumulative impacts	The analysis in the DEIS included all Reasonable Foreseeable Development at the time the analysis was conducted. The Greater Natural Buttes Draft EIS cumulative analyses, which were conducted more recently than the Gasco analysis, included the Gasco project, as well as additional projects that were identified after the analysis for the Gasco project was performed. The GNB analysis included a comprehensive cumulative analysis and is referred to in this (Gasco) FEIS. (See Sections 4.2.1.1.1.1, 4.2.1.1.1.3, 4.2.1.2, 4.2.2.2, and 4.9.1.1.8.1). Ozone impacts will be addressed via the adaptive management plan for the Gasco project.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		areas, as a whole, will not have significant impacts on air quality in the region. The BLM also must consider the proposed emissions increases associated with project-specific EISs that will impact the same areas as the Gasco development project. According to the BLM Vernal District Manager, there are 25,000 wells under NEPA review.(See http://www.vernal.com/stories/Air-pollution-becoming-a-Basin-concern,692101) Specifically, the BLM must consider the Greater Natural Buttes oil and gas development project for 3,675 wells east of the Gasco development project, the nearby South Unit project and the Monument Butte project, as well as the Southam Canyon, Big Pack, and Riverbend Infill projects. In addition, the BLM must consider the Greater Deadman Bench Oil and Gas Producing Region (GDBR) EIS and Chapita Wells-Stagecoach Area Natural Gas Development EIS sources – both in the Vernal planning area. These two projects are proposed to add over 2,000 new wells to the area and the records of decision for these projects individually show near-exceedances of the 24-hour $PM_{2.5}$ NAAQS from just the pad and road construction sources. (FOOTNOTE: See Records of Decision for the EOG Resources, Inc. Chapita Wells - Stagecoach Area Natural Gas Development and the Questar Exploration & Production (QEP) Greater Deadman Bench Oil and Gas Producing Region (GDBR), March 2008.) When combined with predicted impacts from drilling and completion these projects will cause concentrations 2.5 times the 24-hour $PM_{2.5}$ NAAQS. A comprehensive cumulative analysis was not completed for either of the projects, nor was there an analysis of ozone impacts. In addition to these project-specific EISs, the BLM must consider all other existing and reasonably foreseeable development projects in the Vernal Field Office and other nearby field offices such as: Coastal's proposed development of the Ouray Field, North Hill Creek Field Development, modifications to the Antelope Creek Oil and Gas Field Expansion /Infill and Thermal Recovery Projects, Tabby Canyon Oil and Gas Field Development EA, Castle Peak and			

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Eight Mile Flat Oil and Gas Expansion Project EIS, West Brundage Canyon Oil and Gas Field Development EA, West Bonanza and Bonanza Area EAs, Resource Development Group EIS, Sowers Canyon Oil and Natural Gas EA, Love Unit EA, Riverbend Natural Gas Drilling Project EA, LCU/HCU/BPU EA, Gasco Development EIS, Monument Butte/Myton Bench EA, Wexpro Company EA Island Unit, Riverbend Natural Gas Drilling Project EA, North Alger Natural Gas Expansion Project, Tumbleweed Unit Exploratory Gas Well Development EA and Kings Canyon EA. The BLM must also include sources from the Moxa Arch (Kemmerer Field Office), Hiawatha (Rock Springs Field Office) and Continental Divide-Creston (Rawlins Field Office) oil and gas development project EISs in southwest Wyoming and the Roan Plateau (Colorado) RMP sources and projects in Moffat County, Colorado (Little Snake Field Office) such as the Vermillion Basin Project. The remaining development in any NEPA-approved projects in the area must also be included in the RFD inventory. The cumulative impacts from these projects along with all other projects in the area (including Gasco's proposed development) must be fully considered before the BLM takes final action on any further development. Page 4-322 of the DEIS includes a list of some of these projects indicating that the BLM may have considered some of the impacts from these projects in its analysis of reasonably foreseeable future actions, however, it appears that the majority of the projects identified above are not included as part of the Gasco DEIS analysis.			
011-G	3	We would also suggest that what is termed a "cumulative analysis" in the DEIS should include all emissions sources that impact AQRV in these national parks. Therefore, the cumulative analysis performed in this DEIS does not disclose cumulative impacts to natural resources from the multitude of sources actually impacting park resources. To address this issue the air quality analysis in the DEIS should add the measured deposition value (1.9 kgN/ha/yr) to the calculated	Air Quality	Cumulative impacts	The cumulative deposition tables in Section 5.18.1.1.1 of the DEIS add the nitrogen deposition values from each park to the measured deposition value of 1.8 kg/ha-yr as described in Section 3.2.3.3.1. The addition of 0.1 kg/ha-yr using the different averaging period would not appreciably change the results of the deposition analysis as applied to Class 1 areas analysis in the DEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		"cumulative" N deposition values for each park, and compare these totals to the most recent critical loads for impact to southwestern U.S. desert ecosystems.			
011-G	10	One editorial note for Appendix J is that what should be Table 1-1 is labeled 2-1. It should also list the appropriate units.	Air Quality	Editorial	The first table in Appendix J in the DEIS is correctly numbered as Table 1-1. Table 1-1 has been updated in the FEIS to include measurement units.
020-O	4	Every alternative analyzed in the Gasco DEIS would result in exceedances of federal air quality standards. For this reason the BLM may not approve the Gasco DEIS. The BLM must develop new alternatives that will not contribute to exceedances of federal air quality standards.	Air Quality	Emissions/dust	The air quality analysis did not indicate potential violations of the federal NAAQS, except for the possible exception of ozone.
020-O	7	The Gasco DEIS fails to evaluate the potential contributions of the activities it envisions on soil disturbance which leads to early snowmelt in nearby mountains when transported in wind storms. The problem of disturbed desert dust causing regional climate change and early snowmelt is discussed in numerous recent scientific articles. See, e.g., J.C. Neff et al., Increasing Eolian Dust Deposition in the Western United States Linked to Human Activity, Nature Geoscience 1, Advanced Online Publication, 189 (2008) (attached as Exhibit 4) (documenting how the dust on snow phenomenon is largely coincidental with increased settlement of the American West); Thomas H. Painter et al., Impact of Disturbed Desert Soils on Duration of Mountain Snow Cover, Geophysical Research Letters, vol. 34, L1202 (June 23, 2007) (attached as Exhibit 5) (describing how dust on snow leads to early snow melt); Thomas H. Painter et al., Response of Colorado River Runoff to Dust Radiative Forcing in Snow, Proceedings of the National Academy of Sciences of the United State of America (Sept. 20, 2010) (describing the extent of early snowmelt in the entire Upper Colorado River Basin) (attached as Exhibit 6). Recently, scientists estimated that disturbed desert soils traceable to settlement of the American West landing on mountain snowpack in the Upper Colorado River Basin was resulting in a	Air Quality	Emissions/dust	The effect of dust on mountain snow cover is an emerging research area that is too speculative to address in, and beyond the scope of, the Gasco EIS. Section 4.18.3.1.8 of the FEIS includes a discussion of impacts from GHGs on climate, and resulting environmental impacts of climate change.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		net loss of approximately 5% of the annual flow of the Colorado River as measured at Lees Ferry. See Painter et al., Response of Colorado River. It is likely that most of this dust on mountain snowpack is coming from nearby lands, where soil-disturbing activity makes lands susceptible to wind erosion; activities such as energy development serve to destabilize soils. See, e.g., Jayne Belnap et al., Dust in Low Elevation Lands: What Creates It and What Can We Do About It?, Presentation, Colorado River District Seminar, Grand Junction, Colorado (Sept. 18, 2009), http://www.crwcd.org/media/uploads/2009_09_18_Belnap_Seminar.pdf (attached as Exh bit 7).			
020-O	8	The BLM understands how to quantify dust generation for oil and gas construction activities. See, e.g., DEIS, App. H at 17-19. This methodology for inventorying dust generation should be applied to any activity that will cause fugitive dust (e.g.,vehicle travel on roads, pad clearing, exposed soils) in order to estimate total dust emissions. This information should then be disclosed for each alternative. The BLM may then qualitatively discuss its choices and their impacts on the dust on snow problem. Disclosing this information is a necessary step in the NEPA process. It also ensures that the public receives all the information necessary begin to understand these impacts.	Air Quality	Emissions/dust	The potential impacts of dust on near-field and far-field air quality are discussed, and emissions and impacts from developmental and operational traffic, construction activities, and reclamation activities are disclosed in Chapter 4, and in each Alternative emission inventory. The effect of dust on mountain snow cover is an emerging research area that is too speculative to address in, and beyond the scope of, the Gasco EIS.
020-O	24	The DEIS asserts that —[n]o data are available on the distr bution of dust that would be generated by roads as a result of the Proposed action.‖ DEIS at 4-246 to -247. To the contrary, BLM can and often does quantify particulate matter (dust) generated by travel on dirt roads during the drilling and production phases of development, as well as casual off-road vehicle use. See Williams comments. BLM must calculate the expected dust to be produced from the various alternatives and evaluate and analyze that information in this section of the DEIS.	Air Quality	Emissions/dust	See response to comment 020-O-8.
023-I	5	The situation with Uintah Basin atmospheric stability conditions was reported in the Dec 16 Salt	Air Quality	Emissions/dust	The air quality analysis contained in the DEIS did analyze far-field potential impacts from the Gasco project. See Appendix I (Far-Field Air Quality Technical Support Document).

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Lake City newspapers. This air pollution situation has been known for some times with little being done about it. You can go into Nine Mile Canyon in the winter and find restricted visibility conditions from the industrial traffic industrial activities in the Canyon and on the Plateau (photos by request). Under very stable conditions, the pollution from the Gasco Project will join West Tavaputs pollution flowing down to the Green River. This is because very strong inversions are “decoupled” from the atmospheric flow and the movement of the air close to the ground is controlled by the terrain. This is a special problem for Nine Mile Canyon because tons of particulates from the two projects will end up in the Canyon and deposit on the Indian rock art, some of which are sacred sites. The Nuclear Industry has been modeling particulate deposition since the 70's (technical report titles available by request) but the BLM refuses to do this for West Tavaputs Project impact on Nine Mile Canyon and will probably refuse to do this for the even greater cumulative impact from the Gasco Project.			
004-G	1	Duchesne County is concerned about the proposal to dispose of produced water by means of a large evaporation facility containing about 30 ponds on about 214 acres of BLM land in the northeasterly section of the project area. The two counties have been dealing with the impacts of sulfurous odors from such facilities in the past several years and we feel that caution should be exercised in the location of such a facility to ensure that it is placed as far away from populated areas as poss ble. The location depicted on Map 2 of the DEIS may not be the best in terms of proximity to populated areas.	Air Quality	Evaporation pond	Additional analysis and the inclusion of a reduced evaporation facility have been incorporated into Alternative F. Specifically; impacts on air quality from the evaporation facility have been modeled and disclosed. Additional disposal options are undergoing further research. No additional locations for the facility were suggested during scoping or public comments.
015-G	2	Uintah County is concerned with the proposed construction and development of up to 30 (450 x 650 foot), evaporation basins on BLM lands within a single facility covering approximately 214 acres. Uintah County and Duchesne County have been dealing with the impacts of sulfurous odors from such facilities for the past several years. Analysis fails to discuss air quality impacts of the 214 acres of evaporation ponds. This should be discussed	Air Quality	Evaporation pond	See response to comment 004-G-1.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		and disclosed in this analysis. As written, it is not possible to make a decision regarding the 214 acres of evaporation ponds for the lack of ability to compare it to other options. Additionally, there appears to be no discussion of other disposal options such as on-sight evaporation or other possible technologies. These should be analyzed and disclosed.			
032-G	1	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 potential impacts on HAP and ozone concentrations in the project area.	Air Quality	Evaporation pond	An emission inventory for the WEF was prepared based on representative samples of produced water at similar facilities in the Uinta Basin. Supplemental near-field modeling was conducted using the estimated emissions for BTEX and methanol. A control assumption for BTEX components of 60% was used for a controlled case model run. An uncontrolled case run was also performed to determine the potential effectiveness of emission/process controls in reducing HAP impacts from the WEF. The modeling of potential effects on ozone concentrations would be conducted under the ARMs modeling effort. (See Section 4.2.1.2.3 and Appendix H.)
028-O	4	The air analyses included in the DEIS are not a comprehensive assessment of the environmental and public health impacts resulting from an increase in air pollution in an area already heavily impacted by the adverse effects of increasing development. Without such an analysis, the BLM cannot know what the impacts of the activities proposed in the DEIS will be on air quality, human health and the natural environment or whether the BLM will prevent significant deterioration in air quality, as required by the Clean Air Act.	Air Quality	General	See response to comment 028-O-2 (located in the “Air Quality/applicant- committed measures-mitigation” section of this table). The models used for the air quality assessments included in this EIS were carefully developed by the BLM's National Air Quality Modelers and the BLM's third-party air quality experts. Furthermore, the protocols were reviewed and commented on by the Utah DAQ. The FEIS the BLM prepared evaluated the effects of all criteria pollutants and HAPs. The air quality analysis did not indicate potential violations of NAAQS except for the possible exception of ozone.
028-O	42	Project emissions of CO_2 equivalent clearly exceed the 25,000 ton per year threshold needed to require a quantitative and qualitative assessment of impacts, including consideration of mitigation measures. Therefore, this type of assessment should be included in the EIS for the Gasco development project.	Air Quality	GHG emission inventory	Additional GHG analysis has been provided in Chapters 3 and 4 and Appendix K.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	40	Quantify and disclose projected annual and total project lifetime cumulative GHG emissions in CO_2 -equivalent 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).	Air Quality	GHG emission inventory	Annual direct GHG emissions from the project, both for maximum development and maximum operational emissions, and for operations after full development has occurred are presented in terms of CO_2 equivalents. Total GHG emissions based on the life of the project cannot be forecast with confidence due to uncertainties associated with actual operational aspects, future regulations, process improvements, and other issues. Some general equivalent comparison values have been incorporated into the FEIS for comparison with the development and operational GHG emissions. (See Section 4.2.1.1.1.2, Greenhouse Gas Emissions.)
032-G	41	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.	Air Quality	GHG emission inventory	Estimating downstream indirect GHG emissions from activities such as refining and end use requires the incorporation of unsubstantiated assumptions based on a multitude of factors beyond the ability to reasonably foresee. Direct GHG emissions from the project have been disclosed. (See also response to comment 032-G- 40.)
032-G	42	Please describe any potential inconsistencies between the proposed action and any relevant Regional, Tr bal 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).	Air Quality	GHG emission inventory	BLM has not identified any inconsistencies between these policies and the Gasco project as proposed, nor from oil and gas development in general. These policies set broad GHG reduction goals to be achieved through a variety of proposed methods; however none include specific restrictions or mitigation requirements on oil and gas development projects.
032-G	43	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.	Air Quality	GHG emission inventory	A qualitative discussion of GHG, climate change and potential impacts on climate change has been incorporated into the FEIS. (See Section 4.18.3.1.8, Climate Change.)
028-O	32	The DEIS presents concentrations of acrolein that	Air Quality	HAPs	While predicted acrolein concentrations exceed the acute REL for every alternative, all

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		exceed both the acute reference exposure level (REL) and the reference concentration (RfC). DEIS Appendix H at 41. The BLM must include enforceable mitigation measures to ensure concentrations of all HAPs remain below appropriate health-based standards.			are below the acute exposure guideline level for mild effects. Predicted concentrations for Alternatives A, B, C, E and F also exceed the RfC for acrolein, but are all below the California EPA chronic REL (similar to the RfC). EPA's website documentation for the acrolein RfC indicates EPA has medium confidence in the RfC as it is based on medium quality data. Given that these concentrations do not trigger a regulatory response (i.e., mandatory mitigation and/or control), and the primary sources of acrolein associated with the project (compressors and the WEF generator) are not near any sensitive receptors or population centers in the project area, it is unlikely acrolein emissions are a significant air quality issue for this project. BLM is, however, concerned about worker exposure to acrolein, and would examine potential mitigation associated with these emissions. However, unless feas ble alternative water disposal methods are identified, it is unlikely effective mitigation for this pollutant will be identified.
028-O	40	The DEIS does not fully assess the potential VOC and hazardous air pollutant (HAP) emissions from the huge number of evaporation ponds that are part of the proposed development. The wastewater ponds associated with the proposed development are a potentially significant source of VOC/HAP emissions and the DEIS must fully disclose the potential impacts from this source.	Air Quality	HAPs	The HAP emissions from the proposed WEF for Alternative F have been analyzed and are presented in the FEIS. (See Section 4.2.1.2.4.6.)
028-O	41	As discussed in this section, the DEIS likely under-predicts air quality impacts from the Gasco development project. Many of issues—e.g., assumptions that are not made to be enforceable mitigation measures in the EIS and modeling that does not predict maximum impacts, etc.—also apply to the determination of hazardous air pollutant (HAP) impacts and, therefore, the DEIS likely underestimates HAP impacts as well. In addition, it appears that the DEIS assumes certain control efficiencies for HAP emissions that are not enforceable mitigation measures in the DEIS. Specifically, acrolein and formaldehyde emissions from compressor engines were assumed to be controlled by 85% and all other HAPs were assumed to be controlled by 50% via use of an oxidation catalyst. DEIS Appendix H at 38. In addition, HAP emissions from glycol dehydrator reboilers are assumed to be controlled by 95%. DEIS Appendix H at 38. The BLM must ensure that all potential sources of HAP emissions are included in the source inventory, that maximum impacts are modeled and that any control	Air Quality	HAPs	Any mitigation measures selected by the BLM Utah State Director would be attached to the ROD as Conditions of Approval. A complete list of measures that will be enforceable can be found in Table 2-1. The data from the modeling referred to in the comment were not intended for interpreting risk on a local level but rather on a large scale basis. From the EPA website: “EPA strongly cautions that these modeling results should not be used to draw conclusions about local concentrations or risk. The results are most meaningful when viewed at the state or national level.” Overall, on a national scale, benzene concentrations have been decreasing since the model was performed in 1996 (http://cfpub.epa.gov/eroe/index.cfm?fuseaction=detail.viewInd&lv=list.listByAlpha&r=231333&subtop=341). The more recent 2005 National-Scale Air Toxics Assessment conducted by EPA indicated that the project area is not at an elevated risk for Total Cancer Risk (http://www.epa.gov/ttn/atw/nata2005/05pdf/sum_results.pdf) Maximum HAP concentrations for the Gasco project as predicated by modeling were used to perform comparisons to individual acute RELs and RfCs. The analysis performed showed that the individual cancer risk from 1,3-butadiene and benzene were lower than the generally acceptable risk range of one additional cancer per one million exposed persons (1×10^{-6}) to one additional cancer per ten thousand exposed persons. Additionally, an evaluation of cancer risk for all project-related HAPS at the point of maximum impact was conducted for the Most Likely Exposed (MLE) and the Maximally Exposed Individual (MEI). The analysis showed that the risk was within the low end of the

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		technology assumptions used in the analysis are made enforceable in the final EIS. EPA's National Air Toxics Assessment (NATA) shows elevated levels of benzene and 1,3 butadiene in modeling for the year 1996 in Utah and, specifically, in the general area of the Gasco development.(U.S. Environmental Protection Agency, National Air Toxics Assessment, http://www.epa.gov/ttn/atw/nata/mapconc.html) Since oil and gas operations have grown significantly since that time, one could assume that the situation has only worsened. Under NEPA, the BLM must disclose the cumulative impacts of the proposed project. However, it is unclear whether cumulative HAP impacts were analyzed for this DEIS. It appears that most of the BLM's estimates are only for incremental risk associated with the project, and would be imposed on top of existing health risks. The BLM has an obligation under NEPA to fully consider the cumulative impacts of the project, including impacts from sources of HAPs.			acceptable risk range (see Table 4-26). The analysis of a cumulative risk assessment for HAPs is beyond the scope of this project, and would require the generation of background concentration values for HAPS, data which are not available at this time from the EPA or the UDEQ.
032-G	3	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 5 miles and 10 miles, respectively, from the proposed WEF.	Air Quality	HAPs	Supplemental near-field modeling for the BTEX and methanol emissions from the WEF was conducted, and results were compared to the applicable RfC, RELs and Utah TLVs. (See Section 4.2.1.2.4.6.)
032-G	34	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.	Air Quality	HAPs	See response to comment 032-G-32.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	35	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.	Air Quality	HAPs	The new assessment information concerning the acute REL for acrolein, formaldehyde and acetaldehyde has been incorporated into the FEIS.
028-O	43	In particular, the DEIS should include a quantitative assessment of the impacts from methane emissions from the proposed development and mitigation measures for reducing impacts from methane emissions. Oil and natural gas systems are the biggest contributor to methane emissions in the United States, accounting for over one quarter of all methane emissions. (U.S. Emissions Inventory 2007: Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005.) Methane is a potent GHG, roughly 20 times more powerful at warming the atmosphere than carbon dioxide by weight, and with a relatively short atmospheric lifetime of about 12 years. Methane, thus, is a prime contributor to short-term climate change over the next few decades. And, in fact, there are many proven technologies and practices already available to reduce significantly the methane emissions from oil and gas operations. These technologies also offer opportunities for significant cost-savings from recovered methane gas.	Air Quality	Methane	Methane emissions are included in the updated GHG analysis in Chapters 3 and 4 of the FEIS. A quantitative assessment of the direct impacts from methane emissions from the project is beyond the current technical level of models; however, a qualitative assessment has been incorporated into the FEIS. Additionally, newly proposed new source performance standards (NSPS) and maximum achievable control technology (MACT) standards for the oil and gas industry would regulate emissions from production activities, and specifically reduce methane emissions from well site stock tanks and well completion activities.
023-I	3	The air pollution modeling is invalid because of the wind rose it uses; it does not model the APE; it does not model cumulative impact; it does not model the significant stability conditions of the Basin, and the grid size is too large to model small canyons such as Nine Mile and its tributaries. The wind rose is from Canyonlands (Island in the Sky). The elevation and terrain there is nothing like the Gasco Project and results in a higher wind speed and a skewed wind direction. A more realistic wind rose is the one from the Price Airport which results in lower wind speeds across Nine Mile Canyon which “traps” the lower speed North winds which takes the pollution in Nine Mile and then into the Green River. The computer model used is not capable of modeling this situation. The EPA has screening models for canyons that would model	Air Quality	Methodology/Model	The meteorological data used in the Air Quality analysis were the best available data that were suitable for use in the model used for the analysis. The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), has been promulgated in the EPA Guideline on Air Quality Models to replace ISCST3 as the primary dispersion model for assessing near-field impacts (40 CFR Part 51 in 9 Nov 05,Vol 70 # 216 FR 68218-68261), and was therefore applied in this analysis.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		the pollution from Gasco area source as it flows into Nine Mile Canyon where it would join the pollution from the hundreds of daily industrial traffic from the West Tavaputs Project and the pollution from the West Tavaputs Plateau. The EPA website for this situation is at epa.gov/scarm001/. Roger W. Brode of the EPA Air Quality Modeling Group (C439-01) can be reached at brode.roger@epa.gov.			
032-G	22	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 l kely 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.	Air Quality	Methodology/Model	BLM acknowledges EPA concerns regarding the domain size used in modeling to date in the Uinta Basin, and generally agrees that finer resolutions produce more accurate modeling results. However this is predicated on the assumption that adequate monitoring data exist to validate the modeling results. At the time the photochemical modeling was conducted for Gasco, no ambient monitoring data were available for model validation. It is unlikely given the dearth of monitoring data that a 4-km nested domain would have produced substantially more accurate data. Additionally, the Uinta Basin Air Quality Study (UBAQS) 12-km domain modeling study cited by EPA as one of the recent studies to not use a 4-km domain has now been out long enough to evaluate its predictions based on ambient monitoring conducted recently in the Uinta Basin, and the modeling results appear to be holding up well. Summer ozone numbers recorded at the Ouray and Redwash monitoring sites have been within the acceptable margin of error of the modeling done for UBAQS. This provides some support that modeling on a 12-km grid size can produces accurate results in this area. Now that air monitoring data have become available beginning in 2009, finer resolution modeling may produce more accurate and useful results. BLM is pursuing a regional modeling study, which will use the better data, and will include the Gasco project.
032-G	36	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	Air Quality	Methodology/Model	As EPA notes visibility impacts from the Gasco project are predicted to be minor and not significant. There were no changes in vis bility that exceeded 1.0 deciview LAC on more than one day per year at any Class I area. Additional mitigation specific to vis bility impacts is therefore not warranted. It should be noted however that mitigation directed at ozone and particulate matter also reduces potential vis bility impacts (particularly related to nitrogen oxide emissions). The discrepancies between the visibility cumulative results are due to the refinement in the cumulative emission inventories used in the GNB analysis versus the Gasco analysis. The Gasco Far-field analysis was performed in 2008, and used the modeling protocols

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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 vis bility 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.			and emission inventories that were developed in 2008. The cumulative emission inventory for the Gasco EIS was based on foreseeable development based on known NEPA projects, and permitting information from the Utah and Colorado regulatory agencies. The GNB analysis was completed at a later date, and incorporated a larger number of known NEPA projects, as well as projections for sources based on the WRAP Phase III inventory. In short, the Gasco far-field analysis was based on the best available data at the time the analysis was performed. The "screening" level visibility impacts for this project were performed using Method 6.
011-G	1	Nitrogen deposition is also of concern and significant increases of nitrogen oxides can result in increased deposition in the parks. In order to determine whether nitrogen deposition from the proposed action and associated connected actions are of concern, BLM is encouraged to compare modeled deposition with deposition analysis thresholds (DATs) for this and future NEPA analyses. These thresholds are contained in the recently revised and published report by the Federal Land Managers Air Quality Related Values Work Group (FLAG 2010).	Air Quality	NO_X	BLM recognizes and acknowledges NPS concerns with nitrogen deposition impacts on native plant communities. The FEIS has been modified to clearly include the National Park Service's DAT to disclose these impacts and further inform the reader.
011-G	2	To calculate current background deposition we would suggest that using wet deposition (NADP) data from Canyonlands National Park, as was done in the DEIS to represent the current condition is reasonable, but that the current condition should also include dry deposition. In addition, because calculations incorporate precipitation differences from year to year, background deposition calculations should use an average of several recent years, rather than a single year. Using NADP wet deposition and CASTNet dry deposition data for Canyonlands, the most recent 5-year	Air Quality	NO_X	The Gasco DEIS used both wet and dry deposition from Canyonlands National Park to calculate total deposition (3.2.3.3.1). Wet deposition was averaged for years 1997 through 2004, while dry deposition was averaged for years 1995 through 2002. Total N deposition over this time period was calculated at 1.8 kg/ha-yr, which is very close to the value presented in the comment, which was presumably based on the most recent 5-year average (but was not defined in the comment).

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		average of total N deposition would be 1.9 kg/ha/yr, which we suggest is the current deposition value that should be used in this DEIS.			
011-G	4	Generally speaking, NPS is especially concerned about nitrogen deposition in the arid Southwest since recent research has shown negative effects on the biodiversity of native plant communities by stimulating non-native grasses that may outcompete the native biota. Recent research has established critical loads for other areas in the desert southwest as 3.0 kgN/ha/yr (all published U.S. critical loads science for nitrogen is reviewed in Pardo et al. 2010) and this is the best available data to use for places l ke Arches National Park and Dinosaur National Monument. Because ongoing oil and gas operations will likely threaten AQRV in this part of the Intermountain West, considering that current conditions are not far from exceeding critical loads, we would then encourage BLM to control emissions of nitrogen oxides to the extent possible for this and any future oil and gas development projects. A discussion of control options follows later in this letter.	Air Quality	NO_X	BLM recognizes and acknowledges NPS concerns with nitrogen deposition impacts on native plant communities. Additional mitigation proposed for the Gasco project to reduce ozone precursor emissions (primarily nitrogen oxides and volatile organic compounds) would have the added benefit of reducing nitrogen deposition levels associated with this project, although as presented in Table 4-39 significant adverse impacts to Class 1 areas from nitrogen deposition from the Gasco project are not anticipated under the Agency Preferred Alternative.
028-O	22	The BLM must complete an analysis of 1-hour NO_2 impacts following EPA's guidance prior to finalizing the EIS for the Gasco development project. Specifically, BLM must complete a dispersion modeling analysis using an EPA-preferred model and five years of National Weather Service meteorological data. When determining compliance with the 1-hour NAAQS, the BLM should add the overall highest hourly representative background concentration to the modeled design value that is based on the form of the standard (i.e., the 98th percentile of the annual distribution of daily maximum 1-hour concentrations averaged across the number of years modeled). Using a background concentration that only represents the 98th percentile value is not protective of the NAAQS.39 In the absence of background monitoring data the BLM should work with EPA and UDAQ to define a representative maximum hourly value.	Air Quality	NO_X	The 1-hour NO_2 background value has been updated using monitored data from the Uinta Basin. Additionally, the FEIS incorporates the analysis of 1-hour NO_2 from drilling activities from the GNB SDEIS by reference, and has also incorporated additional 1-hour NO_2 modeling completed for the WEF, and additional modeling for 1-hour NO_2 impacts completed for well site production equipment. (See Section 4.2.1.2.1.1.) As discussed in Section 4.2.1.1.1.1, results from the GNB SDEIS (and incorporated by reference in this FEIS) showed that emissions from drill rigs operating on well pads in close proximity to each other (40-acre spacing) could cause an exceedance of the 1-hour NO_X standard. However, based on the expected spacing of the well pads for the Gasco project (160-acre spacing under Alternative F), and the short duration that drill rigs would be located at one well pad, it is anticipated that the 1-hour NO_X standard would be met. Additional mitigation measures have been incorporated into the FEIS to address potential 1-hour NO_2 impacts from drilling activities (see Table 2-1). See also response to comment O32-G 2.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	2	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.	Air Quality	NO_X	1-hour NO_2 impacts have been analyzed for the FEIS. For temporary sources that would be located at a specific location for a short duration (i.e., less than a year), it can be anticipated that for a standard which is based on a 3-year average of the annual averages of a parameter, the impact from a temporary source would not noticeable when compared against a long-term standard. See also response to comment O28-O 22.
032-G	23	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. 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.	Air Quality	NO_X	See response to comment 032-G-2 and 028-O 22.
033-I	4	There is no room for growth in emissions that contribute to the already harmful levels of ozone pollution in the area - namely, nitrogen oxides (NOx) and volatile organic compounds (VOCs). Yet, all of the alternatives considered in the DEIS allowed for	Air Quality	NOx	The air quality analysis did not indicate potential violations of the federal NAAQS, except for the possible exception of ozone. As noted in response to comment 032-4, BLM does not currently have further information that could be provided beyond that contained in the FEIS that would more fully consider the potential impacts to wintertime ozone. The BLM would require Gasco to adhere to the proposed adaptive management strategy

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		increases in ozone precursor emissions. Specifically, for the preferred alternative BLM proposed to allow the Gasco development project to add over 1,900 tons per year of NOx emissions and over 1,700 tons per year of VOC emissions to the region. Even Alternative B, a reduced development scenario, proposed to allow almost 1,500 tons per year of NOx emissions and almost 1,300 tons per year of VOC emissions. All of the alternatives fall short of establishing enforceable mitigation measures that will ensure that there are no violations of the applicable state and federal requirements (e.g., compliance with the NAAQS for ozone). Any increase in emissions of ozone precursors will exacerbate the negative health effects of ozone in the region. For the final EIS, BLM must establish specific and enforceable stipulations to control wintertime emissions of ozone precursors that include state-of-the art mitigation measures and that ensure that NOx and VOC emissions will not contribute to further exceedances of the ozone NAAQS in the area. In order to protect human health and to fulfill its responsibility under FLPMA to provide for compliance with the ozone standard, the BLM must ensure that ozone precursor emissions do not increase further and instead make a plan within the EIS to keep ozone below harmful levels.			plan, which would require Gasco and other operators to enact measures designed to protect air quality in the area. Based on model results and/or monitored ozone events, the Adaptive Management Strategy will include the BLM enacting an ozone action plan to address ozone issues. In addition to the adaptive management strategy plan, the alternatives include several salient environmental protection measures and mitigation measures that are specific to reduce air quality effects. See response to comment 028-02 (located under “Air Quality/Applicant-committed Measures” section of this table). Any mitigation measures selected by the BLM Utah State Director would be attached to the ROD as Conditions of Approval.
011-G	5	Recent monitoring in the Uinta Basin has raised questions about ozone conditions that likely exceed current NAAQS not to mention standards that the EPA will revise in the near future. In fact in Appendix J, Figure 5-7 clearly shows that future peak estimated ozone concentrations in the Uinta Basin are high, with most of the region exceeding the current 75 ppb standard and no portion of the Basin falling below 70 parts per billion (Ppb). Project-specific ozone precursors of approximately 2000 tons per year of nitrogen oxides and 10,000 tons per year of volatile organic compounds (Table 1-1) are not insignificant, and would likely exacerbate the problem of already elevated concentrations. This would suggest controlling ozone precursors to the extent possible to not further exacerbate the problem.	Air Quality	Ozone	For ozone impacts, the BLM would require Gasco to adhere to the proposed adaptive management plan, which will require Gasco and other operators to enact measures which are designed to protect air quality in the area.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
011-G	6	There seems to be an issue with the photochemical modeling as there is a significant difference in simulated ozone concentrations between this study and the results shown in the Uinta Basin Air Quality Study (UBAQS) report. For example, the "relative reduction factor" (RRF), which indicates how the modeled ozone responds to future emissions scenarios, is estimated to be 0.80 at Murphy Ridge, Utah for the Proposed Action, representing a 20% reduction in estimated future ozone at this site while Tables 4-23 and 4-24 of the UBAQS report show essentially unchanged future ozone concentration with an RRF of 1.01 at the same location. Although different base and future years are considered here and in UBAQS, it Is not clear that this fact alone would explain the discrepancy suggesting that ozone modeled in this analysis may be on the low side.	Air Quality	Ozone	The BLM, in association with other stakeholders, is undertaking additional regional modeling that will incorporate more locally monitored data and updated emission inventories. It is hoped that the refinements in the new modeling will more accurately reflect expected ozone concentrations in the Uinta Basin, with the exception of the "cold pool" ozone formation events.
011-G	7	Further, the Community Multi-scale Air Quality model (CMAQ) has been updated to limit excessive vertical transport, which can have a large influence during the spring when upper-level high ozone concentrations are mixed to the surface. Given the timing of this work, it is presumed that this analysis employed an older version of CMAQ without this correction. Therefore, more weight should be given to the ozone season results rather than annual ones.	Air Quality	Ozone	Given the recent high readings of ozone in excess of the NAAQS that have been monitored in the Uinta Basin and project area, additional requirements such as the Adaptive Management Strategy have been incorporated into the requirements for Gasco and other operators in the Uinta Basin.
011-G	8	Finally, the authors of the DEIS note that the monitoring sites used for this work are far removed from the proposed development, and it is unlikely they characterize zone dynamics within the region. This would certainly suggest the need to deploy additional ozone monitors within the Uinta Basin, perhaps as a part of this development project.	Air Quality	Ozone	Additional monitors have been deployed by various organizations in an effort to more fully document the ozone dynamics within the Uinta Basin.
011-G	12	It would seem that adopting more of an evolving approach would be more effective in ensuring that ozone concentrations would not increase as a result of this project. For example, using the most current and cleanest engines as they come available would reduce emissions as time goes on. In other words instead of Tier II or better which	Air Quality	Ozone	The Adaptive Management Strategy that Gasco would be required to adhere to would address BMPs for ozone reduction. Based on model results and/or monitored ozone events, the Adaptive Management Strategy would include BLM enacting an ozone action plan to address ozone issues.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		suggests that Tier II could be used throughout the life of the project we would recommend starting with Tier III which are available now and converting to Tier IV engines once they come out. It would also be effective in reducing precursor emissions to lessen the number of trucks going to each well during operation through measures like piping water and condensate. These measures would also lessen possible nitrogen disposition while lessening truck traffic would also help with reducing dust and possible visibility impairment.			
011-G	13	You suggest an adaptive management approach to addressing the ozone standards that will soon be lowered. We hope that includes a remodeling of ozone as soon as possible after the new standards are final to assess a variety of control scenarios to minimize ozone precursors.	Air Quality	Ozone	The Adaptive Management Strategy plan has been incorporated into the FEIS; however, no additional ozone model has been done for specifically for this project.
013-B	16	The results of any further project-level ozone analysis would not provide any new substantive information that would further inform BLM decision-making through the NEPA process. The EPA has not established a project specific emission-level threshold above which ozone impacts would be considered significant. There are no legal requirements under the CAA providing guidance concerning incremental ozone impacts. Without criteria by which to assess ozone impacts, the project-specific analysis advocated by SUWA would not provide BLM, nor the general public, with any useable information for evaluating potential impacts through the NEPA process.	Air Quality	Ozone	Comment noted.
013-B	17	Based upon what BLM, EPA and industry learned from Wyoming, winter ozone inversions are created when three meteorological conditions are present: (1) extensive snow cover; (2) temperature inversions; and, (3) strong sunlight. In fact, between January and March 2010, when the winter ozone inversions were recorded, these three factors were all present in the Uintah Basin. Moreover, analyses performed in Wyoming indicate that oil and gas related emission controls may not even be a factor in reducing potential	Air Quality	Ozone	Comment noted.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		ozone formation. This scientific reality is underscored further by the recognition that emissions from oil and gas operations may not even play a role in contributing to winter ozone formation. Given the variability of conditions that lead to winter ozone inversions, it is not appropriate to conduct additional air modeling for the Gasco project. At present, no air model exists that can accurately model or otherwise predict winter ozone inversions.			
014-O	4	We expect that state of the art Best Management Practices for ozone reduction be implemented.	Air Quality	Ozone	See response to comment 011-G-12.
018-O	3	Winter ozone levels have been acknowledged in the DEIS, but not adequately addressed. There is nothing in the draft that anticipates future winter ozone levels, or contemplates a strategy for mitigating unhealthy air.	Air Quality	Ozone	See response to comment 011-G-12.
028-O	7	Recent data from ozone monitors in the region indicate that ozone levels are exceeding the NAAQS by a considerable margin.(While these data were collected at monitors that technically cannot be used to determine NAAQS compliance they are Federal Equivalent Method monitors and the data are considered “viable and representative of the area” DEIS at 3-13,) In 2010, the maximum recorded value at the newly established monitors in Ouray and Redwash was 123 parts per billion (ppb), or over 150% of the current NAAQS. The 4th highest maximum 8-hour average ozone concentration at these monitors in 2010 was 116 ppb, with a full 68 days recording 8- hour average concentrations of 75 ppb or greater and 135 days recording 8-hour average concentrations of 60 ppb or greater.(EPA Air Explorer, 2010. http://www.epa.gov/airexplorer/). According to the DEIS: “Based on the emission inventories developed for Uintah County, the likely dominant source of ozone precursors at the Ouray and Redwash monitoring sites are oil and gas operations near the monitors. The monitors are located in remote areas where impacts from other human activities are unl kely to	Air Quality	Ozone	See response to comment 011-G-12.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		be significantly contr buting to this ozone formation. Although ozone precursors can be transported large distances, the meteorological conditions under which this cold pool ozone formation is occurring tend to preclude any significant transport. Currently, ozone exceedances in this area are confined to the winter months during periods of intense surface inversions and low mixing heights." DEIS at 3- 13. The DEIS points out that the monitor in Dinosaur National Monument has not recorded any exceedances of the NAAQS, however, this monitor does not operate in winter and therefore cannot detect wintertime ozone concentrations. DEIS at 3-13.			

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
028-O	8	Low grid resolution used in the Uinta Basin Air Quality Study (UBAQS) make it an unreliable indicator of background concentrations in the area.(FOOTNOTE: See EPA Scoping Comments on the Greater Chapita Wells Natural Gas Infill Project Environmental Impact Statement, Uintah County, Utah, October 16, 2009) Even so, the predictions from UBAQS show that the project area is likely to exceed the current ozone NAAQS and the proposed lower NAAQS for the 2012 modeling scenario (see Figures 3-3 and 3-4 on pages 3-15 and 3-16 of the DEIS). There is no room for growth in emissions that contribute to these harmful levels of ozone pollution in the area - namely, nitrogen oxides (NOx) and volatile organic compounds (VOCs). Yet, in the preferred alternative BLM is proposing to allow the Gasco development project to add over 1,900 tons per year of NOx emissions and over 1,700 tons per year of VOC emissions. See Table 2-1 on page 2 of the DEIS Appendix H. Even Alternative B proposes to allow almost 1,500 tons per year of NOx emissions and almost 1,300 tons per year of VOC emissions. See Table 2-2 on page 2 of the DEIS Appendix H. Alternative E proposes to allow more NOx and VOC emissions than either Alternative A or B with NOx emissions totaling over 2,200 tons per year and VOC emissions over 1,300 tons per year from well development and project production. See Table 2-5 on page 2 of the DEIS Appendix H.	Air Quality	Ozone	Additional regional modeling being performed by the BLM will be incorporating a more refined grid. The Adaptive Management Strategy to which Gasco would be required to adhere would address BMPs for ozone reduction. Based on model results and/or monitored ozone events, the Adaptive Management Strategy would include BLM enacting an ozone action plan to address ozone issues.
028-O	9	Any increase in emissions of ozone precursors will exacerbate the negative health effects of ozone in the region and is almost certain to threaten the area's compliance with EPA's forthcoming revised ozone standard. The BLM must establish strict and enforceable, state-of-the-art mitigation measures that essentially do not allow for growth in NOx and VOC emissions in the area in order to protect human health and to avoid violations of the ozone NAAQS. In order to protect human health and to fulfill its responsibility to provide for compliance with the ozone standard in this DEIS, the BLM must ensure that this value does not increase further and instead make a plan within this DEIS to	Air Quality	Ozone	See response to comment 011-G-12.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		keep ozone below harmful levels. The BLM should fully consider the CASAC recommendations when evaluating the human health impacts from ozone concentrations in the region.			
028-O	23	It is critical that the DEIS disclose the maximum incremental ozone concentrations at all modeled locations (not just at locations with monitors). The DEIS presents the incremental ozone concentrations from the proposed project as 0.6 ppb without the Applicant-committed Environmental Protection Measures (ACEPM) and 0.4 ppb with the ACEPMs. DEIS at 4-353. Yet, the ozone impact analysis assessment in Appendix J of the DEIS reports maximum increases in unmonitored areas of 1.9 ppb without ACEPMs and 1.3 ppb with ACEPMs. DEIS Appendix J at 36. The DEIS should make it very clear what the maximum incremental impact will be at all modeled receptors.	Air Quality	Ozone	The DEIS used the EPA recommended relative non-monitored area analysis methodology in reporting incremental ozone concentrations and reductions due to Applicant-committed Measures. The relative approach does calculate incremental ozone concentrations at modeled locations, not just monitor locations, and no modeled locations were estimated to exceed 75 ppb. The more uncertain absolute impact approach was also analyzed and the results presented in Appendix J, Section 5.3., which are the increment numbers referenced in the comment. Under the absolute approach, no area was also calculated to exceed 75 ppb.
028-O	24	Given the likelihood that modeled concentrations may, in fact, under-predict ozone impacts (especially in winter) and the fact that there have been undeniable and significant recent ozone exceedances in the area, the DEIS must contain enforceable VOC and NOx mitigation measures that ensure modeled ozone concentrations (using a more fine resolution grid of 4 km) do not have any incremental impact on ozone concentrations at all modeled receptors in the basin.	Air Quality	Ozone	See response to comment 011-G-12.
028-O	25	The applicant-committed mitigation options listed in the DEIS (DEIS at 4-354) do not represent the best available control measures and are not sufficient to ensure protection of the ozone NAAQS. At a minimum, the best available control technologies (BACT) and practices should be applied to sources of NOx and VOC emissions with the goal of zero impact on ozone concentrations throughout the basin. The BLM has established air quality Best Management Practices (BMP) for oil and gas development that should be used as a starting point for establishing enforceable mitigation measures for NOx and VOC sources.41	Air Quality	Ozone	See response to comment 011-G-12.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	4	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.	Air Quality	Ozone	BLM does not have further information that could be provided beyond that contained in the DEIS that would more fully consider the potential impacts to wintertime ozone. Much more is not known than is known on this phenomenon. It is not understood how ozone forms under "cold-pool" inversions typical of winter ozone, it is not understood whether nitrogen oxides or volatile organic compounds are the limiting pollutant in winter ozone formation, information does not exist which adequately characterizes emission characteristics and emission rates during these winter episodes, nor is there any acceptable way to apply photochemical modeling to understand and predict winter ozone formation. It is possible to speculate on these issues; however, that is not scientifically defensible or valuable for decision-making in a NEPA context. BLM is eager to work with EPA to improve this area of resource analysis and management, and would look to specific suggestions or guidance on how this might be accomplished. See also response to comment 032-G-22. (located in the "Air Quality/Methodology-model" section of this table)
032-G	19	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.	Air Quality	Ozone	Because it is necessary to incorporate regional emissions and consider cumulative sources when modeling for potential ozone impacts from any project, it is appropriate to characterize a direct project impact as part of a Far-field Cumulative Impact. Due to the complexity of the model, the inclusion of regional emissions is required to accurately model ozone value.
032-G	21	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.	Air Quality	Ozone	See response to comments 028-O-23 and 032-G-4, as well as 032-G-22 (located in the "Air Quality/Methodology-model" section of this table).
033-I	1	In 2011, as in 2010, monitors in the Uinta Basin recorded extremely high levels of ozone with twenty-	Air Quality	Ozone	The air quality analysis did not indicate potential violations of NAAQS except for the possible exception of ozone. For ozone impacts, the BLM will require Gasco to adhere to

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		four days between January and March 2011 monitoring 8-hour average concentrations above the National Ambient Air Quality Standard (NAAQS). The BLM is required to ensure that its land use authorizations comply with federal air quality standards. See 43 USC Section 1712 and 43 CFR Section 2920.7. It is vital that BLM follow this mandate, given the high, and unhealthy, levels of ozone and particulate matter pollution that have been observed in the Uinta Basin. As presently proposed and in light of elevated pollution levels in the Uinta Basin, the authorization of the Gasco project would not comply with federal air quality standards and, in fact, will push the Basin further away from compliance with certain federal air quality standards. In general, all alternative scenarios evaluated in the DEIS were shown to violate at least one, if not several of the air quality standards laid out by the Clean Air Act (CAA). These standards are federal standards that the Federal Land Policy and Management Act. (FLPMA) requires BLM to comply with in its authorizations. Even Alternatives B and E, the reduced development alternatives, were shown to result in adverse impacts to air quality and air quality related values.			the proposed adaptive management plan, which will require Gasco and other operators to enact measures which are designed to protect air quality in the area. Based on model results and/or monitored ozone events, the Adaptive Management Strategy will include the BLM enacting an ozone action plan to address ozone issues.
033-I	3	Specifically, the DEIS and associated support documents reported exceedances of the Prevention of Significant Deterioration (PSD) increments for PM_{10}, the potential to contribute to exceedances of the NAAQS for ozone and numerous vis bility impacts. Yet, the modeling did not fully evaluate air quality impacts and did not fully disclose the maximum potential impacts from the proposed development and understated background concentrations of wintertime air quality in the area meaning that the adverse air quality impacts would likely be much worse, in reality, than what was shown in this DEIS.	Air Quality	Ozone	The analysis does show that existing air quality, with the exception of ozone, will meet the NAAQS. For ozone impacts, the BLM will require Gasco to adhere to the proposed adaptive management plan, which will require Gasco and other operators to enact measures designed to protect air quality in the area. Based on model results and/or monitored ozone events, the Adaptive Management Strategy will include the BLM enacting an ozone action plan to address ozone issues.
033-I	5	The BLM should also fully consider the Clean Air Scientific Advisory Committee recommendations for an 8-hour standard between 60-70 parts per billion when evaluating the human health impacts from ozone concentrations in the region.6	Air Quality	Ozone	The EPA is the regulatory authority for air quality standards, under authority of the Clean Air Act. As such, the analysis contained in the EIS uses the EPA-defined NAAQS as the standard against which impacts to ozone are measured. However, as noted in Chapter 3 of the DEIS, the EIS acknowledges that the EPA is also reviewing the recently lowered ozone standard, and may lower the standard again to between 0.060 and 0.075 ppm

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					For ozone impacts, the BLM would require Gasco to adhere to the proposed adaptive management plan, which would require Gasco and other operators to enact measures which are designed to protect air quality in the area as defined by the most current NAAQS.
028-O	10	The DEIS only uses the lower, summertime average, to demonstrate compliance with the short-term NAAQS and in fact downplays the high levels of background concentrations observed in the area by saying: "$PM_{2.5}$ at this time does not appear to be an issue in rural areas of the Uinta Basin, though concentrations in urban settings have been recorded above the NAAQS during winter inversion events. This is not an unusual occurrence, even in smaller rural communities, and is typically due to a combination of woodstoves and vehicle emissions (especially diesel)." DEIS at 3-17. The above statement serves to imply that current oil and gas activity in the Uinta Basin does not impact background $PM_{2.5}$ concentrations during wintertime inversion episodes when, in fact, it is quite poss ble that oil and gas sources do contribute to these high levels. Speciation studies completed on samples collected in 2009 in Vernal and Roosevelt found that the sources that contribute to the high Vernal and Roosevelt concentrations (organic and elemental carbon sources) are different than those seen in the urban areas of the Wasatch Front (mostly ammonium nitrate from combustion sources (NOx)). (See September 3, 2009 letter from EPA Region 8 to David Garbett, SUWA, Re $PM_{2.5}$ Monitor in Vernal, Utah (Attached)) And while the Uinta Basin concentrations were determined to have a large fraction of carbon, it is unknown how much of this comes from woodsmoke (elemental) versus other (organic) sources (e.g., VOC emissions from oil and gas, etc.). In fact, the speciation studies were inconclusive in determining the ratio of elemental carbon to organic carbon and therefore it is not possible to determine the specific types of sources contributing to the high values in the area. One thing that can be said is that the speciation studies did not provide evidence that the $PM_{2.5}$	Air Quality	$PM_{2.5}$ /PM_{10}	A revised $PM_{2.5}$ background concentration based on monitored data in the Uinta Basin has been incorporated into the analysis. The analysis indicates that $PM_{2.5}$ impacts are projected to remain below the NAAQS. The BLM agrees that full speciation of $PM_{2.5}$ must be conducted to conclusively identify components of ambient $PM_{2.5}$ in the project area. There has, however, been speciation of PM from the monitoring that has occurred in city of Vernal, and ambient $PM_{2.5}$ monitoring has occurred at the Redwash monitoring site. Taken together, these data clearly support the hypothesis that elevated concentrations of $PM_{2.5}$ measured to date in the Uinta Basin are primarily associated with emissions typical of rural communities in winter, and that ambient $PM_{2.5}$ concentrations in the immediate project area that could reasonably be associated with oil and gas activities are not causing ambient $PM_{2.5}$ concentrations at levels approaching or exceeding the NAAQS. This is not a speculative opinion, but is based on actual speciation and monitoring that has occurred in the Uinta Basin.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		concentrations were due to something other than oil and gas sources.			
028-O	11	The BLM must assess the impact of $PM_{2.5}$ concentrations from project sources and other sources in the area on NAAQS compliance in Vernal and Roosevelt, using appropriate background concentrations for those areas. Alternatively, the BLM must be able to demonstrate that $PM_{2.5}$ impacts from the proposed project development do not contribute to $PM_{2.5}$ exceedances in Vernal and Roosevelt.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10.
028-O	12	It is poss ble that the high concentrations of $PM_{2.5}$ recorded at the Vernal and Roosevelt monitors are due in large part to the secondary formation of $PM_{2.5}$ (e.g., sulfates and nitrates), as opposed to directly emitted [primary] PM (e.g., road dust and wood smoke). The high values occurred during the wintertime and are associated with inversions that limit dispersion and provide conditions (e.g., high relative humidity) that contribute to the formation of secondary $PM_{2.5}$ in the atmosphere. Since it is possible that the monitored high values in Vernal and Roosevelt are due to gaseous pollutants that form fine particles after reacting with other compounds in the air during wintertime inversions then it would be very important for the BLM to consider these wintertime $PM_{2.5}$ background concentrations in its air quality impact assessment. The DEIS and supporting documents do not account for secondary formation of $PM_{2.5}$, but must do so.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10.The CalPuff model estimates the formation of secondary ammonium sulfate and ammonium nitrate particles, which are used by the post-processing programs to estimate visibility and deposition impacts. Estimates of $PM_{2.5}$ formation from the project were included in the BLM's modeling analyses and are disclosed in Chapter 4 and Appendix I.
028-O	13	Additionally, the meteorological conditions that contribute to the high levels of $PM_{2.5}$ concentrations (and ozone concentrations) in the basin in the winter are of a regional nature. Therefore, as long as the project location is within the topographical basin where these inversions occur then the inversions in the basin will impact emissions from the project in the same way that the inversion affects emissions near the Vernal and Roosevelt monitors and high wintertime $PM_{2.5}$ concentrations near the project development area	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		can be expected. And since the modeling performed for the DEIS does not simulate these wintertime inversion events it is even more critical that the BLM use a background concentration that reflects the higher concentrations of $PM_{2.5}$ seen during these wintertime inversion events.			
028-O	14	Poor performance evaluation results from the UBAQS make it an unreliable indicator of background concentrations in the area. The model was unable to predict the high $PM_{2.5}$ events in Vernal and Roosevelt and under predicted concentrations throughout the study area.21 In fact, the DEIS indicates that the "winter inversion episodes were not modeled; therefore, the high concentrations monitored in Vernal and Roosevelt would not have been captured by [the UBAQS] study either".22 The DEIS states that "[t]he modeling analyses generally predicted $PM_{2.5}$ concentrations below the NAAQS across the Uinta Basin, which is consistent with the limited monitoring data currently available". DEIS at 3-16. Due to its poor ability to predict $PM_{2.5}$ concentrations, the UBAQS modeling results should not be used in support of lower background concentrations for $PM_{2.5}$.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10.
028-O	15	The BLM has an obligation, under NEPA, to evaluate all potential health effects from exposure to increased pollution under the various alternatives of this DEIS. The fact that the EPA has set the $PM_{2.5}$ standards at levels that CASAC asserts is not adequate to protect human health should not limit the BLM to using only EPA's standards. The BLM must assure adequate protection of human health from exposure to $PM_{2.5}$ in the area and could certainly use the CASAC recommendations as a guide for achieving this protection.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10
028-O	16	Since exceedances of the short-term $PM_{2.5}$ NAAQS have already been observed in the Uinta basin it is imperative that the BLM not allow for growth in the basin that will result in significant $PM_{2.5}$ emissions. Major sources of $PM_{2.5}$ include	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		products of combustion (e.g., from compressor engines and drill rig engines used during natural gas development) as well as travel on unpaved roads and fugitive dust from construction activities during well development.			
028-O	17	The Gasco development certainly has the potential to contribute to future violations of the short-term and annual $PM_{2.5}$ NAAQS, depending on where and when the proposed growth in emissions occurs. It is not impossible to find PM emissions from small oil and gas development projects that threaten violation of the NAAQS. The Chapita Wells - Stagecoach and Greater Deadman Bench oil and gas development projects, also in the Vernal Planning Area, predicted 24-hour $PM_{2.5}$ concentrations from pad and road construction sources - when added to a background concentration of 25 $\mu g/m^3$ - of 31.9 $\mu g/m^3$ and 35.0 $\mu g/m^3$, respectively.27 The Kerr-McGee Bonanza Project in the Vernal Field Office for 95 oil and gas wells predicted 24-hour PM_{10} concentrations well above the PM_{10} NAAQS.28 These are just a few examples.29 It is important to note that each of these projects, considered in isolation, is predicted to threaten compliance with the PM NAAQS. The cumulative impacts of these projects could certainly have an even greater impact on the area's compliance with the NAAQS, depending on where and when the various project emissions occur within the basin. If the BLM is going to allow for continued growth in oil and gas development in the area it must also establish strict and enforceable measures to control $PM_{2.5}$ emissions (and their precursors) from these sources so that the area will be in attainment of all PM standards.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10.
028-O	26	The DEIS reports that PM_{10} concentrations from modeled project operations are right at the level of the 24-hour average NAAQS (99.7% of the standard). DEIS at 4-13. This leaves no room for any uncertainty in the analysis. For the near-field analysis, the BLM erroneously assumes that development and operation activities will not occur	Air Quality	$PM_{2.5}$ /PM_{10}	Based on the revised background data incorporated into the analysis, potential PM_{10} and $PM_{2.5}$ impacts as analyzed are anticipated to remain in compliance with the NAAQS. The analysis performed does assume that concurrent development and operation activities will occur simultaneously. This is a reasonable assumption for the near-field analysis. The far-field analysis, for the purposes of conservatively analyzing far-field impacts, did assume the possibility of simultaneous activities.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		simultaneously. However, during development it is virtually certain that a well pad will be constructed in one location and at the same time, nearby, another well pad will be completed while drilling occurs at yet another (already constructed) well pad and all of these potential emissions could very well occur over the course of a day. If this is not the case then the BLM must ensure by enforceable means that these activities will not occur in parallel. If these activities do occur at the same time the combined impacts are almost certain to exceed the 24-hour PM_{10} NAAQS.43 In fact, the BLM assumes that these activities do occur at the same time for the far-field analysis. The BLM must address the potential for near-field 24-hour PM_{10} NAAQS exceedances from concurrent development and operation in the DEIS or, alternatively, ensure through enforceable measures that development and operations activities will not occur simultaneously on any given day. Similarly, the DEIS predicts $PM_{2.5}$ concentrations for development and operations separately with the possibility that any parallel development would result in exceedances of the annual and/or 24-hour $PM_{2.5}$ NAAQS. On an annual basis, it is especially important to consider the potential for concurrent development and operations activities. Given that the predicted annual average $PM_{2.5}$ concentrations are close to the NAAQS for operation and development, when considered separately, it is certain that impacts from these activities occurring in an overlapping scenario anytime during the year would result in exceedances of the annual standard. Annual average $PM_{2.5}$ concentrations are 92% and 87% of the NAAQS for development and operation activities, respectively. DEIS at 4-8 and 4-13.			The developmental impact analysis conservatively assumed that well pad and access road construction, drilling, and completion activities would occur simultaneously. No violation of NAAQS was predicted under these modeling scenarios.
028-O	27	The BLM has not met its basic obligation in an EIS 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 CFR 1502.1 and 1508.27(b)(2). It is l kely that annual	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-26.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		average $PM_{2.5}$ concentrations from development and operations activities, combined, may exceed the NAAQS but even considered individually, the impacts at 13.0 µg/m^3 (operations) and 13.8 µg/m^3 (development) could be considered to have a significant impact on public health since the CASAC clearly established that there are known health effects from exposure to annual average $PM_{2.5}$ concentrations as low as 13 µg/m^3.44			
028-O	33	The background concentrations of $PM_{2.5}$ used in the modeling for the DEIS do not account for wintertime inversion episodes. Using more-representative background concentrations for $PM_{2.5}$ that better represent the wintertime meteorology in the basin would almost certainly result in modeled exceedances of the 24-hour $PM_{2.5}$ NAAQS from project sources alone and when considering cumulative impacts.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-10.
028-O	34	According to recent guidance from EPA, demonstrating compliance with the 24-hour PM2.5 NAAQS requires the use of the average of the 1st highest modeled 24-hour average concentration over the five meteorological years modeled to be added to the 98th percentile monitored value.48 Contrary to this guidance, the DEIS uses the 98th percentile modeled concentration (i.e., the highest 8th high value) added to the 98th percentile monitored concentration to determine compliance with the NAAQS.49 According to EPA, "[c]ombining the 98th percentile monitored value with the 98th percentile modeled concentrations for a cumulative impact assessment would result in a value that is below the 98th percentile of the combined cumulative distr bution and would therefore not be protective of the NAAQS".50 The BLM must demonstrate compliance with the 24-hour average PM2.5 NAAQS using the average of the 1st highest 24-hour average concentration over the five meteorological years modeled.	Air Quality	$PM_{2.5}$ /PM_{10}	The recommended guidelines for analyzing 24-hour $PM_{2.5}$ impacts with response to the NAAQS at the time the air quality analysis and modeling were performed were followed. The guidance that the comment is referring to was released in 2010. When the modeling was performed (2008), then-current modeling guidance was followed (i.e., the first highest averages were not calculated, only the 98th percentile modeled concentration—i.e., the highest 8th high value). $PM_{2.5}$ will be modeled under the ARMS modeling effort, which will do a regional analysis demonstrating $PM_{2.5}$ attainment.
028-O	35	The $PM_{2.5}$ modeling conducted by the BLM for the DEIS only considered primary $PM_{2.5}$ (directly emitted from combustion point sources and from	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 028-O-26. Additional region-wide modeling using the referenced models will be performed under the ARMS modeling program to address potential impacts on a regional scale.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		fugitive sources). Emissions of NOx, VOCs, SO_2 and ammonia can form, after emitted into the atmosphere, into $PM_{2.5}$ and this could potentially be a significant component of ambient $PM_{2.5}$ concentrations. Estimates of $PM_{2.5}$ formation from these precursors should also be included in the BLM's modeling analyses. The BLM must address how it will account for secondary $PM_{2.5}$ impacts from the proposed project development. EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) provides various resources for modeling the impacts of secondary $PM_{2.5}$. For example, EPA's recently-developed model based on the Community Multiscale Air Quality (CMAQ) model in support of the development of the $PM_{2.5}$ NAAQS has been shown to "reproduce the results from an individual modeling simulation with little bias or error" and "provides a wide breadth of model outputs, which can be used to develop emissions control scenarios".51 The Comprehensive Air quality Model with extensions (CAMx) is another tool available to assess secondary $PM_{2.5}$ formation. CAMx has source apportionment capabilities and can assess a wide variety of inert and chemically reactive pollutants, including inorganic and organic $PM_{2.5}$ and PM_{10}. The Regional Modeling System for Aerosols and Deposition (REMSAD) can also model concentrations of both inert and chemically reactive pollutants on a regional scale, "including those processes relevant to regional haze and particulate matter".52 These are just some examples of current models, identified by EPA, with the capability to assess secondary $PM_{2.5}$ impacts. With adequate testing (using existing regional monitoring data to ensure accuracy) these models could be used in the NEPA context. An alternative to these grid models would be for BLM, in cooperation with EPA, to develop a screening point source model - like CALPUFF - to look at near-field $PM_{2.5}$ primary and secondary impacts.			

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	27	EPA is concerned that near-field modeling for impacts from Gasco operations showed a 24-hour average PM_{10} value of 149.5 µg/m^3, just below the NAAQS of 150 µg/m^3, and a predicted PSD Class II increment of 287% 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.	Air Quality	$PM_{2.5}$ /PM_{10}	Whlie the near-field PM_{10} impacts referred to are due to truck traffic to and from the water treatment facility, and as such are highly localized and unl kely to affect sensitive receptors near the project area, BLM shares EPA's concerns about modeled concentrations so close to the NAAQS. The decreased amount of production water processed at the WEF proposed under Alternative F would also result in a decrease of truck traffic and a corresponding decrease in PM_{10} emissions. Additional controls could be imposed under the dust control plan as required by the BLM. PSD increments do not apply to mobile sources, nor do they apply to Class II areas, therefore this comment is an expansion of this regulation beyond its regulatory intent and procedure.
032-G	28	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.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 032-G-27.
032-G	30	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	Air Quality	$PM_{2.5}$ /PM_{10}	BLM agrees that full speciation of $PM_{2.5}$ needs to be conducted to conclusively identify components of ambient $PM_{2.5}$ in the project area. There has however been speciation of PM from the monitoring that has occurred in city of Vernal, and ambient $PM_{2.5}$ monitoring has occurred at the Redwash monitoring site. Taken together these data clearly support the hypothesis that elevated concentrations of $PM_{2.5}$ measured to date in the Uinta Basin is primarily associated with emissions typical of rural communities in winter, and that ambient $PM_{2.5}$ concentrations in the immediate project area which could reasonably be associated with oil and gas activities are not causing ambient $PM_{2.5}$ concentrations at levels approaching or exceeding the NAAQS. This is not a speculative opinion, but is based on actual speciation and monitoring that has occurred in the Uinta Basin.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		from $PM_{2.5}$ monitoring should be conducted in the Basin in order to identify these sources.			
032-G	31	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.	Air Quality	$PM_{2.5}$ /PM_{10}	See response to comment 032-G-30 and 032-G-26 (located in the "Air Quality/Background concentration data" section of this table). Ambient $PM_{2.5}$ monitoring data from the project area (Redwash) are included in the FEIS.
032-G	32	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.	Air Quality	$PM_{2.5}$ /PM_{10}	$PM_{2.5}$ monitoring data in the project area (Redwash) do not support a concern that oil and gas activities are creating $PM_{2.5}$ concentrations at or above the NAAQS. In addition, the elevated $PM_{2.5}$ that has been monitored to date has occurred in the city of Vernal during winter, which would not be associated with fugitive dust emissions associated with truck traffic from unpaved roads in the project area. BLM is concerned with modeled PM_{10} concentrations associated with this mobile source activity however, and will examine additional mitigation that can be used to address this. See also response to comment 032-G 27.
032-G	33	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.	Air Quality	$PM_{2.5}$ /PM_{10}	Maximum impacts based on modeled emissions were compared to the applicable NAAQS and other relevant standards. Based on the results from the near-field modeling, There are no impacts that are anticipated to exceed any regulatory standard. Also, based on the results, impacts further out from the study area are expected to decrease and therefore will also not exceed any regulatory standard.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
033-I	2	Specifically, the DEIS and associated support documents reported exceedances of the Prevention of Significant Deterioration (PSD) increments for PM_{10}, the potential to contribute to exceedances of the NAAQS for ozone and numerous vis bility impacts. Yet, the modeling did not fully evaluate air quality impacts and did not fully disclose the maximum potential impacts from the proposed development and understated background concentrations of wintertime air quality in the area meaning that the adverse air quality impacts would likely be much worse, in reality, than what was shown in this DEIS.	Air Quality	$PM_{2.5}$ /PM_{10}	The air quality analysis did not indicate potential violations of NAAQS except for the possible exception of ozone. Revised background values collected from monitoring stations located in the Uinta Basin were used in the air quality analysis. Ambient air background concentration values used in the analysis were provided by the Utah Department of Environmental Quality. BLM does not have the authority to establish background values for Air Quality. Recent monitoring data have been incorporated in the Gasco EIS where available. As noted in response to comment 032-4, BLM does not currently have further information that could be provided beyond that contained in the FEIS that would more fully consider the potential impacts to wintertime ozone. See also the response to comment 032-G-22 (located in the "Air Quality Methodology/Model" regarding future regional modeling efforts.
033-I	6	Gasco DEIS did not identify EPA's pending $PM_{2.5}$ PSD increment standards in the DEIS. Prior to the release of the DEIS, on October 20, 2010, EPA adopted a final regulation establishing new PSD increments for $PM_{2.5}$ that went into effect on December 20, 2010. The new regulation was finalized in 2010 and the increments go into effect on October 20, 2011. Because the new increments will likely go into effect prior to BLM's final decision on the Gasco EIS, BLM should also ensure that the proposed development will not exceed the allowable level of incremental $PM_{2.5}$ pollution established by these PSD increments. The DEIS modeled 24-hour average near-field $PM_{2.5}$ concentrations of 8.61 $\mu g/m^3$ for Alternative A compared to EPA's proposed 24-hour average $PM_{2.5}$ increment of 9 $\mu g/m^3$. Depending on what alternative operating scenario BLM takes final action on, it is possible that $PM_{2.5}$ concentrations will consume all that (or more than) is allowed under EPA's new PSD increments.	Air Quality	$PM_{2.5}$ /PM_{10}	A PSD increment analysis is the respons bility of the permitting authority. The EPA is respons ble for operating permits for applicable sources in the project area. If a proposed facility meets the PSD criteria, EPA has the regulatory authority and requirement to perform a PSD increment analysis. Any comparisons to PSD increments presented in the EIS is for informational, impact disclosure purposes. An air quality analysis in an EIS does not constitute a PSD increment analysis because BLM does not have the authority to perform a PSD increment analysis. Therefore, this NEPA analysis cannot be used to determine compliance with a PSD increment standard.
	7	Given these potential violations of BLM's FLPMA mandate and the need to determine compliance with the new PSD increments for $PM_{2.5}$, the BLM should make the necessary revisions to develop an alternative that provides for compliance with all air quality standards. BLM should release these new revisions and any new alternatives to the public in a new draft or supplemental draft EIS for full public participation and review, before issuing a final EIS	Air Quality	$PM_{2.5}$ /PM_{10}	Based on the revised background data incorporated into the analysis, potential PM_{10} and $PM_{2.5}$ impacts as analyzed are anticipated to remain in compliance with the NAAQS. Additional region-wide modeling using the referenced models will be performed to address potential impacts on a regional scale.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	25	The one-hour SO_2 should also be modeled and compared with the new NAAQS for that pollutant, which was finalized in June 2010.	Air Quality	SO_2	SO_2 emissions would primarily occur during drilling and completion activities in the development phase of the project. These sources are temporary in nature and remain on one location for only a few months. As such, theses sources do not remain at any one location for a period of time in which they can be expected to impact any air quality standards that are based on a three year average of the 99th percentile of the annual distributions of daily 1-hour maximums. Very minor SO_2 emissions (1.1 ton/yr) would be generated during the production phase of the project. The majority of the production related emissions (1.02 tons/yr) would be generated by vehicle traffic while in transit between facilities. These emissions would be spread out along approximately 1.5 million road miles, and are not expected to impact the three-year average of the 99th percentile of the annual distributions of daily 1-hour maximums. Additionally, the GNB SDEIS modeled SO_2 emissions from drilling operations and expected 1-hour SO_2 impacts were well under the standard. This information has been referenced in the FEIS with regard to potential SO_2 impacts.
011-G	11	Visibility impacts are also of significant concern. As has been described earlier, vis bility is an important resource at Dinosaur National Monument and your refined modeling shows substantial impacts from the Proposed Action, 188 days in excess of one deciview change. This level of impact would suggest aggressive control of visibility-impairing pollutants, which includes primary pollutants like dust and secondary pollutants like nitrate.	Air Quality	Vis bility	This issue will be addressed through the Adaptive Management Strategy as proposed by BLM for operators in the project area.
020-O	21	BLM correctly points out that —[t]he indirect visual effects of well exploration and development would include vehicle-related fugitive dust, which could adversely impact long distance scenic quality.‖ DEIS at 4- 253. However, the DEIS erroneously asserts that —well production would have negligible impacts on fugitive dust production,‖ and that long-term fugitive dust generation would —not exceed PSD vis bility standards [for particulate matter] under any of the proposed alternatives.‖ Id. The comments prepared by Megan Williams highlight that in fact the project will violate PSD. Williams comments at 2, 16-18.	Air Quality	Vis bility	A PSD increment analysis is the respons bility of the permitting authority. The EPA is respons ble for operating permits for applicable sources in the project area. If a proposed facility meets the PSD criteria, EPA has the regulatory authority and requirement to perform a PSD increment analysis. Any comparisons to PSD increments presented in the EIS is for informational, impact disclosure purposes. An air quality analysis in an EIS does not constitute a PSD increment analysis because BLM does not have the authority to perform a PSD increment analysis. Therefore, this NEPA analysis cannot be used to determine compliance with a PSD increment standard.
028-O	21	In addition to visibility, other air quality related values (e.g., sulfur and nitrogen deposition) are indicating that there are ecosystem impacts in Class I areas potentially impacted by the proposed Gasco development project. It is	Air Quality	Vis bility	No significant adverse impacts to visibility or deposition were estimated to occur at Class 1 areas due to the Gasco project. Significance levels used for the RD&D test site analyses are not relevant to the Gasco DEIS, which used NPS DATs in the analysis.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		likely that there will be significant impacts on sulfur or nitrogen deposition at the Flat Tops Wilderness Area from the cumulative impacts of the five Colorado oil shale RD&D sites and the ExxonMobile Piceance Development Project activities, depending on the significance criteria used. In the final EAs for the RD&D test sites the BLM used a significance threshold that is much higher than the Class I FLMs "Deposition Analysis Thresholds" used in reviewing air permits under the Clean Air Act.37 Under the Deposition Analysis Thresholds, the BLM's predicted cumulative impacts on both sulfur and nitrogen deposition would be significant.			
023-I	4	Cumulative impact is not modeled in the DEIS since it ignores projects such as the Greater Chapitas Wells Natural Gas Infill Project which will contain more than 7,000 wells. EPA Region 8 sent scoping comment to the Vernal FO in 2009 with detailed comments on the potential air pollution impact of this project and listed numerous mitigation measurements.	Air Quality	Cumulative Impacts	The cumulative impacts analysis contained in the DEIS was based on the Mineral Potential Report (MPR) prepared as part of the Vernal RMP which predated both the Greater Chapita Wells and Greater Natural Buttes Scoping Notices. The MPR provided estimates of well development, acres of current and future surface disturbances and other elements of oil and gas development. air quality cumulative impacts analysis of the FEIS has been revised to include by reference the Greater Natural Buttes SDEIS, which did analyze the cumulative impact based on RFD at the time the GNB analysis was conducted.
013-B	30	To avoid confusion and minimize potential legal risks, BLM should provide an explanation of how Gasco's project conforms to the 2008 Vernal RMP.	Alternative	Vernal FO RMP conformance	See response to comment 13-B-2 (located under the Purpose Need/Existing lease rights section of this table)
016-O	8	Although Chapter 2 states that Alternative A is the preferred alternative for the proposed action because it best addresses issues raised in scoping about impacts to the Canyon while meeting the purpose and need for the project, it is woefully inadequate in addressing any issues or impacts to the Canyon itself.	Alternatives	Alternative A	Based on public comments, BLM has developed a new alternative, Alternative F, and selected it as the new Agency Preferred Alternative. Impacts to Nine Mile Canyon are analyzed in Section 4.3, Cultural Resources; Section 4.5, Land Use and Transportation; Section 4.8 Recreation, Section 4.11 Special Designations, Section 4.14 Visual Resources, and Section 4.18 Cumulative Impacts of the FEIS.
013-B	25	Alternative E is not a viable alternative for BLM to adopt in the Final Decision Record given the extensive valid existing rights that exist in almost all WCAs for active mining claims, grazing allotments, county road designations, and federal and state oil and gas leases. This non-viability is particularly true for the portions of the Desolation	Alternatives	Alternative E	Based upon public comments, the BLM has developed the new Agency Preferred Alternative (Alternative F). The Agency Preferred Alternative is the alternative that the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors. This Agency Preferred Alternative includes the development of wells and of infrastructure within in portions of the Desolation Canyon non-WSA lands with Wilderness Characteristics.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Canyon WCA discussed above. Accordingly, in BLM's Final Decision Record it should make a finding that these particular areas are no longer WCAs.			As described in Section 3.17 of the DEIS, the BLM inventoried the area in 2007 in support of the Vernal Resource Management Plan effort. It was determined that wilderness characteristics exist in the majority of the area. However, as noted in Section 4.17 of the DEIS, the Vernal RMP ROD did not carry these lands forward as a BLM natural area for the protection, preservation, or maintenance of wilderness characteristics. Impacts to those lands have been analyzed in Sections 4.17 and 4.18 of the FEIS.
020-O	1	The Gasco DEIS does not address a potential drilling program focused on the Mancos horizon; a significant oversight when Gasco's promotional materials largely focus on the gas reserves in the Mancos. The BLM must fully analyze the various technically feasible, non-speculative and reasonable alternatives developed by Mr. Kreckel, including a horizontal drilling program for the Gasco DEIS. As currently drafted, the Gasco DEIS violates NEPA because it does not comply with the statute's alternatives mandate.	Alternatives	Alternatives-new alternative	See response to comment 25-O-6 (located in the "Alternatives/Directional drilling" section of this table).
016-O	4	Chapter 1 includes a list of issues identified in the scoping process. Issue 1: Alternatives states in part: "What Best Management Practices (BMP's) are technically and/or economically feasible? How will access routes be varied to protect resources? How will the Green River, Nine Mile Canyon, and special designation areas be protected?" There is not a single alternative that emphasizes BMPs.	Alternatives	Applicant-committed measures/mitigation	As noted in Section 2.1, Management Common to All Alternatives, BMPs would be applied to all alternatives. In addition, mitigation measures to reduce or avoid impacts are described at the end of each resource section of Chapter 4, although these are not specifically identified by the name "BMP".
030-G	9	Section 2.2.9, page 2-27. We recommend Gasco install bird exclusion netting over evaporative ponds to reduce potential threats to migratory birds. Measures should also be included to screen heater-treaters, tanks, and other well-site facilities to reduce the risk of drowning and contamination to birds and other animals.	Alternatives	Applicant-committed measures/mitigation	All evaporative facilities, regardless of alternative, would be constructed and operated to meet all regulations of the BLM and UDOGM and/or the EPA, including but not limited to the stipulations outlined in BLM Onshore Order #7 and listed in Section 2.1, Management Actions Common to All Alternatives, Table 2-1. Regulatory Requirements, BLM Policy Guidelines, Standard Operating Practices, and Applicant-committed BMPs Common to All. These stipulations include: the construction of fencing or netting to exclude wildlife (including waterfowl, if necessary); the minimization of oil on the free water surface (through headworks and tanks to separate oil, absorbent booms at evaporative pond inlets, etc.); the installation and operation of a leak-detection system; and prevention of surface water ingress or discharges to surface waters. Sections 4.16.1.1.6, 4.16.1.2.5, 4.16.1.3.5, 4.16.1.4.5, and 4.16.1.5.5 of the DEIS analyze the effects of the evaporation ponds under each alternative on wildlife. Additions were made to Section 4.16.1.1.6 of the FEIS, including potential effects of evaporation ponds on birds and bats and an assessment of the efficacy of deterrents in keeping birds and bats away from the ponds.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
030-G	11	Section 2.2.9 page 2-27. We recommend adding measures found within the Vernal RMP Record of Decision (2008) to protect white-tailed prairie dog colonies within the project area. Specifically, prairie dog towns are to be buffered by 660 feet unless a specific plan is developed which addresses how the development will minimize impacts to the towns.	Alternatives	Applicant-committed measures/mitigation	The following mitigation measure from the Vernal RMP ROD has been added to Section 4.12.2.8 of the FEIS: "No surface-disturbing activities or permanent aboveground facilities would be allowed within 660 feet of prairie dog colonies unless the impacts of the action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies."
030-G	12	Section 2.2.9.1., page 2-27. We recommend the use of "closed-loop" drilling methods to reduce environmental impacts throughout the project area.	Alternatives	Applicant-committed measures/mitigation	Closed loop drilling is listed as a mitigation measure in the FEIS under Section 4.12.2.6, Mitigation Measures for Colorado River System Endangered and Sensitive Fish. It states that "Wells proposed in mapped 100-year floodplains (see Map 29) within 5 miles of the Green River would use measures including the use of closed-loop drilling methods, berming and secondary containment of all tanks and pits, and drilling during non-flood prone seasons." There is a similar mitigation measure for water resources in Section 4.15.2. Outside of 100-year floodplains, the need for closed loop drilling would be determined on a site-specific basis in consideration of the following information: Closed loop drilling is encouraged by BLM in areas of porous soils, over fractured bedrock, when drilling through a drinking water source protection zone or sole source aquifer, or in areas of shallow groundwater, as specified in UT 2010-055, Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development. Language from this document descr bing the BLM requirements has been added to the FEIS, Sections 4.15.1.1.1.2 and 4.15.2. The proponent has indicated that closed loop drilling systems are viable for shallow wells, such as Green River oil wells, but closed loop drilling systems for wells drilled into the Mesaverde and deeper are not a viable option due to the difficulties involved in removing liquid from the cuttings and hauling cuttings. This information has also been added to the FEIS, Sections 4.15.1.1.1.2 and 4.15.2.
030-G	13	Section 2.2.9.5 page 2-29. Graham's beardtongue (Penstemon grahamii) occupied habitat exists within the project area. This species is included in the BLM ID Team checklist and a Conservation and Strategy Agreement exists between the BLM and USFWS to survey and monitor for P. grahamii, and implement conservation measures as appropriate. Therefore, we recommend including Graham's beardtongue in this section. We also recommend including one other BLM-sensitive plant species, Erigeron untermanii, in this section.	Alternatives	Applicant-committed measures/mitigation	Section 2.2.9.5 of Chapter 2 has been revised with the following addition: "In addition, surveys and monitoring would be conducted in compliance with the Conservation and Strategy Agreement for Graham's beardtongue (*Penstemon grahamii*) and BLM Manual 6840 for both Graham's beardtongue and Untermann daisy (*Erigeron untermanii*)." Discussion of appropriate conservation measures for these species has also been included in Appendix B and Chapter 4 of the FEIS.
030-G	14	Table 2-6, page 2-29. We recommend the use of the Utah Field Office Guidelines for Raptor Protection from Human and Land Use	Alternatives	Applicant-committed measures/mitigation	Activities within the project area will be subject to Appendix A of the Vernal FO ROD and Approved RMP Best Management Practices for Raptors and Their Associated Habitat. These BMPs are based on recommendations from Romin and Mucks 2002 *Utah Field*

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Disturbances (Romin and Muck 2002) to determine appropriate spatial buffers for raptor nests.			*Office Guidelines for Raptor Protection from Human and Land Use Disturbances*. Table 2-6 of the FEIS has been updated to reflect these spatial buffers.
030-G	15	Section 2.2.9.9, page 2-31. We recommend reclamation mixes include low-growing grasses and forbs to promote better nesting habitat for mountain plovers. Species to consider are galleta grass and globe mallow.	Alternatives	Applicant-committed measures/mitigation	Section 2.2.9.9 of the FEIS has been revised to include the following: "Reclamation of surface disturbance would be implemented as descr bed in Section 2.2.6.1 (Interim Reclamation). However, reclamation mixes in Mountain Plover habitat, would be designed to include low-growing native grasses and forbs such as galleta grass (*Pleuraphis jamesii*) and globe mallow (*Sphaeralcea* spp.) to promote better nesting habitat."
030-G	16	Sections 2.3.2.3 and 2.3.2.4, page 2-34. We recommend the use of "closed-loop" drilling methods to reduce environmental impacts throughout the project area.	Alternatives	Applicant-committed measures/mitigation	See response to comment 030-O-12.
031-G	8	The applicant shall not use any fill material which may leach organic chemicals (e.g., discarded asphalt) or nutrients (e.g., phosphate rock) into the receiving water.	Alternatives	Applicant-committed measures/mitigation	Gasco does not import or use any discarded asphalt or nutrients in the construction of roads and/or locations. This has been added as an applicant-committed measure in Table 2-1 of the FEIS.
032-G	54	Cement bond logs should be evaluated to ensure adequate cement bonding to prevent fluid and gas migration.	Alternatives	Applicant-committed measures/mitigation	Additional site-specific review will occur after a record of decision is signed for this project, and prior to site-specific application approval. At that time, all cement bond logs will be evaluated on a site-specific basis to ensure adequate protection of groundwater resources. Additional information on cementing requirements has been added to the FEIS in Table 2-1 and Section 4.15.1.1.1.2. These cementing requirements are from UT 2010-055, Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development.
032-G	55	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.	Alternatives	Applicant-committed measures/mitigation	See response to comment 030-O-12.
032-G	56	However, if [reserve] 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.	Alternatives	Applicant-committed measures/mitigation	The reserve pits primarily consist of drill cuttings (shale, sand, miscellaneous rock materials) as well as some drilling fluid carried over with the cuttings. All fluid and products used in the drilling fluid would be RCRA-exempt as long as they are used/generated from the drilling process. This information has been added to the FEIS, Table 2-1. Closure requirements of reserve pits are regulated by UDOGM. These requirements have been included in Table 2-1 and include the following: • Following drilling and completion of the well, the reserve pit must be closed within one year, unless permission is granted by the Division for a longer period • Pit contents must meet the Division's Cleanup Levels or background levels before burial.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					• The contents may require treatment to reduce mobility and/or toxicity to meet cleanup levels • The alternative to meeting cleanup levels would be transportation of material to a disposal facility. • UDOGM's preference is for materials to remain on site if possible.
032-G	57	Appropriate closure should also be discussed for the WEF ponds.	Alternatives	Applicant-committed measures/mitigation	The specific closure measures added to Section 2.2.6.3 consist of the following: The evaporation pond facilities would be closed as per the regulations of the BLM and UDOGM and/or the EPA. The pits would be pumped dry with all debris and any solid waste removed. The pit liner would then be folded over into the pit and the pit backfilled. The backfilled area would then be recontoured with top soil and reseeded. Any waste and solids removed would be transported to an approved disposal site and disposed of according to the regulations of the BLM and UDOGM and/or the EPA. The UDOGM and/or the EPA will require a final closure plan be submitted prior to closure of the disposal facility which will include the following: • Provisions for removal and proper disposal of all equipment at the site • A plan for sampling and testing soil and groundwater at the project site with soil samples at the levels outlined by the Division's Cleanup Levels for Contaminated Soils or background levels • Provisions for future monitoring plans, if required by the Division • Considerations for post-disposal land use and landowner requests upon completion of closure plan.
032-G	58	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.	Alternatives	Applicant-committed measures/mitigation	Section 2.2.2.3 of the FEIS has been revised to clarify that the drilling fluid (mud) used is fresh water–based and is classified as a low-toxic fluid based on the Material Safety Data Sheets (MSDSs) of its additives.
032-G	59	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.	Alternatives	Applicant-committed measures/mitigation	The conversion of production wells to injection wells is speculative and out of the scope of this programmatic EIS. Requirements for the construction of production wells would be determined at the time that the site-specific conversion is proposed. Injection wells would need to be permitted with the State or with EPA, and specific injection well construction requirements of the appropriate agency would need to be met.
032-G	78	The implementation of a Spill Prevention, Control, and Countermeasures (SPCC) Plan will reduce the potential for direct and indirect impacts to sensitive resources from spills or accidental releases of	Alternatives	Applicant-committed measures/mitigation	Details of the SPCC plan have been added to the FEIS in Section 2.2.9.12 (Hazardous Materials and Emergency Response). A sample SPCC plan has been added to the FEIS in Appendix N.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
032-G	45	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 (available at <http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/leasingEAs.html>); EPA's GasSTAR program (available at <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.	Alternatives	Consider GHG-reducing alternative (or mitigation)	A qualitative discussion of GHG, climate change and potential impacts on climate change has been incorporated into the analysis. BLM has elected to incorporate project design and control measures that reduce GHG emissions into the alternatives, rather than consider a separate alternative. Additionally, the newly proposed NSPS, NESHAPS and Tr bal NSR regulations will require emissions controls that will lower the amount of methane emitted from specific sources.
014-O	3	Please require that Gasco mandate directional drilling and centralized facilities.	Alternatives	Directional drilling	Based on public comments, BLM has developed the new Agency Preferred Alternative, Alternative F, which includes directional drilling from 160-acre surface density. The Agency Preferred Alternative is the alternative that the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors. As stated in Section 2.2.9.1 of the DEIS, Gasco would centralize facilities where on-site review indicates these measures would reduce overall environmental impacts or impacts to particular sensitive resources. This section also states that tank batteries would be centralized where multiple wells are drilled directionally from a single pad.
025-O	1	The DEIS does not consider the widespread use of directional drilling in the Rocky Mountain region in general and specifically it fails to consider the widespread use of directional drilling nearby, in circumstances exactly like those in the area of DEIS. These examples clearly apply to the development within the DEIS. At the Rock House	Alternatives	Directional drilling	Alternative E and Alternative F (the new Agency Preferred Alternative) incorporate directional drilling with approximately 160-acre surface density. As stated in Table 2-1 of the DEIS (see the applicant-committed BMPs on page 2 through 8), directional drilling would occur under all alternatives on a limited, site-specific basis where technologically and economically feasible. This table also summarizes the general conditions influencing the feasibility of directional drilling.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		area to the east [T10S, R23E], the BLM has proposed development of the Wasatch and Mesaverde gas reservoirs utilizing surface locations placed at approximate 160-acre spacing, and directional drilling to develop the 40-acre down hole locations. The Saddletree Draw–Rock House project includes directional drilling of up to 60 wells from 24 well pads. Here the BLM determined that horizontal reaches of a half mile are technically and economically achievable by industry. Technical parameters are direct analogs to this proposal. The existing vertical wells at Rock House set casing at 2,000 feet and produce generally from 5,000 to 7,200 feet. In the subject area, total depths are much greater, exceeding 11,500 feet. The producing horizons are correspondingly deeper, generally from 7,000 to 12,000 feet. These deeper depths make a directional S-curve well easier to achieve, as the required angles are less and there is more vertical section in which to build the curve. Closer to the area of the DEIS, directional wells are being drilled for Wasatch and Mesaverde targets exactly like those proposed under the DEIS. (An index map is provided on Figure 1.) In all of these areas, targets and depths are exactly the same as that proposed under Alternative E of the DEIS. In Natural Buttes (T10S,R19E), numerous directional wells from 160-acre surface well pads are being drilled to 40-acre locations (see Figure 2) To the north in Monument Butte, numerous directional wells are being drilled as well (see Figure 3). L kewise in the West Tavaputs area to the south, most of the development has employed directional wells (see Figure 4). The technical parameters for these wells are suitable for employment in Gasco's wells within the DEIS. See Figure 5 for an example of one of many directional wells drilled in T10S, R19E. This exact configuration can easily be applied within the DEIS.			Please note that specific knowledge of the formations, obtained through vertical drilling is necessary prior to widespread use of directional drilling, and that the proponent has indicated that this specific knowledge is lacking in some of the target formations, and in the southern and western portions of the project area (see response to comment 013-B-3).
025-O	3	There are directional alternatives for Alternatives A and B which can substantially reduce impacts while allowing nearly full development of the gas resources. Directional drilling could be applied to	Alternatives	Directional drilling	BLM acknowledges that directional drilling could be applied in alternative configurations. As stated in Table 2-1 of the DEIS (see the applicant-committed BMPs on page 2-8), directional drilling would occur under all alternatives on a limited, site-specific basis where technologically and economically feasible.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Alternatives A and B as well. Using the scenario above and that envisioned in Alternative E, we can replace the 40-acre surface locations in Alternatives A and B with well pads spaced at 160 acres, providing for directional wells to access the 40-acre down hole locations. These scenarios are presented on Figures 10 and 11. In number of surface well pads, these changes result in the following: Alt A; 1,491; Alt A directional: 476; Alt B: 1,114; Alt B Directional: 411; Alt E: 328. Obviously surface impacts would be greatly decreased, in much the same way as Alternative E reduces surface impacts.			Alternative F, the new Agency Preferred Alternative, has been added to the FEIS. This alternative incorporates directional drilling similar to Alternative E, but with well placement and numbers that are more similar to the Proposed Action and that respond to Gasco's identified need to obtain more specific knowledge of some of the formations in the southern and western portions of the portions of the project area (see response to comment 013-B-3, located in the "Geology/Directional drilling" section of this table).
025-O	4	Recent developments in the area, especially Mancos development which is likely to include horizontal drilling, were not considered at all. Horizontal drilling holds the potential to completely change the drilling spacing and subsequent impacts. The DEIS does not address the very real possibility that the acreage will be developed with horizontal wells. During the preparation process for this DEIS, events have occurred which call into question the likely future development within the area. Wells drilled into the Cretaceous Mancos Formation have been particularly successful. The operator for the DEIS, Gasco, has drilled a particularly successful well. The GC#23-16-11-15 reached a total depth of 16,610 feet in July of 2008, and initially produced 5.7 MMCGD from the Mancos and Blackhawk formations. Although it declined to a rate of 2.3 MMCGD in 60 days, the well produced 0.5 BCFe in two years. The ultimate reserve estimate for the well is 3.34 BCFe. This is far in excess of the more typical Gasco estimates of 1.23 BCFe per well for the Wasatch and Mesaverde development. Since the Mancos may prove to be the more prolific formation, it is likely development will follow the deeper Mancos Formation.	Alternatives	Directional drilling	All alternatives target the Mancos Formation as stated in Section 2.2, page 2–15 of the DEIS. Both Alternatives E and F propose directional drilling where geologically feasible to help reduce surface disturbance impacts. (See Sections 2.6 and 2.7 of the FEIS.) At this time it is unknown how much of the Mancos can be developed through horizontal drilling. Gasco has drilled 23 vertical wells into the Mancos: 22 in the Riverbend area and one in the Gate Canyon area. Gasco has not developed any horizontal wells in the Mancos, and based on the vertical drilling to date, Gasco does not consider such development feas ble at this time. Only one horizontal Mancos well has been drilled in the Uinta Basin (by a different operator, XTO Energy). No results have been released by XTO. Horizontal drilling of the Mancos is not standard practice at this time by any operators in the Basin, and without more vertical wells yielding more geologic, reservoir, and production information; it would be speculative to assume a blanketed horizontal program in the Mancos. In addition, because of the lack of exploration to date, reasonable assumptions on such a program's impacts to various resources are impossible to define, and BLM is currently unable to take a "hard look" at such an alternative.
025-O	5	Horizontal drilling is potentially important in the Mancos because the technology can substantially increase per well reserves, which has been seen in several of the 'shale' plays, such as the Bakken in	Alternatives	Directional drilling	See response to comment 25-O-4.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		North Dakota and Niobrara of Wyoming. In the Barnett shale play, “using $6/mcf as our benchmark gas price, the typical horizontal well generates a 100%+ return while the typical vertical well generates only a 39% return.” The technique works in the Barnett and other shales because these are very thick formations, and the horizontal well bore opens much more reservoir rock to artificial fracturing (see Figure 13). This accounts for the large increase in production seen in these wells.			
025-O	6	Development of the Mancos by horizontal drilling will substantially change that envisioned in the DEIS. Spacing is a particular concern. Data from the Barnett development suggests that a “1,000-foot spacing coupled with a 4,500-foot lateral is equivalent to 100-acre spacing. Data from EOG suggests that a 2,500-foot lateral may be optimal (still resulting in a 2.4BCF well); this would equate to 60-acre spacing.” Because horizontal wells are not points in the Earth, but a line, the resulting surface spacing from the former is a location every 1,000 feet in the direction perpendicular to the well bore, and one every 5,000 feet in the other, yielding four surface locations per section. The 2,500-foot laterals would roughly result in eight wells per section. However, in either case, if two laterals are drilled from one surface location (opposing each other at 180 degrees), the number of surface locations would be halved. See Figure 15 for a graphical explanation of spacing options for horizontal wells. Thus, it is possible full field development could entail only two wells per section. The actual spacing, of course, would depend on well results determining the most efficient well drainage.	Alternatives	Directional drilling	See response to comment 025-O-4. Also, please note that the proposed scenario of two well pads per section does not take into account surface density needs for exploration and development of the shallower target formations, which are not currently considered viable for horizontal drilling, and which are more limited in their directional drilling than wells which have a deeper target formation.
025-O	7	Gasco has expressed optimism that the Mancos play can encompass all of the area of the DEIS. Commenting on the success of the GC#23-16-11-15 well, Gasco reports that it “extends Mancos commercial trend across all of Gasco acreage.” Note that this potential does not depend on the success of horizontal technology, since the	Alternatives	Directional drilling	See response to comment 25-O-6.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		projected reserves in the Mancos are estimated by Gasco as 1 to 3 BCF per well, more than that estimated for the Wasatch-Mesaverde which is the current development target for all operators in the Uinta Basin. Using the Barnett Shale play in North Texas as an example, this is indeed possible. In that play, as of March 3, 2009, total number of gas wells reached 10,539, with 5,037 permitted locations in approximately four counties. Production has risen from virtually nothing prior to 2000 to nearly 1.396 trillion cubic feet in 2008. Neither the potential for Mancos production nor the possibility of a major horizontal drilling play was taken into account in the DEIS. This calls into question the validity of the analysis itself. Gasco in their own documents stress the Mancos potential as the largest of any of the productive formations. On the other hand, at this point in the development of the acreage, the potential for horizontal wells has not been proved. Gasco itself seems uncertain on the issue, pointing to both the proven Wasatch-Mesaverde potential and the possible Mancos as targets, while clearly pointing out the vast potential of the Mancos. There seems to be no question that more information is necessary, through the drilling of additional horizontal tests both offsetting the area of the DEIS and within it. This is critical because the possibility of developing the Mancos with horizontal wells could substantially change both the number and spacing of well pads. Again referring to Figure 15, several possible horizontal well configurations are presented. Although an exact preferred drilling configuration is not yet known, the best in terms of economically exploiting the Mancos and in reducing surface impacts may be the example which uses opposing laterals of 2,500 feet. Starting with this configuration, I prepared a version of Alternative E (Figure 17). Note the greatly reduced impacts (162 well pads) compared to any other alternative (compare with the table on page 5). Thus any EIS based on the current DEIS would likely be totally ineffective for analyzing the impacts to the area from a horizontal program in the Mancos. In my opinion this leaves the BLM with two possibilities: one, postpone the			

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		issuing of an EIS until the impact of the horizontal Mancos development is known, or two, add an alternative which sets out how the horizontal development will occur, giving the operator the option of doing either a directional development under one alternative or a horizontal development under the other.			
025-O	8	Gasco's thoughts on the prospectiveness of the Mancos across all of the acreage within the DEIS point out that not only Gasco's acreage is prospective, but all acreage within the outline is potentially drillable. A simple glance at the development occurring in Natural Buttes and Monument Butte clearly shows the blanket nature of the development, with all sections being developed for many miles. Thus it is extremely likely that wells will be proposed in all of the acreage for Wasatch and Mesaverde targets, whether or not the Mancos development succeeds. As Gasco develops their acreage, offsetting non-Gasco acreage will become prospective for very low risk development, since the gas potential will have been proved by the Gasco wells. At present, EOG and Questar have numerous wells permitted within this area, especially in T10S, R17E. It is thus very likely that much or all of the acreage within the DEIS will be developed. Significantly, Gasco sees the potential for the drilling of 3,552 wells on a 10-acre spacing on their acreage alone (see Figure 9), much of it within the boundaries of this DEIS (see Figure 14). The DEIS fails to take into account the impacts of drilling on non-Gasco acreage, which is virtually a certainty when or shortly after Gasco develops their acreage.	Alternatives	Directional drilling	Drilling at denser spacing than the 40 acres proposed by the proponent is outside the scope of the impacts analysis in this EIS. Should further infill drilling be proposed in the future, further NEPA documentation and analysis would be completed as required. As noted in Section 2.4 of the DEIS, Alternative C—Full Development, analyzes the effects of a maximum development scenario in the project area, essentially the scenario described in your comment. Although the referenced area may have similar geology and ongoing exploration projects, there are currently no reasonably foreseeable development projects on those lands. Section 4.18.2 of the FEIS has been updated to identify additional reasonably foreseeable future actions. Reasonably foreseeable development projects in the area are defined and considered in the cumulative effect analysis in Section 4.18 of the DEIS.
032-G	14	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 DEIS, implementation of directional drilling could reduce surface disturbance by approximately 60% if implemented as described in Alternative E and could result in greatly reduced impacts to nearly all resources of concern. Minimizing surface disturbance is critical in the arid	Alternatives	Directional drilling	BLM acknowledges that directional drilling could be applied in alternative configurations. As stated in Table 2-1 of the DEIS (see the applicant-committed BMPs on page 2–8), directional drilling would occur under all alternatives on a limited, site-specific basis where technologically and economically feasible. Please note that Alternative F, the new Agency Preferred Alternative, has been added to the FEIS. This alternative incorporates directional drilling similar to Alternative E. Both alternatives reduce surface disturbance. In addition, under Alternative F, there would be no wells allowed in the 100-year floodplain of the Green River, within 0.5 mile or line-of-sight (whichever is less) of the Green River, and below the rim of Nine Mile Canyon in the

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Uinta Basin, where reclamation is frequently difficult. Affects 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 DEIS 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.			ACEC, and no development or surface disturbance inside of Core Conservation Areas for the Pariette Cactus.
032-G	16	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%) has soil characteristics that restrict reclamation. The DEIS 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 DEIS, 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.	Alternatives	Directional drilling	Alternative F, the new Agency Preferred Alternative, and Alternative E incorporate directional drilling. Both alternatives reduce surface disturbance and related natural resource impacts. Soil Best Management Practices (BMPs) outlined in the BLM's Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (The Gold Book, Fourth Edition, Revised 2007) would be employed. See the mitigation sections at 4.10.2 and 4.13.2 of the FEIS for more information on soils and vegetation mitigation.
032-G	17	A recent study found that dust on snow in the Upper Colorado River Basin robs the Colorado River of about 5% of its water each year, enough	Alternatives	Directional drilling	Alternative F, the new Agency Preferred Alternative, and Alternative E incorporate directional drilling. Both alternatives reduce the amount of surface disturbance and the resulting indirect impacts to air quality, water quality, and plants.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		to supply Los Angeles for 18 months (Painter et al. 2010, "Response of Colorado River runoff to dust radiative forcing in snow," PNAS 107(40):17125–17130). 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.			There are also several mitigative actions proposed as part of the project to reduce the potential impacts noted by the commenter. See Sections 4.2.3 (air quality mitigation; 4.15.2 (water quality mitigation); and 4.12.2.1 (special status plants mitigation measures).
013-B	1	It is in the best interest of BLM and Gasco that management and operational flex bility is built into the Record of Decision (ROD) and FEIS so that BLM and Gasco have the ability to address technical or operational challenges that may arise during the course of development. If the eventual ROD and FEIS are too inflexible or regimented with respect to operational and technical issues, then both BLM and Gasco would be constrained in addressing such issues in the most pragmatic and respons bly sound manner possible on a site-specific basis.	Alternatives	General	Thank you for your comment. The document is a programmatic type field exploration and development document that inherently includes flexibility in management, which is implemented through subsequent site-specific review.
016-O	21	Missing from the DEIS is any mention of disaster planning or coordination efforts. We think this is an important omission that should be addressed given the remoteness of the project area and the fragility of the environment and its cultural and other resources.	Alternatives	General	Safety and emergency actions for oil and gas development are outlined in BLM's Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (The Gold Book). These standards apply to the proposed project as detailed in Section 2.1 Management Actions Common to All Alternatives, Table 2-1. Regulatory Requirements, BLM Policy Guidelines, Standard Operating Practices, and Applicant-committed BMPs Common to All Alternatives. As a precautionary measure, Gasco would implement a Spill Prevention, Control, and Countermeasures (SPCC) plan that would reduce the potential for direct and indirect impacts to sensitive resources from spills or accidental releases of hazardous substances. This SPCC plan can be found in Appendix N of the FEIS. The Utah Department of Environmental Quality Division of Environmental Response and Remediation (DERR) implements waste cleanup plans and environmental responses. More information on their Emergency and Disaster Response Plan can be found at their website: <www.deq.utah.gov>.
020-O	2	Furthermore, every alternative, with the exception of one, explored in the Gasco DEIS shows proposed wells on a partial state section in Section 16 of T11S, R18E (see DEIS at Maps-2 through Maps-4, Maps-6). However, this state section is currently withdrawn and is not under lease (see Trust Lands Administration, Public Room, Search Modules: Contract Module, available at	Alternatives	General	The following statement has been added to Section 1.2.1 of the FEIS: "The Gasco EIS alternatives are programmatic in nature, meaning that the well locations are conceptually distributed for the purposes of assessing the cumulative resource impacts of Gasco's proposed well development in the overall leasing area. The exact locations of wells would be determined at the site-specific project-implementation level when those wells are proposed for drilling. Siting of these locations would be subject to design features, best management practices, and mitigation measures adopted in the ROD for this EIS. This would include avoidance of any areas that are withdrawn from subsurface mineral

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		<http://168.178.199.154/publms/contents.htm> (searching for active leases in Section 16 of T11S R18E) (last visited on Dec. 22, 2010) (attached as Exh bit 2). It is a state section identified in the Utah Recreational Land Exchange Act of 2009, Public Law No. 111-53, for exchange. It is unclear, therefore, why most Gasco DEIS alternatives show development in this parcel when it is currently withdrawn from leasing and likely to remain so for some time.			leasing." In addition, BLM decisions associated with this document only apply to BLM-administered surface or federal minerals as stated in Section 1.2.2. Finally, this well is not included under Alternative F, the Agency Preferred Alternative.
004-G	4	Alternatives B and E would preclude development in Non Wilderness Study Area (WSA) lands with Wilderness Characteristics and are not consistent with the Duchesne County General Plan (see Duchesne County Resolution #07-15 provided to the BLM on June 25, 2007). The ROD must contain findings that the decision is in conformance with applicable land use plans to the greatest degree possible. Such findings cannot be made for Alternatives B and E.	Alternatives	Plan conformance	Comment noted. The CEQ regulations (40 CFR 1502.1) require BLM to consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment, based on the nature of the proposal and facts in the case (CEQ 40 Most Asked Questions 1b.). The BLM Decision Maker may develop mitigation to avoid, minimize, rectify, reduce, or eliminate or compensate for impacts to the environment (40 CFR 1508.20). This mitigation may be carried forward into the decision as appropriate (40 CFR 1505.3).Whereas there are many possible management prescriptions or actions, the BLM used the scoping process to determine a reasonable range alternatives that best addressed the issues, concerns, and alternatives identified by the public. While these alternatives may not include development in lands with wilderness characteristics, they do not preclude future development of these lands under other future decisions. Please note that based on public comments, BLM has developed Alternative F (the Agency Preferred Alternative), which is most l kely to be carried forward into the ROD.
032-G	18	According to the DEIS (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	Alternatives	Preferred Alternative selection	Comment noted. The FEIS contains the new Agency Preferred Alternative, Alternative F, and includes rationale of why the alternative was selected and how it was developed.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Mile Canyon SRMA without disturbance of cultural or other critical resources.			
031-G	4	Subsection 2.2.6.1 Interim Reclamation discusses reserve pit reclamation within 120 days of final well completion. Some operators have taken advantage of the final completion definition and are leaving reserve pits open for several months for "multi-stage" completions and/or waiting on construction of pipelines before completing wells. A tighter definition for reserve pit reclamation would be necessary.	Alternatives	Reclamation	Gasco only uses reserve pits for drilling operations. The pits will be remediated after completion of drilling operations on a pad, weather permitting, as per the BLM's Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (The Gold Book, Fourth Edition-Revised 2007) and as noted in Section 2.2.6.1, Interim Reclamation.
030-G	2	Based on our previous discussions with your office, and in light of the information regarding the biological sensitivity of the floodplain habitats, we recommend that further development in the 1OO-year floodplain of the Green River be removed as a viable alternative. The natural gas resources within the floodplain can be accessed by directional drilling from adjacent habitats. In fact, at least one directional well is already operating from the adjacent bench, demonstrating the feasibility of this technique in this area (UDOGM GIS Database). We strongly recommend that an alternative that analyzes directional drilling of the floodplain habitats from the adjacent bench should be incorporated into the EIS. Section 2.2.9 page 2-27. We recommend no new well development activities within 100-year floodplains of the Green River under all alternatives. See also Table 2-9, page 2-70.	Alternatives	Removal of floodplains	BLM has added Alternative F, the new Agency Preferred Alternative, which precludes well pads within the 100-year floodplain of the Green River. For the other alternatives, Section 2.10 of the DEIS (Summary of Impacts Table) states that "due to the programmatic nature of this document, exact locations of infrastructure are not known at this time. On-site review, at a later date, would determine if individual well pads would be allowed within the 100-year floodplain. This analysis would require that any proposed work comply with Executive Order 11988."
030-G	8	Section 2.2.2.1 page 2-16. The document states that proposed roads would generally include an additional 30- to 40-foot-wide utility corridor that could contain pipelines and other utilities. We recommend clarifying whether this corridor extends from each side of the road, is centered on the road, or extends from only one side of the road. For example, "Proposed roads would generally include an additional 30- to 40-foot-wide utility corridor on both sides of the road."	Alternatives	ROW widths	The following text will be added to the FEIS: "Proposed roads without utility corridors would have a width of 30 feet. Proposed roads with utility corridors would have a width of 40 feet (20 feet on either side of centerline)."

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
015-G	3	Only the proposed action, Alternative A, is consistent with the existing RMP. The County is very concerned that the proposals under Alternatives B, C, D, and E appear to attempt to circumvent recent RMP decisions, e.g., Closures, NSOs, ACECs and VRM Class II. During the RMP process we commented extensively on our concerns that VRM Classes would be utilized to restrict surface activity, which were approved under other management decisions and that VRMs should reflect those management decisions, not vice-versa. This document also attempts to protect citizens' proposed wilderness areas, ACECs and areas which through RMP analysis were not established. A project EIS should not be used to resurrect these proposals.	Alternatives	Vernal FO RMP consistency	The CEQ regulations (40 CFR 1502.1) require BLM to consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment, based on the nature of the proposal and facts in the case (CEQ 40 Most Asked Questions 1b.). Whereas there are many possible management prescriptions or actions, the BLM used the scoping process to determine a reasonable range of alternatives that best addressed the issues, concerns, and alternatives identified by the public. Please note that based on public comments, BLM has developed a new Agency Preferred Alternative, Alternative F. The Agency Preferred Alternative is the alternative that the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors.
013-B	31	The key element which must be considered in determining what level of oil and gas activity will be allowed over the life of the plan is not the number of wells which could be drilled, but rather the net effect of surface disturbance and activities. In the EIS, BLM must clearly explain that the well projection figures in the Vernal RMP over the next 20 years (or life of the RMP) are analytical tools that BLM used to assess potential environmental impacts. Based upon the governing RFD case law and policy discussed above, and to preclude future permitting delays, BLM should include the following language in the EIS, to the effect of: The well projection numbers in the Vernal RMP RFD do not limit the number of wells which BLM may ultimately authorize in the project area. Total well counts or surface disturbances exceeding the analyzed levels in the Vernal RMP do not automatically prompt a need for a supplemental NEPA analysis prior to additional development. Mitigation of environmental effects, for example, through successful reclamation, utilization of directional drilling from shared well locations, and minimizing pad and road construction can prevent the level of impacts from substantially exceeding those originally analyzed in Vernal RMP.	Alternatives	Vernal FO RMP RFD	No change has been made to the FEIS because the BLM Vernal FO has determined that this proposed project is within the scope of the RFD.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
004-G	2	Knowing the odor problems associated with evaporation facilities and the apparent lack of good produced water injection sites in the project area, the County would encourage BLM and Gasco to evaluate and employ, if possible, alternative technologies for handling produced water. In the preliminary documents associated with the Uintah and Ouray Reservation Oil and Gas Development EIS, there is reference made to self-contained produced water management facilities that use heat to separate salts from the water; producing clean water that can be recycled back into the gas field. These facilities hold promise in reducing or eliminating the need for evaporation ponds. Duchesne County has approved one such facility in the Lake Canyon area southwest of Duchesne, but it has not been built.	Alternatives	Water supply and disposal	Alternative F, the new Agency Preferred Alternative, incorporates a description of potential alternative water management techniques. At this time, there is not enough information to determine the feasibility of alternative water management techniques, so Alternative F allows enough evaporative disposal capacity to accommodate approximately 5 years' worth of development. After that time, disposal techniques that could potentially include the treatments methods suggested by the commenter could be used. Please note that BLM approval of these alternate treatment methods would be subject to subsequent NEPA analysis and disclosure.
031-G	2	Subsection 2.2.4 "Water Supply and Disposal" only descr bes disposal of produced water and a central evaporation facility. Some discussion regarding the potential volume and disposal of solid waste created at the individual well sites (tank bottoms) and the proposed evaporation facility would be useful. The size of the proposed evaporation facility will create fairly significant amounts of solid waste at the head works (sludge) and the ponds (salt and other solids). These E&P wastes must be handled and disposed of in a proper manner.	Alternatives	Water supply and disposal	Section 2.2.5 addresses the issue. The volume produced in tank bottoms of individual well sites ranges from 5 to 15 barrels of material every 3 to 5 years. The amount of solids and/or sludge generated at the head works of the evaporative facility are estimated to average from 100 to 200 barrels per month. All wastes from the well facilities will be handled and disposed of in accordance with BLM regulations governing onshore oil and gas operations, as noted in Section 1.4.2 of the DEIS, Other Regulations, Onshore Oil and Gas Orders. General requirements include compliance with applicable laws and regulations, the lease terms, Onshore Oil and Gas Orders, Notices to Lessees and Operators (NTLs), and other orders and instructions of the authorized officer. All operations must be conducted in a manner that ensures the proper handling, measurement, disposition, and site security of leasehold production, and protects other natural resources and environmental quality, as well as life and property (43 CFR Section 3162.1(a)). All wastes associated with the evaporation pond facilities will be handled as per the regulations of the BLM and UDOGM and/or the EPA or other applicable agency."
031-G	3	Another E&P waste not discussed is the volume and proper disposal of drilling mud for this many proposed wells.	Alternatives	Water supply and disposal	Sections 2.2.2.3 and 2.2.4 of the FEIS has been revised to include information on the toxicity and disposal methods for drilling mud. The drilling mud proposed under all alternatives is classified as a low-toxic fluid. It is typical to have around 700 barrels of drilling mud that is released to the reserve pit at the end of the drilling phase. The solids will settle and the water will evaporate. Any remaining fluid at the time of reclamation will be sucked out and moved to a proper disposal site and/or evaporative pond. The solids are typically buried in place.
032-G	11	Significant environmental impacts are likely to be associated with disposal of produced water in the	Alternatives	Water supply and disposal	The discussion of impacts in the FEIS has been expanded in Section 4.15.1.2.2.2, Surface Water Quality, to include the potential impacts from the WEF on water quality.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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 DEIS.			Sections 4.16.1.1.6, 4.16.1.2.5, 4.16.1.3.5, 4.16.1.4.5, and 4.16.1.5.5 of the DEIS analyze the alternative effects of the evaporation ponds on wildlife, including migratory birds. Additions were made to Section 4.16.1.1.6 of the FEIS, including potential effects of evaporation ponds on birds and bats and an assessment of the efficacy of deterrents to prevent the use of evaporation ponds by birds, bats, and other wildlife. The discussion of impacts in the FEIS has been expanded in Sections 4.2.1 and 4.2.1.2.1.1 to include the potential impacts from the WEF on air quality.
032-G	12	Over the past several years, EPA and the BLM Vernal FO 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 DEIS include surface evaporation as the means of disposal of produced water. The DEIS 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 DEIS. 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.	Alternatives	Water supply and disposal	Underground injection is the preferred method for disposal of produced water as noted in Section 2.2.4, Water Supply and Disposal. Additional detail on the rationale for why individual geologic units are not adequate for disposal has been added to Section 2.9.2.1, including specifically the Sego and Castlegate formations. The analysis outlines five criteria that define an adequate injection zone, and assesses the viability of 15 geologic units for disposal, including the Bird's Nest Aquifer. Of the units analyzed, only one is considered potentially viable for disposal. Tertiary Green River Formation–Garden Gulch Member is described as lacustrine shales and fluvial sands that may have potential for small disposal wells. The potential use of this unit for small disposal wells as part of an overall disposal strategy is further described in Alternative F, which has been added to Chapter 2 of the FEIS. Under Alternative F, the new Agency Preferred Alternative, the acreage that could be used for evaporation ponds would be limited to that needed for the first five years of development. For disposal volumes above that, alternative ways of disposing of produced water may be used. These methods could include recycling, treatment, and injection into the above-mentioned formations (if feasible). If those methods could result in environmental consequences beyond the scope of the BLM's decision on this project, additional NEPA analyses may be required at that time.
032-G	13	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	Alternatives	Water supply and disposal	See response to comment 032-G-12. Please note that geological cross sections have been added to Section 3.15.2.1 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
032-G	61	The DEIS suggests that disposal of produced water through underground injection is not feas ble 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.	Alternatives	Water supply and disposal	See response to comment 032-G-12.
032-G	62	EPA believes that there may be other potential sands in the Green River Formation that could be used for disposal. In logs reviewed approximately 2 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.	Alternatives	Water supply and disposal	See response to comment 032-G-12. The potential use of any unit found suitable for small disposal wells as part of an overall disposal strategy is further assessed in Alternative F, which has been added to Chapter 2 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	63	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.	Alternatives	Water supply and disposal	See response to comment 032-G-12. The potential use of any unit found suitable for small disposal wells as part of an overall disposal strategy is further assessed in Alternative F, which has been added to Chapter 2. A geologic cross section has been added to the FEIS in Section 3.15.2.1, although inadequate information was available to provide multiple cross sections, as suggested by the commenter.
032-G	64	An additional disposal method [for produced water], which was not considered in detail in the DEIS, is treatment and reuse or recycling. The DEIS 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 fresh water, 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.	Alternatives	Water supply and disposal	Additional information has been added to Section 2.2.4 of the FEIS, detailing the recycling conducted by Gasco during field operations. The current procedure is compatible with the suggestions in the comments: Gasco currently recycles and treats its produced water for 100% of its drilling and completion operations. Fresh water (from the sources described in Section 2.2.4 of the FEIS) is used only in 1) cementing operations, 2) water to clean the rigs, and 3) the boilers for heat during winter operations. Recycling and use of the water for waterflood purposes in adjacent fields is a possibility that Gasco is actively investigating. It has been included in Alternative F as a possible use for produced water.
032-G	65	[Production w]ater could also potentially be treated to allow for permitting for surface discharge through an NPDES permit process.	Alternatives	Water supply and disposal	Gasco does have a program for treating water, but instead of discharging that water under a NPDES permit it is reused and recycled, thus reducing the requirements for fresh water use. This use of treated water is considered preferable because it reduces fresh water requirements.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					Section 2.2.4 of the FEIS has been updated to reflect that the primary source of water drilling would be recycled and treated production water, and that no surface discharge of produced formation water is proposed or anticipated at this time under any of the alternatives.
032-G	66	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.	Alternatives	Water supply and disposal	Section 2.2.4 of the FEIS notes that the volume of water to be recycled is dependent on the amount of drilling and completion activity in the field. It also notes that recycled water would be transported by third-party water trucks. Spill and leak prevention would be addressed within Gasco's SPCC plans for each facility and location. The remainder of this comment asks for site specific information that is being actively investigated by the operator but is not currently available at this programmatic level. For example, the viability of other operators using the water depends on their needs and applications, and, depending on the application, whether or not the total dissolved solids and consequent scale building tendencies are compatible with their operations. If not compatible, the operators must determine if the water can be treated economically. However, potential water use by other operators is discussed in a general manner under Alternative F, which has been added to Chapter 2 of the FEIS.
032-G	67	According to the DEIS, 90% 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.	Alternatives	Water supply and disposal	Sections 2.2.2.3, 2.2.2.4, and 2.2.4 of the FEIS have been updated to reflect that Gasco currently recycles and treats its produced water for 100% of its drilling and completion operations. Fresh water (from the sources described in Section 2.2.4 of the FEIS) is used only in 1) cementing operations, 2) water to clean the rigs, and 3) the boilers for heat during winter operations. Impacts to special-status species as a result of reduced water flow are disclosed in Section 4.12, Special Status Species. As noted, the BLM has followed the established ESA Section 7 consultation process for these fish species. Additional information on the proponent's recycling program has been added to the FEIS in Section 2.2.4.
032-G	68	EPA has two concerns regarding the disclosure in the DEIS of the impacts of fresh water 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	Alternatives	Water supply and disposal	The amount of estimated total water used per well, including the potential for multiple fracturing of the same well, has been clarified in the FEIS. In short, technology has improved such that the same amount of water that was analyzed in the EIS can be used for all anticipated fracturing jobs on a single well.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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 fresh water aquifers.			Section 2.2.4 of the FEIS has been revised to clarify that fresh water used in drilling operations would not come from fresh water aquifers in the project area. Gasco currently recycles and treats its produced water for 100% of its drilling and completion operations. Fresh water (from the sources described in Section 2.2.4 of the FEIS) is used only in 1) cementing operations, 2) water to clean the rigs, and 3) the boilers for heat during winter operations. Impacts to these sources are discussed in Section 4.15.1.1.1.1 of the FEIS.
032-G	77	The DEIS 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.	Alternatives	Water supply and disposal	The disposal pits would be lined as is specified in Section 2.2.4 of the DEIS. Specific stipulations based on UDOGM regulations with respect to surface water ingress and discharges, lining requirements, and leak detection requirements, have been added to Section 2.2.4 of the FEIS.
020-O	39	The BLM failed to identify the area of potential effect (APE) thereby limiting its ability to identify historic properties and understand the potential effects of the proposed action. See 36 CFR 800.4, 800.16. The APE is likely to extend beyond the project area boundary.	Cultural	APE	The FEIS, at Section 3.3.1, clarifies the area of potential effects (APE) for cultural resources to address both direct and indirect effects. The BLM has expanded the APE in the FEIS to include additional areas of known cultural resource sensitivity that may be indirectly affected by such things as dust, noise, or visual intrusions.
016-O	12	Also relating to the information in page 3-30 there is a recent article written by Dr. Pamela W. Miller and Blaine A. Miller, to be published in an upcoming volume, which provides significant information about the cultural landscape of Nine Mile Canyon which could be used in this section.	Cultural	Data	The information from this regarding the cultural landscape of Nine Mile Canyon was not available at the time the FEIS was prepared. As such, it will be incorporated at the level of site-specific studies conducting for individual facility permits.
021-O	6	Furthermore, the DEIS never identifies the Desolation Canyon National Historic Landmark (NHL), even though the project area either includes or borders the NHL. As a consequence, the public is not told whether the Project will affect the NHL and, if so, whether those effects will be adverse. And if those affects will be adverse, then the public	Cultural	Desolation Canyon NHL	The FEIS, at Section 3.3.1, clarifies the area of potential effects (APE) for cultural resources to address both direct and indirect effects. The extreme outer edge of the indirect effects portion of the APE overlaps the Desolation Canyon NHL. Section 4.3.1 and its subsections of the FEIS discuss the anticipated effects on the NHL by alternative, including noise and visual impacts.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		is also not provided with a description of the measures that BLM will take to "minimize harm" to the NHL, as required by Section 110(f) of the NHPA. As a result, BLM has not taken the required "hard look" at the visual and auditory impacts of the Project on the NHL. Nor has BLM determined whether those impacts are "adverse" and must be "minimized" in accordance with Section 110(f) of the NHPA.			
021-O	11	The DEIS fails entirely to account for the [Desolation Canyon] NHL, even though the project area seemingly includes or borders the NHL's northern boundary (see DEIS at Map 2). Given the proximity of several gas wells to the NHL under Alternative A, id., it is foreseeable that Desolation Canyon may experience visual or auditory impacts (or both) from drilling and other project-related activities. Therefore, it is incumbent on BLM to take these impacts into account prior to approving the Project, determine if they are adverse and then take the legally required steps to address those impacts, including: (1) notifying and inviting the National Park Service to participate in Section 106 consultation, as required by 36 CFR 800.10(c); (2) undertaking "such planning and actions as may be necessary to minimize harm to" the NHL, as required by Section 110(f) of the NHPA, 16 USC 470h-2(f); and (3) ensuring that the Project conforms to Desolation Canyon's VRM Class I designation.	Cultural	Desolation Canyon NHL	An analysis of the potential effects of the proposed project on the Desolation Canyon NHL has been added to the FEIS in Section 4.3.1 and its subsections.
016-O	5	There is discussion of potential impacts to the Canyon, particularly the ACEC and the SRCMA, but there is no discussion of dust that will be generated by project activities, of the potential impact it may have on the cultural resources of the Canyon, or how these impacts will be mitigated. In fact, the absence of any serious discussion of the dust issues in the Canyon is a glaring deficiency and a disappointing approach to a very critical ongoing problem.	Cultural	Emissions and dust	The BLM expanded the APE for cultural resources to include areas that could be indirectly affected by such elements as noise, visual intrusion, or dust. See Section 3.3.1 of the FEIS for a description of the APE. Additional analysis of potential indirect effects on the cultural resources of Nine Mile Canyon is provided in Section 4.3.1 and its subsections of the FEIS. Additionally, the Programmatic Agreement executed for this EIS calls for evaluation of atmospheric effects, including those from dust, at the site-specific permitting stage.
016-O	6	Issue 2: Air Quality states: "How will the impacts of airborne dust, industrial particulates, magnesium	Cultural	Emissions and dust	Additional analysis of the potential effects of dust on cultural resources has been added to Section 4.3.1 and its subsections of the FEIS. Additionally, the Programmatic

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		chloride, and other dust-abating chemicals be mitigated?" Nothing in the air quality data indicates that the impacts of these substances have been studied in relationship to the rock art and cultural resources of the Canyon. All of these substances have the capability, with natural air circulation patterns, of being transported into the Canyon and contributing to an already serious problem. We insist that a full study must be made of all chemicals proposed to be used in dust suppression (e.g., magnesium chloride, calcium chloride, or other road bonding agents) to determine their effects upon rock art, cultural sites, and historic properties, flora, fauna, and water quality. In addition, this DEIS needs to include a study that determines the effects of hydrocarbon pollutants, including, but not limited to, carbon monoxide fumes, diesel fumes, and burning fuel additives such as those used in jake brake exhaust systems, on rock art and cultural sites.			Agreement executed for this EIS calls for evaluation of atmospheric effects, including those from dust, at the site-specific permitting stage.
016-O	9	In addition, Alternative C, should it be selected, has the potential to severely damage the Canyon and the cultural resources because of the identified use of two sections of the Nine Mile Canyon Road. One of these sections runs down Gate Canyon to the Nine Mile Road and then extends west to Pete's Canyon. This will add additional traffic, dust, and damage to an already congested section of the Nine Mile road involved in the BBC West Tavaputs project. The other section identified for use appears to follow an existing jeep trail down north Frank's Canyon to the Nine Mile road and then extends east to what appears to be Bulls Canyon (the maps in the DEIS seem pitiful, tending more to confuse or mislead than to elucidate or illuminate). This section of the road is not included in the West Tavaputs project and has not received any special treatment by BBC, or Carbon and Duchesne counties. It is not graveled, and is very dusty and narrow; the cost to bring it up to standards that will support industry vehicles would be very high. The Canyon is narrow and deeply cut in this area so the dust generated from traffic on this segment would impact the agricultural fields	Cultural	Emissions and dust	Comment noted. Additional analysis of the potential effects of dust on cultural resources has been added to Section 4.3.1 and its subsections of the FEIS. Please note that based on public comments, BLM has developed the new Agency Preferred Alternative, Alternative F. Additionally, the Programmatic Agreement executed for this EIS calls for evaluation of atmospheric effects, including those from dust, at the site-specific permitting stage.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		and the residents of the area in addition to the numerous prehistoric and historic sites.			
016-O	20	It appears that for any of the alternatives the bu k of the traffic will pass through the Wells Draw area. Smith Wells is an important historic site on the historic Nine Mile Road. Although it is on private land, it should be monitored for damaged by vibrations from passing industrial vehicles and dust from industry related traffic.	Cultural	Emissions and dust	Thank you for your comment. Monitoring of sites on private land is outside the jurisdiction of the BLM. Although BLM can recommend monitoring as part of this EIS process, it cannot enforce that monitoring. Furthermore, monitoring would not conclusively show what impacts are resulting from this project and which are resulting from incidental use of the road from traffic not associated with this project. Accordingly, BLM does not find that the recommendation of monitoring that cannot be enforced would be effective in reducing the impacts of this project.
010-I	3	Discovery of National Register–listed or eligible properties after the fact creates the potential for irrevers ble effects which is not acceptable. The DEIS assumes the cultural resources will be protected when they are happened upon. L kewise, it assumes that the airshed of the Project will stop at the Lease Boundary and the Project runoff water will not flow past the Lease Boundary or there that will be no noise factors beyond the Lease Boundary. Any effect other than naturally occurring must be considered as adverse to the cultural resources. The rock art (rock writing and rock markings) is very susceptible to dust, industrial emissions of both mobile and stationary equipment.	Cultural	General	For this NEPA process, a site probability model was developed to allow a relative comparison and determine which alternatives would presumably have risk for indirect or unintended effects to cultural resources. A Class I survey has also been completed for this project, and the results summarized in the FEIS. Because the BLM's goal is to avoid National Register–eligible cultural resources whenever possible during the APD process, we are able to qualitatively evaluate the relative risk to cultural resources across the project area and use this assessment to evaluate overall cumulative impacts. The APE for cultural resources has been explained in the FEIS (see Section 3.3.1), and has been expanded beyond the project area boundaries to include areas of known cultural resources sensitivity that could be indirectly affected by dust, noise, and visual intrusions. Additionally, the Programmatic Agreement executed for this EIS calls for evaluation of atmospheric effects, including those from dust, at the site-specific permitting stage. The BLM has conducted consultation with 12 Native American tribes, in addition to other consulting parties, regarding this project. The results of the consultation and a list of consulting parties under the 106 consultation process are provided in Chapter 5 of the FEIS. Final compliance with the NHPA would occur at the site-specific permitting stage. A Programmatic Agreement has been executed to direct future steps to fulfill the requirements of the NHPA. The Programmatic Agreement calls for evaluation of atmospheric effects, including those from dust, at the site-specific permitting stage. Site-specific cultural resources studies, including field inventories, would be conducted prior to permitting and construction of any individual well, road, or associated facility at the time the proposed locations of such facilities are known. To the extent poss ble and consistent with applicable laws, project designs would be modified to avoid and/or minimize effects on resources determined eligible for listing in the National Register of Historic Places. If adverse effects cannot be avoided, the project proponent would be required to mitigate those effects. Discovery of cultural resources during construction is always poss ble, regardless of whether or not surveys for such resources are conducted prior to construction. For this reason, all development permits include provisions for discovery, and these provisions are designed to minimize the potential for adverse effects.
016-O	7	Issue 3: Cultural Resources states: "How will prehistoric and historic cultural resources,	Cultural	General	The FEIS, at Section 3.3.1, clarifies the APE for cultural resources to address both direct and indirect effects, including effects from dust. Section 4.3.1 and its subsections of the

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		particularly those in and around Nine Mile Canyon, be protected? How will consultation with cultural resource preservation groups be incorporated?" The real potential impacts to the prehistoric and historic cultural resources were not considered in this DEIS and therefore the question remains to be answered. The potential impacts to these resources include, in particular, traffic from Price that is unaccounted for anywhere in the document, and the air flow patterns from the project area that will potentially carry dust and particulates into the Canyon. These issues need to be addressed in depth. Inclusion of consulting parties in the process of developing the final EIS is important in assuring that all potential impacts are properly considered. Groups with an in-depth knowledge of the Canyon and other industrial activities in the area should be welcomed to the table.			FEIS provide an analysis of the anticipated direct and indirect effects on Nine Mile Canyon from the Proposed Action and alternatives. Additionally, the cumulative effects of traffic from Price in Nine Mile Canyon are descr bed in Section 4.18.3.2 of the FEIS. The BLM has engaged consulting parties under the requirements of the National Historic Preservation Act (NHPA). These parties include the Nine Mile Canyon Coalition and other parties with specific knowledge of the cultural resources in the Canyon.
016-O	11	Page 3-9 of Chapter 3 contains a completely incorrect statement about rock shelters and caves being located on the southern side of canyons. The opposite is true in the West Tavaputs: these types of sites are generally found on the northern side of the canyons. It is either an error in writing or it demonstrates the weakness of using a Basin model for the WTP.	Cultural	General	Section 3.3.3.1 of the FEIS contains clarification relative to the locations of rock shelters and caves in the West Tavaputs area.
016-O	13	On page 3-32 of the DEIS it states there are currently 62 sites in the immediately adjacent area listed on the National Register. This does not take into account the hundreds of sites that will be submitted by Utah State Office BLM, an obligation included in the West Tavaputs PA.	Cultural	General	The FEIS, at Section 3.3.4, includes additional information about the future nomination of sites to the National Register of Historic Places as a result of the West Tavaputs PA.
016-O	14	The NHPA directs the BLM to nominate all eligible sites, so the Gasco EIS should support this. There is no description of significance statements for site eligibility for the NRHP anywhere in the DEIS.	Cultural	General	All elig ble sites are protected and given the same treatment and protection as sites listed on the NRHP. As noted in Section 2.2.9.2 of the DEIS, sites discovered that are considered eligible would be avoided or mitigated through an approved data recovery plan. In addition, as reflected in Chapter 3 of the FEIS, a literature review was completed for the APE that includes all eligible sites.
020-O	40	The DEIS does not fully assess adverse effects to historic properties from the proposed action, as required under 36 CFR 800.4 and 800.5.	Cultural	General	The EIS and its associated NEPA process are not intended to fulfill all requirements of the National Historic Preservation Act as outlined in the implementing regulations at 36 CFR 800.4 and 800.5. The EIS compares the relative l kelihood of effects on cultural resources from each alternative using information appropriate for a programmatic-level comparison. Final compliance with the NHPA, including a detailed assessment of project

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					effects on historic properties, would occur at the permitting stage, when detailed facility designs are available to the BLM. Site-specific cultural resource studies, including field inventories, would be conducted prior to permitting and construction of any individual well, road, or associated facility at such time as the proposed location of said facilities within the broader lease area is known. To the extent possible, project designs would be modified to avoid and/or minimize effects on resources determined eligible for the National Register of Historic Places. If adverse effects cannot be avoided, the project proponent would be required to mitigate those effects. In addition, as part of the "consulting party" process, BLM assessed potential adverse effects to historic properties from the Proposed Action.
010-I	2	The Gasco APE must include that portion of the Nine Mile Canyon ACEC which lies adjacent to the Lease Boundary and its tributaries both upstream and downstream of the Project as well as the Green River.	Cultural	Methodology	The FEIS, at Section 3.3.1, clarifies the APE for cultural resources to address both direct and indirect effects. The BLM has expanded the cultural resources study area in the FEIS to include additional areas of known cultural resource sensitivity that may be indirectly affected by such things as dust, noise, or visual intrusions. This expanded area includes a portion of the Nine Mile Canyon ACEC. The analysis of the anticipated effects on the ACEC is provided in Section 4.3.1 and its subsections of the FEIS.
010-I	4	To use a probability model as suggested in the DEIS to identify environmental zones for the Project that have a greater or lesser potential for containing cultural resources is not in keeping with NHPA.	Cultural	Methodology	The site probability model is intended only for use in comparing alternatives through this programmatic NEPA planning process and not as compliance with the National Historic Preservation Act (NHPA). See Section 3.3.2 of the FEIS for information regarding the purpose and rationale for use of the model. Site-specific surveys at the permitting stage would be used to fulfill the NHPA requirements. The BLM has also entered into a Programmatic Agreement (PA) in association with this EIS. This PA outlines stipulations for future work to fulfill the requirements of the NHPA.
012-I	1	Incomplete/Insufficient Cultural Resources Surveys to Support Development. Considering cultural resources, it is clear that the data available are insufficient to support informed conclusions regarding losses or avoid asset destruction. …On page 3-33, the issue of incomplete surveys … is dispensed with by dividing areas into low and high probability subsections as more or less likely to suffer impacts. This is really little more than a guess and seems entirely contrary to the intent of the Antiquities Act.	Cultural	Methodology	The site probability model is intended only for use in comparing alternatives through this programmatic NEPA planning process and not as compliance with the National Historic Preservation Act. See Section 3.3.2 of the FEIS for information regarding the purpose and rationale for use of the model. The intent of the Antiquities Act was to give the President of the United States authority to, by executive order, restrict the use of particular public land owned by the federal government for the protection of objects of historic and scientific interest.
016-O	3	The DEIS neglects to define in detail the southern boundary of the project area. As descr bed in the Executive Summary in the first paragraph, the area includes T 9 S, R 18 & 19 E; T 10 S, R 14-18 E; T 11 S, R 14-19 E. This southernmost grouping of townships and ranges includes Nine Mile Canyon from Trail Canyon to Argyle Canyon (R 14); Pete's Canyon, Gate Canyon, and Water Canyon (R 15);	Cultural	Methodology	Section 3.3.1 of the FEIS clarifies the southern boundary of the project area. Section 3.3.1 of the FEIS also discusses the area of potential effects for cultural resources. See also the project area map (Map 2).

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		the area between Frank's Canyon and Maxie Canyon (R 16); and Maxie Canyon and Bulls Canyon to Nutter's Hole (R 17). With this vague description the public can only assume that significant sections of the Canyon are included in the project area. As such, those areas of the Canyon, including the road and the cultural resources, need to be analyzed much more carefully than what is included in this DEIS.			
016-O	10	Chapter 3, Section 3.3.1, discusses modeling the distribution of cultural resources within the project area. The first paragraph describes how difficult it is to develop a model for site location based on current information, and then the rest of the section descr bes a model BLM developed based on Uinta Basin archaeology. It is an intuitive model that has not been tested (it needs to be tested), and the DEIS proposes applying it to the West Tavaputs area. Jerry Spangler has written several articles on the West Tavaputs adaption of the Fremont, which is very different from the Uinta Fremont adaptation. So the question needs to be asked as to whether it makes sense to use a model based on data from the Basin. We suggest it is more logical to look south of the project area rather than north for comparative data	Cultural	Methodology	Section 3.3.2 of the FEIS describes the rationale and intended purpose of the site probability model. The model is intended only for use in comparing alternatives through this programmatic NEPA planning process and not as compliance with the National Historic Preservation Act. Within the NEPA process, the model allows for a relative comparison of alternatives as to which alternative is likely to create situations in which cultural resources would be encountered during facility-specific archaeological surveys and presumably have risk for indirect or unintended effects on cultural resources. Development of a site probability model for any geographic area is difficult due to incomplete information. The BLM has determined that the model used in the RMP and adopted for this EIS is adequate for the purpose at hand, which is to provide a relative comparison of cumulative impacts of the broad-scale development proposed by this project.
023-I	2	The DEIS does not define an "Area of Potential Effect" which is "the geographic area or areas within which an undertaking may cause changes in the character or use of historic properties..." 36 CFR Part 800.2(c)(1995) This clearly applies to the Native American rock art in Nine Mile Canyon where surveys have identified rock art from the Whitmore Park divide to Green River. This area is all one airshed which we have shown by dust particulate measurements with a laser particle concentration analyzer over the distance from the Whitmore Park cattleguard to the locked gate in lower Nine Mile Canyon.	Cultural	Methodology	See response to comment 020-O-39 (located under the Cultural /APE section of this table).
016-O	18	Section 4.3 on cultural resources describes the environmental consequences of the different alternatives. There is very little discussion about	Cultural	Mitigation	The mitigation measure to which the reader refers (contained in Section 4.3.2 of the DEIS and which proposes collection of diagnostic artifacts within 150 feet of development areas), is intended specifically to address potential looting of such items visible on the

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		mitigation of effects on cultural resources. At the bottom of page 4-59 there is an especially disturbing statement about potential mitigation that could include surface collecting diagnostic artifacts within 150 feet of the disturbance for curation and analysis. If there is a potential for effect then data recovery needs to take place, not just surface collection of diagnostic artifacts.			ground surface and not more extensive impacts. Should potential adverse effects be identified that would impact subsurface components of site, more extensive mitigation measures and subsurface excavations, would need to be considered. Additionally, the Programmatic Agreement executed for this EIS (Appendix Q) identifies for preconstruction survey, evaluation and reporting protocols.
023-I	4	Cumulative impact is not modeled in the DEIS since it ignores projects such as the Greater Chapitas Wells Natural Gas Infill Project which will contain over 7,000 wells. EPA Region 8 sent scoping comment to the Vernal FO in 2009 with detailed comments on the potential air pollution impact of this project and listed numerous mitigation measurements.	Cumulative Impacts	Air Quality	The cumulative impacts analysis contained in the DEIS was based on the Mineral Potential Report (MPR) prepared as part of the Vernal RMP which predated both the Greater Chapita Wells and Greater Natural Buttes Scoping Notices. The MPR provided estimates of well development, acres of current and future surface disturbances and other elements of oil and gas development. However, the cumulative impacts analysis of the FEIS has been revised to reflect additional reasonably foreseeable development in the Vernal planning area affecting the same resources as this project, including the Greater Chapitas Wells Natural Gas Infill Project and the Greater Natural Buttes Project.
020-O	9	Although recognizing global warming and human-caused contributions as a potential concern in its Chapter 3 background, the Gasco DEIS fails to provide any analysis of the contributions of this project to global warming. It neither quantifies these GHG emissions nor does it analyze their potential contribution to global warming. There is broad scientific consensus that climate change is occurring, with sweeping changes that will affect all portions of the Earth, including the Gasco DEIS project area. Yet the Gasco DEIS fails to analyze predicted changes in the project area and the Colorado Plateau in general. This omission is a significant oversight given that federal departments and agencies, including the Department of Interior, the EPA, and the U.S. Geological Survey have all published reports and/or provided public statements and congressional testimony acknowledging the impacts of climate change on public lands resources. The BLM has failed to take the necessary, hard look at the likely impacts from global warming on the project area and the contributions from this project to global warming…The BLM should have discussed all of these predicted effects of global warming in Chapter 3's assessment of existing conditions and	Cumulative Impacts	Climate change	Section 3.2.3.1.5, Greenhouse Gases (GHGs), has been added to the FEIS to provide an overview of existing conditions related to GHG emissions The understanding and prediction of potential impacts related to climate change are not well enough understood to apply to a specific project. However, BLM does and will continue to comply with federal, state, and agency requirements regarding climate change disclosure and mitigation. BLM does and will continue to require emission reduction and control based on recognized air quality issues associated with oil and gas projects, which also have benefits related to GHG reduction, and will continue to encourage reductions of GHGs consistent with federal, state, and agency guidance. Section 4.18.3.1.8 of the FEIS includes a discussion of impacts from GHGs on climate, and resulting environmental impacts of climate change.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		then provided actual analysis in Chapter 4's discussion of the impacts to global warming from the various alternatives of this project.			
020-O	10	Understanding of the predicted impacts of climate change should shape in important ways the various alternatives under consideration by the BLM in the Gasco DEIS. For example, given that so many of the predicted outcomes of climate change center on increased soil erosivity, dust storms, shrinking water resources, loss of riparian areas, invasion of exotic plants, and the spread of hotter, larger wildfires, the BLM must design alternatives that minimize soil disturbance as much as poss ble (i.e.,adopting 160-acre surface spacing). The BLM's own science coordinator noted that the effects of climate change should result in an anticipated reduction in the allowed use of certain activities on BLM lands—yet anticipatory planning is not present in the Gasco DEIS. The combination alternative recommended by the Southern Utah Wilderness Alliance would do more to reduce surface impacts than the development alternatives presented in the Gasco DEIS. Furthermore, the BLM must require the capture of methane gas from all well heads and eliminate leakage from all pipelines and well facilities. See Eryn Gable, Climate Change Concerns Voiced in Protests to BLM Leases, Land Letter (Apr. 20, 2008) (attached as Exh bit 9) (discussing ways in which gas operators have been reducing emissions in the San Juan Basin).	Cumulative Impacts	Climate change	See response to comment 020-O-9. Alternative F, selected as the BLM's Agency Preferred Alternative, minimizes surface disturbance through the adoption of 160-acre surface spacing. Section 2.2.3 of the FEIS has been updated to clarify that Gasco captures methane and/or all produced gases within a closed loop system equipped with leak detection systems.
020-O	11	The Gasco DEIS does not discuss the cumulative effects of various uses l ke off-road vehicle recreation and grazing on, for example, riparian areas and soil stability. These cumulative effects should also be considered in the context of climate change and how these uses, combined with the proposed project will act to exacerbate climate change on both a global and regional scale.	Cumulative Impacts	Climate change	Section 4.18.2.3 of the FEIS identifies past, present, and reasonably foreseeable actions related to livestock management. Decisions about grazing season of use, stocking densities, forage allocation, and utilization within the Vernal planning area are made using Standards for Rangeland Health and Guidelines for Grazing Management during the grazing permit renewal process. The Guidelines include standards for riparian areas and soil stability. These actions are considered in the cumulative impacts analysis for each resource. Section 4.18.2.4 of the FEIS identifies past, present, and reasonably foreseeable actions related to recreation and OHV use. These actions are considered in the cumulative impacts analysis for each resource. Note that the Vernal RMP limitation of OHV use to designated routes would prevent further disturbance to soil and riparian areas. While illegal OHV use may occur, the assumption is that OHV users follow posted regulations.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					These sections were incorrectly numbered in the DEIS and are now Sections 4.18.2.3 and 4.18.2.4, respectively. Cumulative impacts related to climate change are addressed in a new Section 4.18.3.1.8.
010-I	1	The Gasco Project (Project) must establish the Area of Potential Effect (APE) Boundary. Without establishing the APE, cumulative impact of the past, present, and future for the Project cannot be fully determined nor can mitigation be achieved.	Cumulative Impacts	Cultural	The FEIS, at Section 3.3.1, clarifies the APE for cultural resources to address both direct and indirect effects.
016-O	17	Chapter 4: Environmental Consequences: Described at 4.1 at the bottom of the page is the proposed practice of deferring analyses of associated effects until the APD phase of development. This would include site-specific cultural surveys prior to construction, but it would not allow or require BLM to analyze cumulative impacts on cultural resources. This prevents BLM from seeing the larger picture of potential damage to cultural resources and needs to be changed.	Cumulative Impacts	Cultural	See response to comment 010-I-3, located in the “Cultural/General” section of this table.
012-I	2	Weak Projections of Cumulative Impacts. One of the problems in assessing the impact of this specific project is that the immediate area harbors other energy development work. Multiple planning areas are involved and projects have been considered piecemeal, which has complicated the task of obtaining a comprehensive cumulative impact analysis. One way around seems to be to point out how much surface disturbance each alternative involves and calculate (for example) the percentage of the entire ACEC involved, which tends to yield the reassuring result that the overall impact is low.	Cumulative Impacts	Reasonably foreseeable development	The cumulative impacts analysis contained in Section 5.18 of the DEIS considered impacts of all past, present, and reasonable foreseeable projects, as well as the relative contribution of the Proposed Action and its alternatives. To provide context for this analysis, a cumulative impacts analysis area (CIAA) is established for each resource, identifying the geographic level where incremental effects or synergistic effects may affect the resource. Each resource section contained in Section 5.18 identified the CIAA used in its analysis and provides rationale for its selection. In the case of ACECs, the ACEC was used as the analysis area because it represents the smallest geographic area containing similar resource values and management prescriptions. The level of energy development used for the cumulative impacts analysis was originally based on the Mineral Potential Report (MPR), prepared as part of the Vernal RMP. The MPR provided estimates of well development, acres of current and future surface disturbances and other elements of oil and gas development. Since the development of the MPR, the levels of development associated with many projects have changed. The cumulative impacts analysis (renumbered as Section 4.18 of the FEIS) has been revised to reflect all reasonably foreseeable development in the Vernal planning area affecting the same resources as this project.
016-O	1	The potential cumulative impacts of the West Tavaputs Field Development Project by BBC must be included in this EIS.	Cumulative Impacts	Reasonably foreseeable development	The cumulative impacts analysis contained in the DEIS was originally based on the Mineral Potential Report (MPR) prepared as part of the Vernal RMP. The MPR provided estimates of well development, acres of current and future surface disturbances and other elements of oil and gas development. The West Tavaputs Project was considered in the development of the MPR; however, the level of development associated with that project (and other projects) has changed since that time.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					The cumulative impacts analysis of the FEIS has been revised to reflect all reasonably foreseeable development in the Vernal planning area affecting the same resources as this project. This analysis includes consideration of development associated with the West Tavaputs Field Development Project.
020-O	3	The BLM has generally overlooked impacts in the project area because it has ignored large tracts of land within the project boundaries that are not leased by Gasco but which are likely to be developed, as they contain the same, or similar, subsurface geology as the rest of the project area. Kreckel Comments. The large blocks of land along the northeastern edge of the project boundary and in the northwest portion of the project are not likely to remain undeveloped.	Cumulative Impacts	Reasonably foreseeable development	Although the referenced area may have similar geology, there are currently no reasonably foreseeable development projects on those lands. Regardless, the direct and indirect impacts of development in these areas have been analyzed under Alternative C, Full Development, and thereby incorporated in the cumulative impacts analysis for that alternative. Please note that the cumulative impacts analysis of the FEIS has been revised to reflect all reasonably foreseeable development in the Vernal planning area. Section 4.18.2 of the FEIS clarifies that "reasonably foreseeable" actions include those for which there are existing decisions, funding, or formal proposals, including those actions that are still in draft form. Table 4-155 identifies the reasonably foreseeable oil and gas projects within the Vernal FO planning area, and identifies total project acreage, numbers of wells and well pads, and estimated acres of surface disturbance both within the Vernal FO and inside the Gasco project area.
020-O	25	The BLM omitted serious analysis and discussion of past, present, and future off-road vehicle use in the area. This error prevents the BLM from being able to accurately evaluate long-term cumulative impacts.	Cumulative Impacts	Reasonably foreseeable development	Section 4.18.1.74 of the DEIS identified past, present, and reasonably foreseeable actions and development related to recreation and OHV use. These actions were considered in the cumulative impacts analysis for each resource. The Vernal RMP limitation of OHV use to designated routes would prevent further disturbance to soil and riparian areas, and reduce spread of noxious weeds. While illegal OHV use may occur, the assumption is that OHV users follow posted regulations. Cumulative impacts to recreation, including OHV use, are discussed in Section 4.18.3.7 of the FEIS. The section discloses that past, present, and reasonably foreseeable road construction has and would continue to lead to increased OHV access. This analysis identifies current motorized route mileages, reasonably foreseeable miles of roads, and Gasco's contribution to that number by alternative. As discussed in Section 4.18.2.4, the Vernal RMP limits recreational OHV driving to 4,860 miles of existing routes on 1,643,475 acres of the public lands in the planning area.
020-O	26	The Gasco DEIS completely fails to consider the indirect and cumulative impacts that will result from development of large land blocks in the northwest and northeast portion of the project area that are not leased by Gasco. These areas contain similar geology and are as likely to be developed as the areas proposed by Gasco.	Cumulative Impacts	Reasonably foreseeable development	See response to comment 020-O-3.
021-O	9	Of particular concern, the DEIS lacks a discussion of the cumulative impacts of the Project in conjunction with the massive traffic increase proposed for the Nine Mile Canyon	Cumulative Impacts	Reasonably foreseeable development	The cumulative impacts section related to transportation (Section 4.17.3.4 of the DEIS), disclosed the current and reasonably foreseeable new miles of road and Gasco's contribution to that number. The analysis identified cumulative impacts such as traffic increases and delays, increased risk of accidents and collisions with wildlife, and

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Road in the West Tavaputs Project Final EIS (id. at App. F at 4–5).			increased road maintenance. The cumulative impacts analysis related to Transportation (Section 4.18.3.4 of the FEIS) has been revised to include information regarding traffic along the Nine Mile Canyon Backcountry Byway resulting from the West Tavaputs project. As noted in Section 4.5 of the FEIS, Gasco's contribution to traffic on sections below the rim of Nine Mile Canyon would only occur under Alternative C. Above the rim, traffic would vary by segment under each alternative. These numbers are disclosed in Table 4.76 and Section 4.5 of the FEIS. A new table (Table 4-187) has been added to Section 4.18.3.4 of the FEIS to disclose the cumulative effects of Gasco and West Tavaputs project traffic on each section of the byway above the rim.
028-O	39	Within the project boundaries, the BLM's analysis does not account for all of the foreseeable potential development. A map of the proposed development shows very little proposed development within a substantial portion of the project boundary, a large area without proposed development within the northeast part of the project boundary, and additional leased, but undeveloped land within the southeast portion of the project boundary. These areas, especially the lands in the north, are l kely to be developed or proposed for development within the lifetime of this project. The BLM must be scrupulous in its cumulative impact analyses for this and future resource development in the area in order to ensure that the development is not improperly segmented. That is to say, the BLM must—for this EIS and for all future project-specific EISs in the area—perform a comprehensive cumulative impact assessment so as not to allow individual projects to proceed that would contribute to cumulative impacts in the area.	Cumulative Impacts	Reasonably foreseeable development	The cumulative impacts analysis of the FEIS has been revised to reflect updated levels of development for all past, present, and reasonably foreseeable development in the Vernal planning area. Although the referenced area may have similar geology, there are currently no proposed or planned development projects on those lands. Accordingly, assessing potential for any development would be speculative at best and the impacts of that development could not be accurately analyzed.
032-G	15	The Reasonably Foreseeable Development (RFD) scenario used in the cumulative impact assessment for Gasco appears to under-count planned and projected development in the Uinta Basin. The RFD scenario appears to be based on the Vernal 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	Cumulative Impacts	Reasonably foreseeable development	See response to comment 020-O-3.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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 DEIS. 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.			
032-G	24	There appear to be some numbering inconsistencies in the DEIS.	General	Editorial	Numbering inconsistencies have been corrected in the FEIS.
020-O	6	The DEIS does not analyze the potential development of the Mancos Formation (see Kreckel comments). This oversight is significant as Gasco has declared that the largest share of its gas reserves in this project area are in the Mancos Formation (see id). The BLM must analyze a potential Mancos Formation development plan.	Geology	Cumulative Impacts	See response to comment 025-O-3.
013-B	3	Directional drilling technology requires subsurface geological control of target locations in three dimensions and without the knowledge of the stratigraphic and structural geologic conditions of the target formations, directional drilling may not produce desired results. Gasco does not yet have sufficient knowledge about the drilling and completion techniques appropriate to the target formations within the western and southern portions of the Project area. For these areas, Gasco will not have sufficient knowledge of the underlying geology until a series of vertical wells are drilled. Gasco's most promising targets are within the Blackhawk and Mancos formations, which are very deep (in excess of 12,000 feet). Because these discontinuous members are poorly defined within the Project area, they cannot be directly targeted with directional or horizontal drilling until initial vertical drilling has better defined them. In addition, until vertical wells are drilled within these portions of the Project area, the BLM and Gasco will not know what specific drilling hazards may exist.	Geology	Directional drilling	Comment noted. BLM recognizes the uncertainty regarding the drilling and completion techniques appropriate to parts of the project area's geology. The FEIS has been revised to clarify this uncertainty (see Section 2.6.2.3 for Alternative E and Section 2.7.2.3 for Alternative F). Alternative F, as designed, allows placement of well pads through careful planning to drill vertical wells, especially in the southern and western portions of the project area to assist in obtaining knowledge of the formations in the area. However, directional drilling is emphasized under this alternative to reduce impacts to surface resources.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Initial vertical drilling within the Project area will enable Gasco to obtain data on appropriate drilling and completion techniques, as well as knowledge about potential safety concerns that may exist in the Project area. Once this initial vertical drilling and completions has taken place, then targeted formations such as the Mancos can be horizontally drilled and could utilize pad drilling as well. Once the deep horizons have been drilled, then a situation would be set up to directionally drill for the shallower horizons from pad locations. Accordingly, Alternative E—the Directional Drilling Alternative—is not technically or economically feasible for Gasco at this time. Once natural gas targets are better defined, and if economic natural gas development potentially exists in the project area, then Gasco will be in a better position to determine locations where directional drilling and/or pad drilling may be an appropriate and viable alternative.			
031-G	1	The discussion of the oil shale resource information in Subsection 304.1.3 of section 3A "Geology & Minerals" does not contain the most up-to-date information on the thickness and grade of the oil shale deposits underlying the DEIS study area; that information is contained in Utah Geological Survey Special Study 128 (2008) by Michael Vanden Berg, entitled *Basin-wide evaluation of the uppermost Green River Formation's oil-shale resource, Uinta Basin, Utah and Colorado*. This report is available for free to the public on the Utah Geological Survey website at <http://geology.utah.gov/emp/oilshale/index.htm>. The DEIS subsection 304.1.3 should be revised to include this new information.	Geology	Shale	The report was obtained and its relevant information has been incorporated into Section 3.4.1.3 of the FEIS.
019-I	5	Indicate in the FEIS: The state land parcels with existing access and state parcels needing road access. In addition provide the public with the miles of road needed to access the state land once … and once only.	Land Use	Access	Chapter 2 of the DEIS discloses the number of wells and total miles of road proposed under each alternative, regardless of ownership. All existing access routes were taken into consideration in the development of the access or spur roads proposed under each alternative. Chapter 2 also acknowledges the programmatic nature of this EIS and that well numbers, density, and placement may change during the on-site review and permitting processes due to topography or other resource concerns. This would in turn change the road mileages per well.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
019-I	6	Indicate in the FEIS: The individual drilling sites (by number) on public land managed by the BLM within the EIS area. For each drilling site indicate whether it has access or not. If it has no access please provide the public with the number of miles required for access.	Land Use	Access	See response to comment 019-I-5.
019-I	7	Indicate in the FEIS: the number of private parcels of land where drilling is planned that do not have current access.	Land Use	Access	While the DEIS includes private lands in its analysis, these lands are not part of the decision to be made in this EIS. Section 1.2.2 of the FEIS provides additional information on the decisions to be made as part of this project. However, the BLM is obligated to grant reasonable access to private land parcels. All existing access routes were taken into consideration in the development of the access or spur roads proposed under each alternative. Chapter 2 acknowledges the programmatic nature of this EIS and that well numbers, density, and placement may change during the on-site review and permitting processes.
020-O	16	The Gasco DEIS has failed to provide any background information on noise levels in the project area. The establishment of such a baseline is essential in order to determine the acoustical impact of any proposed development…which could violate the solitude. (Arno S. Bommer and Robert D. Bruce, Long-Term Ambient Sound Monitoring in National Parks, Sound & Vibration 16, 16 [Feb. 1992] [attached as Exhibit 11]). Southern Utah Wilderness Alliance (SUWA) has included an instructive article on how such baseline studies might be conducted; SUWA incorporates this article into its comments.	Noise	General	The baseline conditions for Glen Canyon Recreation Area as reported in the West Tavaputs Plateau EIS have been incorporated into Section 3.8, Recreation, of the FEIS as reasonable assumptions for background noise conditions in relatively undeveloped parts of the project area. Because BLM manages the project area for multiple uses and has planned for development in the areas proposed for development under this EIS, such conservative estimates are adequate to disclose potential impacts, and no baseline studies are needed. BLM has also updated Section 4.8 of the FEIS to include additional analysis of potential noise impacts to recreation. This analysis discussed the magnitude of noise impacts expected during construction in undeveloped parts of the project area. The analysis also calculates the approximate buffer distances over which noise would attenuate to levels that would not cause interference in outdoor activities (as identified by the EPA) and to ambient conditions in relatively undeveloped areas. The FLPMA directs BLM to manage public lands for multiple use and sustained yield (Section 102(a)(7)). As a multiple-use agency, the BLM is required to implement laws, regulations, and policies for many different and often competing land uses and to resolve conflicts and prescribe land uses through its land use plans. As noted in the Vernal RMP ROD (2008), under all alternatives the BLM would seek to minimize sound pollution as feas ble using the best available technology such as installation of multi-cylinder pumps, hospital sound-reducing mufflers, and placement of exhaust systems to direct noise away from sensitive areas.
020-O	17	Ambient sound levels have been measured in national parks in Utah that present extremely low readings. For example, a monitor in Canyonlands National Park established in the winter measured L99 values—for which ambient sound readings will be below 99% of the time—of 18 dBA during the day and 19 dBA at night (Mary Ann Grasser and Kerry Moss, The Sounds of Silence, Sound &	Noise	General	See response to comment 020-O-16.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Vibration 24, 25 [Feb. 1992] [attached as Exhibit 12]). In many cases, ambient sound levels in these parks are below the ability of the measuring equipment to detect. Bryce Canyon has measurements of L90 values of 35 dBA in the day and 20 dBA at night. Dinosaur National Monument and Glen Canyon National Recreation Area had L90 values measured ranging from highs of 30 dBA to lows of 19 dBA throughout the year. The noise levels would be indicative of the background levels that the BLM might observe if it conducted an accurate study of ambient noise in the Gasco project area.			
020-O	18	SUWA has provided a study performed by Collaboration in Science and Technology, Inc., of ambient sound levels in parks of the Colorado Plateau. See generally Collaboration in Science and Technology, Inc., Ambient Sound Monitoring Program for Colorado Plateau Parks (Sep. 20, 1990) (attached as Exh bit 13). This document is also instructive for modeling. The BLM must model the impacts of sound to river recreationists from this project and also to wildlife throughout the project.	Noise	General	See response to comment 020-O-16.
020-O	19	Furthermore, the River Management Plan specifically forbids the authorization of drilling projects that are located within sight or sound of the Green River (River Management Plan at 20, 29). The BLM has failed to take any background ambient noise level data on the Green River area and from the Desolation Canyon National Historic Landmark. Without the background ambient noise level and accurate modeling of potential noise sources the BLM cannot conclude that the alternatives analyzed in the Gasco DEIS will comply with this management directive.	Noise	General	The wells that are proposed for development near the northern portion of the Green River Management Plan area (now the Desolation Canyon SRMA) are located on state lands, so they are outside the authority of both the Green River Management Plan and BLM's Gasco EIS Decision (see Section 1.2.2). However, Alternative F, the Agency Preferred Alternative, has been added to the FEIS. Under this alternative, no well pads for this project would be developed within 0.5 mile or line-of-sight of the Green River (whichever is less). In addition, in areas beyond 0.5 mile of the Green River, the BLM would seek to minimize sound pollution within the Gasco project area as feasible using the best available technology such as installation of multi-cylinder pumps, hospital sound-reducing mufflers, and placement of exhaust systems to direct noise away from sensitive areas. Please also note that this is a programmatic EIS that discusses landscape-level development. Each well would be reviewed on a site-specific basis and permitted in accordance with lease stipulations and the conditions of any decision on this EIS.
020-O	20	SUWA incorporates the comments of Mr. Richard A. Kolano, a noise and acoustics control engineer with substantial experience evaluating auditory impacts from human activity in outdoor settings,	Noise	General	See response to comment 020-O-16.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		which were prepared for a project immediately south of the Gasco project. See Richard Kolano, Review of Environmental Impact Statement UT-070-05-055 (May 1, 2008) (Kolano Comments) (attached as Exhibit 14). Although these comments were prepared for a separate project, they are equally instructive here. Mr. Kolano's comments demonstrate that the Gasco DEIS has failed to objectively assess background noise in the project area through measurement (something the BLM has done in places such as the West Tavaputs). The BLM's noise projections are very limited (nothing more than qualitative statements about noise), and completely lack a threshold noise level. All of these deficiencies must be rectified in the final Gasco analysis.			
020-O	27	The BLM has failed to include such vital information, or explain why it cannot be obtained, for ambient noise levels in the project area along with calculations of the l kely noise impacts from development.	Noise	General	See response to comment 020-O-16.
029-I	1	In addition, Desolation Canyon, because of its remoteness, has very little noise pollution. Prior to any drilling the BLM must initiate sound research regarding the current conditions. The Gasco operations must be restricted so that they do not exceed those current standards.	Noise	General	In conformance with the Vernal RMP ROD (2008) decisions for development in the area, there is no requirement to prevent noise and no required noise standards. However, Alternative F, the new Agency Preferred Alternative, has been added to the FEIS. Under this alternative no wells would be developed for the Gasco project within 0.5 mile of the Green River or within line-of-sight of the Green River, whichever is less. This requirement would minimize potential project noise-related impacts to Desolation Canyon visitors. In addition, as per the Vernal RMP ROD (2008), in areas beyond 0.5 mile of the Green River, the BLM would seek to minimize sound pollution within the Gasco project area as feasible using the best available technology, such as installation of multi-cylinder pumps, hospital sound-reducing mufflers, and placement of exhaust systems to direct noise away from sensitive areas.
013-B	29	BLM must analyze and disclose impacts to air and other resources in NEPA documents, but is not the regulating agency to ensure that oil and gas operations comply with the CAA. Prior to development, under the CAA, each State has the primary responsibility for assuring air quality within the state. Records of Decision for NEPA documents do not themselves authorize any activity capable of emitting air pollutants. Gasco must obtain a permit and authorization from UDAQ	Process	Cooperating agencies/ permitting	The commenter is correct in part. The Utah Department Air Quality (UDAQ) is the regulatory authority for approximately half of the project area. The other half of the project area is regulated by the Environmental Protection Agency (EPA) because it is under the jurisdiction of the Ute Indian Tr be. In addition, it is BLM's responsibility not only to disclose impacts, but also to disclose if the proposed project as described in the EIS is in compliance with federal, State, and local laws and ordinances.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		before constructing any regulated emission source that is analyzed in the EIS. Moreover, BLM can assume and inform the public that the UDAQ will ensure that air quality standards are and will be met throughout the life of the project. Applications for Permits to Drill (APD) will be issued with conditions of approval that require Gasco to comply with all applicable laws.			
019-I	1	Clearly the Responsible Official failed to discuss opposing views in this DEIS. Therefore the FEIS must discuss the opposing views submitted in the attachment above.	Process	Public involvement	Scoping comments from the public were reflected in the DEIS. In addition, all comments submitted during the public comment period have been reviewed, and all substantive concerns and comments have a response in the FEIS.
010-1	8	To allow this Project to proceed prior to Baseline Studies, an inventory of the cultural resources, Section 106 Review and consultation with the tribes, a Programmatic Agreement to identify and protect the cultural resources is in direct conflict of regulations of NEPA, NHPA, AHPA, ARPA, AIRFA and NAGPRA.	Process	Section 106 and tribal consultation	This is a programmatic NEPA document and the BLM is carrying out a phased approach to identifying cultural resources that could be affected by the undertaking. The laws cited by the commenter do not require specific types of studies, surveys, or analyses. Rather, they require the consideration of cultural resources in federal undertakings and consultation with appropriate parties. The BLM has consulted with Native American tribes and other consulting parties to assess the potential effects of the undertaking on cultural resources. The consultation resulted in the execution of a Programmatic Agreement to address potential impacts to cultural resources. Additionally, the BLM would implement permit conditions requiring site-specific cultural resources studies prior to construction of any well pad, road, or related facility comprising the Proposed Action or any alternatives. These conditions also prioritize avoidance of adverse effects to cultural resources that are eligible for listing on, or are listed on, the National Register of Historic Places.
010-I	6	Baseline Studies are paramount to determine the full impact of the entire APE for this Project. Also another essential component of the identification effort is the requirement agencies seek information from Indian tribes, local governments, organizations and the public. Without consultation with the Native American Tribes (Ute, Hopi, Piute and Navajo), the DEIS is very speculative and lacks factual information dealing with the on-the-ground components, therefore making it impossible to mitigate and protect the cultural resources with the limited knowledge in the document.	Process	Section 106 and tribal consultation	See response to comment 010-I-3.
010-I	7	It is my understanding that the Hopi Nation has not been informed of this Project even though they have claimed TCPs and sacred sites in Nine Mile Canyon. Cultural resources in Nine Mile Canyon will be impacted as well as in the project area.	Process	Section 106 and tribal consultation	The BLM invited the Hopi Tribe and more than 20 other tribes and organizations to be consulting parties for the Section 106 process for this EIS. Formal invitations were issued via letter dated February 17, 2011. A list of consulting parties is provided in Section 5.2 of the FEIS. In addition, the BLM has conducted consultation with 12 Native American tr bes regarding this project. Consultation results are provided in Chapter 5 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
016-O	2	It is imperative that the Vernal FO heed the lessons learned from the BBC West Tavaputs EIS concerning impacts to cultural resources in the Canyon. The Price Field Office BLM chose not to conduct Section 106 consultation, wrongly assuming that this process identified under the National Historic Preservation Act (NHPA) could be rolled into the NEPA process. This is not the case as evidenced by the need for BLM to hold Programmatic Agreement ("PA") meetings with identified interested parties for almost a year before signing the PA in a ceremony with Governor Herbert on January 4, 2010. The Coalition participated in the Tavaputs consultation process as a consulting party. The process was not especially time-consuming or burdensome on BLM and the consulting parties. We suspect that any Gasco consultation process would likely be much shorter and easier, given that Nine Mile Canyon and the traffic issue is not as great for the Gasco project as it was for the West Tavaputs project.	Process	Section 106 and tribal consultation	Chapter 5 of the FEIS has been revised to include a full description of the Section 106 process, which included development of a PA.
016-O	22	The Coalition again requests to be a consulting party in the Section 106 process (under 36 CFR 800). We can provide useful information and thoughtful input to preserve and protect the valuable and irreplaceable resources in the region.	Process	Section 106 and tribal consultation	The BLM granted Nine Mile Canyon Coalition, among others, consulting party status in a letter dated February 18th, 2011. A list of consulting parties under the 106 consultation process, and the results of the consultation are provided in Chapter 5 of the FEIS.
020-O	41	Parties with demonstrated interest in the undertaking may be granted consulting party status. See 36 CFR 800.2(5). The Southern Utah Wilderness Alliance (SUWA), with a clearly demonstrated interest in the undertaking, requested consulting party status on March 20, 2006. The BLM denied the Alliance's request on September 12, 2006. The BLM also denied similar requests from the National Trust for Historic Preservation and the Nine Mile Canyon Coalition. In its denial letter, the BLM conflates the NEPA and NHPA processes and asserted that SUWA would have sufficient opportunities to be involved through the NEPA process, and thus consulting party status was unnecessary. The BLM also asserted that because the EIS is programmatic in nature and does not authorize site-specific	Process	Section 106 and tribal consultation	The BLM granted SUWA, among others, consulting party status in a letter dated February 18, 2011. A list of consulting parties under the 106 consultation process, and the results of the consultation are provided in Chapter 5 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		development, consulting party status was unwarranted. In sum, BLM of the SUWA's request was arbitrary [sic]. The BLM should grant SUWA, the National Trust, and Nine Mile Canyon Coalition's requests for the reasons stated in SUWA's March 20, 2006, letter.			
021-O	1	It is our understanding, based on the contents of a September 12, 2006 letter from BLM to the National Trust in which BLM rejected our consulting party request for Gasco, that BLM has decided to use the NEPA process to comply with its Section 106 responsibilities for the Project (see letter from William Stringer at 1). This decision is, of course, consistent with the Section 106 regulations (36 CFR 800.8). However, in order to use the NEPA process to satisfy Section 106, BLM must comply with several specific notice, documentation and consultation requirements, all of which are clearly spelled out in the Section 106 regulations (see id. § 800.8(c)(2)–(4)). As explained in the following paragraphs, BLM has failed to comply with these requirements in the DEIS. Therefore, pursuant to 36 CFR 800.2(b)(2), 800.8(c)(2)(ii) and 800.9(a), we formally object to the DEIS and request that BLM forward our objection to the Advisory Council on Historic Preservation (Advisory Council) for a formal determination of whether the DEIS complies with 36 CFR 800.8 and 800.11, along with other relevant provisions of the Section 106 regulations.	Process	Section 106 and tribal consultation	The BLM originally intended to use the NEPA process to satisfy the Section 106 regulations. BLM deferred initiating formal consultation until the draft impacts analysis could be available for including in the consultation, and acknowledges the limited role of consulting parties in the preparation of the DEIS. Subsequently, the BLM greatly expanded its engagement of consulting parties to include the National Trust and more than 20 other parties. The contr butions of these consulting parties are reflected in the FEIS. The NTHP's formal objection was forwarded to the Advisory Council. Please note that for this project, the BLM has followed the 36 CFR 800.2(d) regulations. Consultation with the consulting parties resulted in the execution of a Programmatic Agreement, which is included in the Final EIS (Appendix Q).
021-O	2	The Section 106 regulations require BLM to notify the Utah State Historic Preservation Office (SHPO) and Advisory Council in advance of using the NEPA process to comply with Section 106 for specific undertakings (Id. § 800.8(c)). However, the DEIS lacks any indication that this notice was provided to the UT SHPO or Advisory Council, which is not even listed as a federal agency that BLM contacted "during the scoping process and preparation of the draft EIS" (DEIS at 5-1). Furthermore, even if BLM did provide the UT SHPO and Advisory Council with courtesy copies of the DEIS, that still would not satisfy the	Process	Section 106 and tribal consultation	For this project, BLM has followed the 36 CFR 800.2(d) regulations, not the 36 CFR 800.8(c) regulations. The 36 CFR 800.2(d) process was initiated through the BLM's Federal Register notice, published on October 1, 2010, which stated that the 45-day public comment period was intended to meet the requirements of NEPA and Section 106 of the National Historic Preservation Act. The BLM has conducted consultation with 12 Native American tribes, in addition to other consulting parties, regarding this project. The results of the consultation and a list of consulting parties under the 106 consultation process are provided in Chapter 5 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		notification requirement of 36 CFR 800.8(c), since at no point in the DEIS did BLM explicitly state that it is using the NEPA process to comply with the Section 106 process (although this seems to be the case).			
021-O	3	BLM has not identified and consulted with consulting parties, as required by 36 CFR 800.8(c)(1)(i), (ii), (v). This is apparently because BLM believes that engaging the public through the NEPA process is effectively identical to consulting with consulting parties (see letter from William Stringer at 1). However, this belief is entirely off the mark, as the Section 106 regulations draw a plain distinction between public involvement and consultation with parties that possess a "demonstrated interest" in an undertaking. Compare 36 CFR 800.8(c)(iv) (allowing agencies to involve the public in the Section 106 process through the NEPA process) with § 800.8(c)(i) (requiring agencies to identify and consult with consulting parties, even if they are complying with Section 106 through the NEPA process); see also Mid States Coalition for Progress v. Surface Transp. Bd., 345 F.3d 520, 553 (8th Cir. 2003) (explaining that an agency has both a general duty to involve the public and a duty to identify consulting parties to be more formally involved).	Process	Section 106 and tribal consultation	Between the DEIS and FEIS, the BLM greatly expanded its engagement of consulting parties to include the National Trust and more than 20 other parties. The contr butions of these consulting parties are reflected in the FEIS and a Programmatic Agreement executed with the FEIS.
021-O	4	The DEIS fails to comply with the documentation standards of the Section 106 regulations, because it lacks documentation of the principal findings required by those regulations, including a description of the Project's area of potential effects. Under 36 CFR 800.11(a), BLM must "ensure that a determination, finding, or agreement...is supported by sufficient documentation to enable any reviewing parties to understand its basis." This is especially important when, as is apparently the case here, BLM is complying with the Section 106 process through the NEPA process, since the DEIS is frequently the sole public record documenting BLM's compliance with Section 106. Unfortunately, the DEIS contains virtually no evidence that it has made the necessary Section	Process	Section 106 and tribal consultation	See response to comment 010-I-3.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		106 findings, including documenting the Project's area of potential effects, 36 CFR 800.4(a)(1) ; evaluating the Project's direct, indirect and cumulative effects on historic properties and determining whether they are adverse, id. §§ 800.5(a); and discussing measures to "avoid, minimize or mitigate" any adverse effects, id. § 800.6(a).			
021-O	5	By failing to include this mandatory information in the DEIS, BLM has foreclosed the public's ability to evaluate the Project's effects on historic properties and determine whether BLM has complied with the requirements of Section 106. This failure is especially egregious in light of the fact that under one (and perhaps more) of the Project's alternatives, the proponent intends to use the Nine Mile Canyon Road to access the project area (DEIS at 4-360), and BLM has already determined that this kind of use (industrial traffic) in Nine Mile Canyon has the potential to cause adverse effects on historic properties (letter from Michael Stewig, Field Manager, BLM, to Lori Hunsaker, Deputy, Utah SHPO at 1 [July 7, 2009] [Attachment 5]).	Process	Section 106 and tribal consultation	The analysis of anticipated effects on cultural resources is provided in Section 4.3.1 and its subsections of the FEIS. The BLM has conducted consultation with 12 Native American tribes regarding this project. The results of the consultation and a list of consulting parties under the 106 consultation process are provided in Chapter 5 of the FEIS. Additional information regarding site-specific effects on historic properties will be available to the public through the permitting process for individual project facilities as they are proposed and analyzed. It is also available through the stipulations of a Programmatic Agreement executed in conjunction with the FEIS. Please note that Alternative F, the new Agency Preferred Alternative, has been added to the FEIS. This alternative would allow no wells below the rim of Nine Mile Canyon in the ACEC.
023-I	1	The DEIS does not comply with the ACHP's regulations requiring compliance "early in the planning stages of the undertaking..." 36 CFR Part 800.3(c). This is so even though the BLM acknowledges the need to do consultation with consulting parties who have not been identified.	Process	Section 106 and tribal consultation	The BLM identified and engaged more than 20 consulting parties. Their contributions are reflected in the FEIS and a Programmatic Agreement executed in conjunction with the FEIS. A list of consulting parties and the outcome of the consultation process are provided in Chapter 5 of the FEIS.
032-G	87	As noted in the DEIS, 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 USC 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 Tr bal environmental laws be referenced in the EIS as	Process	Section 106 and tribal consultation	The Gasco project is in Indian country, but is not on the reservation managed by the Ute Indian Tribe. The BLM is conducting tr bal consultation with the tribe as part of the Section 106 process. The BLM has also offered cooperating agency status to the BIA and the Ute Indian Tribe multiple times both in writing and through face-to-face meetings; however neither entity has elected to participate in that capacity. In addition, BLM conducts quarterly coordination meetings with the tribe and BIA. To date, conformance with tribal laws has not been brought up as an issue for any the EIS. The BLM has also provided the DEIS for comments. No comments were received on the DEIS from either the tr be or the BIA. The tribe was among many parties formally invited to participate in the development and execution of the Programmatic Agreement to address effects on cultural resources.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		appropriate. You may wish to consult with BIA on the status of the project location.			
032-G	88	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 Tr bal Historic Preservation Officer.	Process	Section 106 and tribal consultation	The BLM invited 15 different tribal representatives from 12 different federally recognized tribes, including the Utah Indian Tribe to participate in Section 106 consultation. In addition, all 12 tribes were sent tribal consultation requests. These representatives included Tribal Historic Preservation Officers (THPOs), where such positions exist in a given tribe, and other designated contacts for tribes without THPOs. At the present time, the Ute Indian Tr be does not have a THPO; however, consultation has occurred with both the tribal Chairman and the Cultural Rights and Protection Director. The results of this consultation are disclosed in Chapter 5 of the FEIS.
032-G	89	EPA recommends that BLM perform the following coordination with the Ute Indian Tribe, and reference relevant authorities where appropriate in the EIS: 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.	Process	Section 106 and tribal consultation	The BLM is coordinating with all applicable Tribal authorities regarding environmental regulations and resource protection measures on tribal lands. In addition, BLM offered cooperating agency status to the BIA and the Ute Indian Tribe, however they did not elect to participate.
032-G	90	EPA recommends that BLM perform the following coordination with the Ute Indian Tribe, and reference relevant authorities where appropriate in the EIS: The Tribal Wetland program is implementing wetland mitigation projects.	Process	Section 106 and tribal consultation	See response to comment 032-G-89.
032-G	91	EPA recommends that BLM perform the following coordination with the Ute Indian Tribe, and reference relevant authorities where appropriate in the EIS: The Tribal Environmental Program of the Ute Indian Tribe should also be contacted regarding environmental regulations on Reservation lands.	Process	Section 106 and tribal consultation	See response to comment 032-G-89.
020-O	28	The Vernal Field Office recently began preparing a supplemental environmental impact statement for the Greater Natural Buttes Gas Development Project Draft Environmental Impact Statement. See BLM, New Release, BLM Announces Preparation of Air Quality Supplement to Greater Natural Buttes Draft EIS (Oct. 19, 2010), available at <http://www.blm.gov/ut/st/en/info/newsroom/2010/october__/blm_announces_preparation.html> (attached as Exhibit 15). The Greater Natural Buttes development is taking place near the Gasco	Process	Supplemental EIS for Air Quality	As part of the FEIS, the BLM has proposed and analyzed the Agency Preferred Alternative (Alternative F), which reduces NOx and VOC emissions, and reduces the use of surface evaporation ponds. The analysis does show that existing air quality, with the possible exception of ozone, will meet the NAAQS. For ozone impacts, the BLM will require Gasco to adhere to the proposed adaptive management plan, which will require Gasco and other operators to enact measures, which are designed to protect air quality in the area. All reasonable foreseeable development within the project area was evaluated, including the project-related development plans for the Mancos formation.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		project and was recently released to the public. Its air quality analysis is very similar to the analysis found in the Gasco DEIS. The BLM should follow the same path here and require a supplemental environmental impact statement for the Gasco project, one that evaluates alternatives that do not lead to exceedances of air quality standards, that evaluates all potential development within the project boundary, and one that fully considers exploration of the Mancos horizon.			
033-I		Given these potential violations of BLM's FLPMA mandate and the need to determine compliance with the new PSD increments for PM2.5, the BLM should make the necessary revisions to develop an alternative that provides for compliance with all air quality standards. The BLM should release these new revisions and any new alternatives to the public in a new draft or supplemental draft EIS for full public participation and review, prior to issuing a final EIS.	Process	Supplemental EIS for Air Quality	See response to comment 020-O-28.
013-B	2	The EIS should include a specific discussion that valid existing rights will be recognized, upheld and protected, and that these rights cannot be restrained by the imposition of restrictions upon development, as analyzed in the EIS and authorized in the Record of Decision.	Purpose and Need	Existing lease rights	Section 1.4 Conformance with BLM Land Use Plans and Other Laws and Policy Considerations has been revised in the FEIS to reference page 21 of the Vernal RMP ROD, and clarify that the ROD did not alter valid existing rights. In addition, a similar discussion is already included in the DEIS. See Section 2.0 (Proposed Action and Alternatives) where it states that alternatives must meet the project's purpose and need. Also see Section 1.3.2 (Need), which descr bes the BLM's need to allow federal leaseholders to develop mineral resources. Development would be allowed in accordance with lease stipulations, if any, and in compliance with applicable laws. Please note that the CEQ regulations (40 CFR 1502.1) require BLM to consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment, based on the nature of the proposal and facts in the case (CEQ 40 Most Asked Questions 1b.). The BLM Decision Maker may develop mitigation to avoid, minimize, rectify, reduce, or eliminate or compensate for impacts to the environment (40 CFR 1508.20). This mitigation may be carried forward into the decision as appropriate (40 CFR 1505.3).
013-B	19	Given these considerations, in the Record of Decision for the Gasco EIS, BLM should not provide for any special protections, mitigation, conditions of approval or any other provision that would limit or restrict development of Gasco's valid existing leases in areas that may have wilderness characteristics.	Purpose and Need	Existing Lease Rights	Please note that the CEQ regulations (40 CFR 1502.1) require BLM to consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment, based on the nature of the proposal and facts in the case (CEQ 40 Most Asked Questions 1b.). The BLM Decision Maker may develop mitigation to avoid, minimize, rectify, reduce, or eliminate or compensate for impacts to the environment (40 CFR 1508.20). This mitigation may be carried forward into the decision as appropriate (40 CFR 1505.3).

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
013-B	20	On December 22, 2010, Secretary Salazar issued Secretarial Order 3310, Protecting Wilderness Characteristics on Lands Managed by the Bureau of Land Management. This Order does not change BLM's analysis or authority to issue a Record of Decision approving Gasco's Project. This new Secretarial Order specifically protects valid existing lease rights and authorizes BLM to "approve a project that may impair wilderness characteristics…necessary for the exercise of valid existing rights." Order at 3. All of Gasco's leases within the EIS project boundary are valid and BLM's possible subsequent inventory or classification of these lands as "Wild Lands" does not preclude Gasco's right to develop these leases.	Purpose and Need	Existing lease rights	See response to comment 13-B-2.
013-B	24	The Federal Land Policy and Management Act (FLPMA), BLM's organic statute, does not recognize "wilderness characteristics" as a resource or a major or minor use of public lands (see 43 USC § 1702). FLPMA does, however, recognize the minerals of the United States as a major use of public lands deserving of special recognition. As part of the Gasco EIS, and in accordance with the decisions that BLM made in the Vernal RMP, BLM may not give any special protections or preclude development in areas that BLM determined may possess wilderness characteristics, especially in light of Gasco's valid existing lease rights.	Purpose and Need	Existing lease rights	See response to comment 13-B-2.
017-O	2	BLM must recognize Gasco's valid existing lease rights and subsequent designation of areas as wilderness characteristics management areas, now apparently termed "wild lands," cannot infringe upon these rights. The valid existing rights and obligations conferred to operators from the Department of the Interior under these federal leases cannot be undermined or pre-empted by BLM's application of conditions of approval, mitigation measures, or other decisions made in the 2008 Vernal RMP nor by the new secretarial order on wild lands.	Purpose and Need	Existing lease rights	See response to comment 13-B-2.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
013-B	23	The EIS should also state that there are no established hiking trails or campgrounds or other areas for primitive recreation in the project area, or sources of water for human consumption.	Recreation	General	As noted in Section 3.8, Recreation, pages 3-49 through 3-54 of the DEIS, the area is used for h king, hunting, wildlife photography, and other forms of primitive recreation. A statement has been added to the FEIS in Section 3.8.4.3, River Recreation, noting that there is a campground located at Sand Wash. There are five perennial stream miles located in Pariette Draw, two seeps or springs, and the Green River runs along the project area's eastern border, so water for use by h kers and campers is sporadically available but must be treated prior to human consumption. This information has been added to the FEIS in Section 3.8.
016-O	16	On page 3-50 at the end of the first paragraph the DEIS has the Nine Mile Ranch located in the wrong place in the canyon. It is not near the Canyon mouth but near the top of the Canyon.	Recreation	General	Section 3.8.3.1 of the FEIS has been revised to correctly describe the location of the ranch.
022-O	3	UT BHA objects to the assumption that big-game hunters benefit from the creation of new roads as expressed in the following text section: 4.8.1.3.4, Hunting. A sizeable segment of the big-game hunter community, including UT BHA members, does not view increased vehicle access as a benefit, but rather as a detriment. Constructing a network of new roads will produce habitat destruction, lowered big game forage productivity, noise, and persistent human presence which will negatively affect wildlife populations and wildlife use of the area. Moreover, many hunters value the experience of hunting in a natural setting removed from motorized sights and sounds. Increased road construction mileage significantly detracts from this experience. UT BHA is opposed to the road development. In the absence of a no-road-building alternative UT BHA supports Alternative D (No Action).	Recreation	Hunting	The FEIS has been revised in Section 4.8.1.3.4, Hunting, and the corresponding subsequent sections of the FEIS to qualify that increased access may only benefit a small percentage of hunters and that benefit may be outweighed by the adverse effects of habitat removal, lower forage productivity, noise, and persistent human presence.
020-O	14	There is no mention of the Green River recreation management plan in the DEIS. The BLM must discuss the effects of this proposed development on the guidelines for the Green River. This is critical because the sights and sounds of development will be heard by people recreating on the Green River. See DEIS at 4-97.	Recreation	Plan conformance	Although the project area overlaps with the Green River Recreation Management Plan area, no development is proposed within that area, so no direct impacts would occur. Discussion of the indirect effects of proposed development on the guidelines for the Green River has been added to the FEIS at Section 4.8.1.1.3, River Recreation.
014-O	1	We are very concerned about the proposed Gasco field development plans adjacent to upper Desolation Canyon on the Green River. Members	Recreation	River experience	Thank you for your comment. A balanced, multiple-use approach, as required by FLMPA, is used to guide management decisions on public lands. Section 1.3.2 describes the BLM's need to allow federal leaseholders to develop mineral resources. Development

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		of the UMC float the Desolation Canyon proposed wilderness of the Green River, and consider the area a nationally significant landscape and treasure. We are greatly concerned that the Utah BLM is proposing to allow energy development on wild lands in this area.			would be allowed in accordance with lease stipulations, if any, and in compliance with applicable laws. However, CEQ regulations (40 CFR 1502.1) require BLM to consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment, based on the nature of the proposal and facts in the case (CEQ 40 Most Asked Questions 1b.). The BLM Decision Maker may develop mitigation to avoid, minimize, rectify, reduce, or eliminate or compensate for impacts to the environment (40 CFR 1508.20). This mitigation may be carried forward into the decision as appropriate (40 CFR 1505.3). Under Alternative F, the new Agency Preferred Alternative, the following management prescriptions would be implemented: • No wells within 0.5 mile or line-of-sight of the Green River, whichever is less • No wells within 0.5 mile or line-of-sight of Sand Wash or Desolation Canyon • No wells within the 100-year floodplain of the Green River In addition, as per the Vernal RMP ROD (2008) the BLM would seek to minimize sound pollution as feasible using the best available technology, such as installation of multi-cylinder pumps, hospital sound-reducing mufflers, and placement of exhaust systems to direct noise away from sensitive areas.
014-O	2	Creating hundreds of miles of new roads in these areas is simply not justified. The view shed from the river is still natural and beautiful, and we wish to keep it this way. The river miles concerned are available, without permit, to anyone wishing to experience a “mini-Desolation” trip, and take-out at Sand Wash. It is rare to find a superlative multi-day trip like this, that requires no technical river skills, and is available to anyone with a boat. We believe this stretch of area will become increasingly important, and your preferred alternative would degrade this river experience.	Recreation	River experience	See response to comment 014-O-1.
018-O	1	We are concerned that this project will have a serious impact on the river experience. The preferred alternative currently anticipates the placement of new natural gas wells and related infrastructure near the river corridor and within view of the river during construction, and within earshot of the river throughout the life of the wells. It also anticipates locating wells within the proposed Wild and Scenic River boundary, with more wells outside the boundary but still within the viewshed of the Green River, and often within the half-mile buffer zone. Lastly, it projects the development of many new natural gas wells,	Recreation	River experience	See response to comment 014-O-1. Additionally, as noted in the DEIS on page 4-261, bullet point No. 3 in Section 4.14.3, Mitigation, “Night-lighting and light pollution skyglow impacts would be reduced as feasible by using only the minimal lighting required for safety and security, installing lights at the minimal heights required, and installing hoods on lights to reduce light diffusion, as possible without conflicting with other laws.” Finally, as per the Vernal RMP ROD (2008), BMPs would be used as appropriate to reduce visual impacts (i.e., masking, well site location, painting, etc.).

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		roads, and related infrastructure along Sand Wash Road, the main access point and boat launch for Desolation Canyon river trips. Such intrusions will doubtless impinge on the river traveler's experience, and degrade the outstanding remarkable values that compelled the BLM Vernal FO to recommend this stretch of the Green River as suitable for designation under the Wild and Scenic River Act.			
018-O	4	We believe that it is poss ble for Gasco to move forward with its development plans while preserving the river experience for our clients. To this end, we encourage the BLM to adopt, in the final plan, aspects of the Directional Drilling alternative as it pertains to the existing Pariette Wetlands ACEC, the Lower Green River ACEC, and suitable sections of the proposed Wild and Scenic Green River. We ask that you adhere to strict No-Surface Occupancy standards within 0.5 mile of the river corridor, with the maximum amount of protection provided to its adjacent natural benches and canyons. Nighttime light pollution, noise pollution, and visible activities should also be eliminated within the Green River corridor. Also, BMPs should be adopted as the standard for development.	Recreation	River experience	See response to comment 018-O-1. Well development in Pariette ACEC is also been reduced relative to the Proposed Action. Impacts to Special Designations including the Pariette ACEC are discussed in Section 4.11, Special Designations, of the FEIS.
029-I	4	Selling Desolation Canyon trips is a difficult venture for outfitters, and they exert considerable funds and energy in order to bring customers to the area. The major selling points of a trip through the Desolation and Gray Canyons are its remoteness, its unimpaired beauty and its wilderness characteristics. It is significant that most of outfitters have advertised this trip as the "Green River Wilderness." Selling the wilderness experience is critical in order to attract customers on trips through Desolation and Gray Canyons. Sight and sound of intrusions on the river are of critical importance or the trip cannot be marketed as "wilderness." Thus the proposed Gasco project must be weighed against those issues, and the fact that the project may put several river outfitters out of business.	Recreation	River experience	No impacts to designated wilderness or WSAs would result from the Gasco project. The Desolation Canyon WSA is 2 miles from the project area. Impacts to recreation are discussed in the DEIS in Section 4.8, Recreation. Additional information on visual and socioeconomic impacts related to river use has been added to the FEIS in Sections 4.9, Socioeconomics, and Section 4.14, Visual Resources. In addition, Alternative F, the new Agency Preferred Alternative, has been added to the FEIS. Under this alternative as noted in Section 2.2 of the FEIS, no wells are proposed within 0.5 mile or line-of-sight of the Green River, whichever is less. In addition, no wells are proposed within 0.5 mile or line-of-sight of Sand Wash or Desolation Canyon.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
020-O	13	The preferred alternative evaluated in the Gasco DEIS would violate the management guidelines for the Nine Mile Canyon Special Recreation Management Area (SRMA) because it would permit oil and gas development within areas intended for primitive recreation (page 4-96 of the DEIS). The DEIS should disclose this violation of the RMP's management stipulations and select an alternative that does not create such impacts in the Nine Mile Canyon SRMA, such as Mr. Kreckel modified Alternative E.	Recreation	Vernal FO RMP conformance	The development in question is proposed on leases that predate the Vernal RMP. The RMP ROD does not affect valid existing rights (p. 21), so the proposed development is in conformance with the Vernal RMP.
025-O	2	The reason for rejecting Alternative E, because "the increased cost of directional drilling could make the project infeasible under some economic conditions," is simply not adequate, as it is too vague, imprecise, and offers no concrete evidence regarding the economics of directional drilling. Indeed, the statement is without merit, since changing economics can make any project, anywhere, infeas ble. Hart's Energy E&P magazine reports the following illustrative economics [2006]: "The Uinta Basin of Utah also produces from Mesaverde. A typical well produces 1.5 MMcf/d initially and 1.563 Bcf over its 25-year life. At a cost of $2.07 million with a 95% success rate, it meets the 15% return barrier with a gas price of $6.50/Mcf." Currently the gas price has moderated to about $4.00/Mcf. However, drilling and completion costs have fallen as well. Gasco reports costs decreases (see Figure 7) in various drilling and completion categories in the range of 28% to 59% from 2008 to 2010. This equates to an average cost decrease of 40%, which is in line with the 40% price decrease above. Thus, essentially, costs have dropped by the same amount as price, so the economic analysis above is still valid. In a 2007 analysis of the feas bility of directional drilling done for the BLM in the West Tavaputs area, just to the south of the DEIS, which addressed drilling 40-acre down hole locations from 160-acre spaced surface well pads—the same situation as that envisioned in Alternative E—it was found that "the difference in cost for developing via 160 surface density would be on the order of $250,000/well."	Socioeconomics	Directional drilling	Alternative E was not rejected nor was it part of the alternatives eliminated from detailed analysis. Alternative E was analyzed in detail, including socioeconomic impacts, and carried forward for agency consideration. The statement on pages 4-115 and 4-116 of the DEIS has been deleted to avoid confusion about the implementation of this alternative. Alternative F has been added to the FEIS and selected as the new Agency Preferred Alternative. Alternative F incorporates directional drilling across the project area to help reduce surface disturbance impacts.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Given the average vertical well at the time cost $2.07 million, this would represent a cost for a directional well of $2.27 million. To normalize the data, it is useful to calculate the development cost of a well, the well cost divided by reserves. For the situation above that would give us a development cost of $1.33/Mcf for the vertical well and $1.45/Mcf for a directional well. We know from the E&P numbers above that $1.33 is economic. However, Gasco is reporting significantly better reserves. Gasco is projecting reserve numbers of 0.8 to 2.2 Bcf per well for the Wasatch-Mesaverde, with an additional 0.8 to 2.6 for the deeper Blackhawk, for a total of 1.6 to 4.8 Bcf per well (see Figure 8). Add in the possible Mancos reserves (discussed in detail below), and these numbers swell to 2.6 to 7.8 Bcf per well. Indeed, Gasco sees the potential for reserves of 500 Bcf per section, which equates to drilling their acreage on a 10-acre spacing (see Figure 9). Since Gasco's reserve numbers are considerably higher, they should see much better economics. Using their numbers for a Wasatch-Mesaverde-Blackhawk well [leaving out the Mancos upside potentia], we have an average reserve of 3.2 Bcf. Thus their development costs will be $.065/Mcf for a vertical well and $0.71 for a directional well, both considerably better than the $1.33/Mcf that we know is economic. Thus, costs clearly will not be an impediment to drilling the area directionally, especially for the 40-acre down hole locations drilled from 160-acre surface pads. Thus rejecting Alternative A and naming Alternative E as the preferred alternative is obviously justified.			
032-G	83	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 DEIS, the region of the proposed project has minority and low-	Socioeconomics	Environmental Justice	The minority and low-income demographics of towns of Fort Duchesne, Randlett, White Rocks, and Myton have been incorporated into Section 3.9 of the FEIS. Impacts to these EJ populations have been considered in Section 4.9 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
032-G	84	The DEIS 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	Socioeconomics	Environmental Justice	The FEIS has been updated to include the potential direct and indirect and cumulative environmental justice impacts that would result from the proposed project and alternatives. Environmental justice guidance from the Council for Environmental Quality has been incorporated into the analysis in Section 4.9 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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 20- or 30-mile drive. EPA is willing to assist BLM in identifying minority, low-income, or tribal communities that may be impacted by the proposed project.			
032-G	85	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 DEIS 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 DEIS, 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.	Socioeconomics	Environmental Justice	Section 4.9.2 of the FEIS indicates that there would not be disproportionate adverse impacts to EJ communities, and no mitigation is recommended. Mitigation for impacts to tribal communities is being addressed through Section 106 consultation and ongoing tribal consultation. The FEIS has been updated to reflect this.
032-G	86	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.	Socioeconomics	Environmental Justice	The FEIS has been updated to include the potential direct and indirect environmental justice impacts that would result from the proposed project and alternatives, with specific regard to air and water quality, in Section 4.9.1.1.8. Where impacts to environmental justice communities have been identified, potential mitigation strategies have been provided. Environmental justice guidance from the Council for Environmental Quality as been incorporated into the analysis in Section 4.9 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
013-B	27	A socioeconomic impact analysis is used to assess the social and economic consequences of implementing the various alternatives identified through the planning process. The impact analysis must also include recent and verifiable income and employment for various economic sectors, community infrastructure, state and local revenues and expenditures, and land use patterns. Mineral development plays a large role in the local economic growth and opportunity for Duchesne and Uintah counties.	Socioeconomics	General	The economic contributions (expenditures, employment, tax and royalty revenues) to the federal, state, and local economies as a result of the Proposed Action and action alternatives has been estimated in Section 4.9.1 of the FEIS. The cumulative impacts analysis in Section 4.18 considers how impacts of this project and other mineral development projects cumulatively contribute to the local economic health of the area.
013-B	28	The socioeconomic analysis within the EIS should account for the adverse economic impacts from certain restrictions on development, such as seasonal restrictions that BLM may propose (e.g., winter moratorium based upon air quality concerns) and how such restrictions would negatively impact mineral development, and related impacts to jobs and the local economies. These impacts include tax revenues, employment, energy prices and royalty payments. BLM must fully consider the economic impact of restricting oil and gas development on lands in the project area before making its final decision and issuing the ROD for the FEIS.	Socioeconomics	General	No winter moratorium is proposed within the Gasco FEIS. The economic impact analysis highlights broad economic impacts over the life of the project and most specifically, at an annual level. It does not provide a seasonal analysis for economic impacts.
014-O	5	We consider river running in Desolation and Gray Canyons an economic boon to local communities and the region. It is roughly estimated that the	Socioeconomics	General	Sections 3.9 and 4.9 of the FEIS include additional analysis of the estimated economic contribution to the local economy from river rafting. Please note that BLM has selected the new Alternative F as its Agency Preferred Alternative. Under Alternative F, no wells

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		annual commercial river running potential is in excess of $500,000. A conservative multiplier of four (4) indicates almost $2 million in annual economic impact to the State of Utah, and an even more significant affect upon local communities. This industry is, of course, renewable and sustainable—the tourists from around the world do not "exhaust" the beauty of our landscapes by resting their eyes on them—and we do not wish to damage this long-term industry unnecessarily in the short-term extraction of fossil fuels.			would be developed within 0.5 mile or line-of-sight of the Green River, whichever is less, including the Sand Wash boat ramp and campground and on Desolation Canyon.
017-O	1	Every project like Gasco's contributes to ensuring that America remains 98% secure in natural gas, and that the $7 billion industry in Utah remains vibrant and continues to provide over 11,000 jobs. Gasco's project will help contribute economically to Utah, as the drilling and completion of each well in the Uinta Basin annually yields $74,134 in gross revenue to the state, and between $54,000 and $183,000 in annual federal royalties, 49% of which are returned to Utah. In addition, Western Energy Alliance estimates that every rig running sustains 150 direct and indirect jobs. At a time of high unemployment, those jobs are particularly vital.	Socioeconomics	General	Thank you for your comment. The estimated economic contributions (expenditures, employment, tax and royalty revenues) as a result of the Proposed Action and action alternatives are listed in Section 4.9.1 of the FEIS.
018-O	2	The success of the river recreation industry depends upon the continuing viability of the Green River, both adjacent to this project and downriver, as a natural and wild operating area. Our clientele anticipate natural quiet, dark skies, a natural landscape, and abundant wildlife. If the preferred alternative is not amended, our customers will likely choose different locales to spend their time and money.	Socioeconomics	General	See response to comment 014-O-5.
029-I	3	While the energy extraction industry may contribute more to local economies in the short term, river running outfitters and private river runners provide communities with a stable source of funds over the long term. People who go on river trips come into our communities, bring their funds, and leave. They do not require additional infrastructure (schools, roads, police, victims advocates, etc.!). The record of the river-running	Socioeconomics	General	See response to comment 014-O-5.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		contribution to local economies is present during the lean years (bust) as well as the times of boom. Prior to making decisions that favor one economy over another the BLM EIS must conduct an in-depth study of the socioeconomic impact of both industries on communities and scientifically determine how the proposal(s) will affect nearby communities and commercial river operations who require wilderness and solitude as a part of their livelihood and enjoyment of the area.			
015-G	1	Page 2-61 Housing - Alternative A: Here it implies that there would be adverse impacts on hotel accommodations and housing. This is not reflected on the current housing situation because of the previous decline in housing availability. There is adequate housing for the 227 jobs and the effects would not be adverse, but beneficial.	Socioeconomics	Housing	This topic has been re-examined based on current housing conditions. Updates to the impacts on housing can be found in Section 4.9.1.1.6.
004-G	5	On Page ES-6 and elsewhere in the DEIS, any reference to the expansion of the Nine Mile Canyon ACEC during the RMP process should be removed as this ACEC was not expanded in the 2008 RMP. On Page ES-6 and elsewhere in the DEIS, any reference to the Four Mile Wash area proposed ACEC should be removed as this ACEC was not designated in the 2008 RMP. On Page ES-7 and elsewhere in the DEIS, any reference to the Myton Bench/Coyote Basin area proposed ACEC should be removed as this ACEC was not designated in the 2008 RMP.	Special Designations	ACECs	The commenter is correct in stating that the Four Mile Wash ACEC and the Myton Bench/Coyote Basin ACECs were not designated and that the Nine Mile Canyon ACEC was not expanded in the 2008 Vernal ROD. The Gasco EIS process was initiated prior to a decision on the Vernal RMP. As such, the text on pages ES-6 and ES-7 does not refer to these areas as ACECs, but as “areas proposed as ACECs during the Vernal RMP revision process.” These areas cannot be total removed from the EIS because Alternative B was designed around these areas and their associated resource values.
020-O	35	The DEIS erroneously suggests that to the extent oil and gas leases predate the designated ACECs, BLM must permit those leases to be developed. Some of the leases may predate the Vernal RMP that imposed those [ACEC-related] restrictions. If that is the case, as provided in the Vernal RMP, development of those leased resources cannot be precluded by the referenced restriction. As explained elsewhere in these comments, the BLM has the authority to impose reasonable restrictions on surface use, including modification to siting or design of facilities. See 43 CFR 3101.1-2.	Special Designations	ACECs	Comment noted, however the oil and gas leases that predate the designated ACECs are valid existing rights that are not modified by the Vernal RMP ROD (p. 21). However, please note that the CEQ regulations (40 CFR 1502.1) require BLM to consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment, based on the nature of the proposal and facts in the case (CEQ 40 Most Asked Questions 1b.). The BLM Decision Maker may develop mitigation to avoid, minimize, rectify, reduce, or eliminate or compensate for impacts to the environment (40 CFR 1508.20). This mitigation may be carried forward into the decision as appropriate (40 CFR 1505.3).

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
020-O	36	The BLM must modify the alternatives under consideration to eliminate wells that conflict with the identified relevant and important values in the Four Mile Wash potential ACEC, Lower Green River expansion potential ACEC, Coyote Basin-Myton Bench potential ACEC, and Nine Mile Canyon expansion potential ACEC. In the alternative, BLM must undertake a plan amendment to consider designating these areas as ACECs. See generally BLM Manual 1613, Areas of Critical Environmental Concern.	Special Designations	ACECs	Although these areas were not carried forward in the Vernal RMP as ACECs, the relevant and important values have been considered in the appropriate resource section, and impacts to those resources have been minimized in this EIS. Refer to the following sections: 4.3, Cultural Resources; 4.8, Recreation; 4.10 Soils; 4.11, Special Designations; 4.12, Special Status Species; 4.13, Vegetation; and 4.14, Visual Resources. None of the impacts identified warrant a plan amendment.
027-O	15	The Gasco project is one which is expected under the recommended proposal to involve some 1,500 new wells between now and the year 2026, as outlined in the EIS. This is equivalent to a planning process of more than 15 years and as also noted above and in the EIS, the total lifetime of the projects will be several decades. Yet, the BLM failed to consider recommended ACECs in the RMP process and after recognizing and acknowledging the error, simply indicated that they would be considered in the next RMP phase. Taking that same approach then, decision on the Gasco proposal must be necessarily delayed until the next RMP phase is undertaken (in 10? 15? years). It is in part this project which led to an initial USFWS determination that Penstemon grahamii should be a listed species (a decision which was later withdrawn and which is still the subject of litigation). Absent reconsideration of the ACECs and until the litigation is concluded, it would be highly premature to issue a final decision on the Gasco DEIS.	Special Designations	ACECs	The consideration of the penstemon ACEC is out of scope of the proposed project. This EIS is a programmatic field development document for existing oil and gas leases. However, a Graham's penstemon conservation agreement is in place to reduce or eliminate impacts to the species.
030-G	21	Section 3.11.1, page 3-66. Pariette cactus and Uinta Basin hookless cactus are not subspecies. We recommend the following wording: "…including a considerable portion of known populations and habitat of the federally listed Pariette cactus (*Sclerocactus brevispinus*) and Uinta Basin hookless cactus (*Sclerocactus wetlandicus*)."	Special Designations	ACECs	Section 3.11.1 has been revised as requested.
030-G	24	Section 4.11.1.1.1, Pariette Wetlands ACEC page 4-133: We recommend deleting the term "zone of occurrence." Please specify if this is "potential	Special Designations	ACECs	The term "zone of occurrence" has been changed to "potential habitat" throughout the FEIS. The 2009–2010 (most recent update was April 2011) potential habitat polygon developed by the USFWS and the BLM has been used to update the amount of potential

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		habitat." We recommend using the *Sclerocactus* spp. potential habitat polygon developed by the USFWS and BLM in 2009 to calculate the amount of habitat that will be impacted by the proposed action. This type of analysis should be completed throughout Chapter 4 for all alternatives. We recommend including maps showing the overlap of the project area with the potential habitat polygon. Additionally, we recommend an appendix showing calculations for how the amount of disturbance was calculated for each of the listed plant species.			habitat that will be impacted by the Proposed Action and the other alternatives. Maps have been added to Chapter 3 showing the distribution of special-status plant species in the project area. In addition, Table D-3 has been added to Appendix D that indicates how acres of disturbance were calculated for each of the special-status plant species retained for analysis. In addition, Sections 3.12 and 4.12 have been revised to include discussion of *Sclerocactus brevispinus* core conservation areas and acres of direct and indirect impacts under each alternative.
030-G	25	Table 4-83, page 4-137: We recommend basing the amount of cactus acreages impacted on the potential habitat polygon.	Special Designations	ACECs	That table (now Table 4-84, acres of SSS habitat directly disturbed in Nine Mile ACEC) has been updated to reflect the number of acres of potential cactus habitat directly disturbed by the alternatives based on USFWS's 2011 potential habitat polygon for *Sclerocactus*.
020-O	37	BLM Manual H-8351, Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation and Management, provides that management activities and authorized uses shall not be allowed to adversely affect either eligibility or the tentative classification, i.e., actions that would change the tentative classification from wild river area to scenic river area or scenic river area to recreational river area (subject to valid existing rights). This direction is not a management objective, as the DEIS suggests (DEIS at 4-139). Rather, it provides specific and enforceable mandate to BLM in its management of tentatively classified river segments.	Special Designations	WSR	As noted by the commenter, protection under the BLM Manual on Wild and Scenic Rivers is subject to valid existing rights, meaning that some level of development near the Green River may be needed to allow Gasco to exercise existing rights. As noted in Section 4.8.1.1.3 of the DEIS, approximately 11 wells would be visible from the Green River under the Proposed Action. BLM has also selected the new Alternative F as its Agency Preferred Alternative. Under Alternative F, no wells would be developed within 0.5 mile or line-of-sight of the Green River whichever is less, including Desolation Canyon and Sand Wash.
020-O	38	All of the alternatives analyzed in the Gasco DEIS would authorize surface disturbance within 0.25 mile of the lower Green River and within sight of the river (page 4-139 of the DEIS). The BLM acknowledges that there would be negative impacts from drilling to the wild and scenic quality of the lower Green River (presumably the river's outstanding recreational value), but contends that impacts from production would not be likely and would be minimized (pages 4-139 to -149 of the DEIS). The DEIS also fails to disclose that noise and dust related to truck traffic during production would adversely affect the river's outstanding recreational values. BLM is prohibited	Special Designations	WSR	Alternative F, the new Agency Preferred Alternative, would not allow wells within 0.5 mile or line-of-sight of the Green River, whichever is less. In accordance with BLM Manual 8351, Wild and Scenic Rivers, Section 53B, management activities and authorized uses shall not be allowed to adversely affect either elig bility or the tentative classification (subject to valid existing rights). The leases proposed for development in this EIS are all valid existing rights. However, impacts to the recreational values of the Green River from noise are disclosed in Section 4.11.1.1.4, Lower Green River Suitable Wild and Scenic River. Impacts related to dust are discussed in Section 4.12, Special Status Species; Section 4.13, Vegetation; and Section 4.14, Visual Resources of the DEIS. Impacts from dust to the river's recreational values has been added to Section 4.11.1.1.4, Lower Green River Suitable Wild and Scenic River and the corresponding subsequent sections of Section 4.11, Special Designations, in the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		from adopting any of the alternatives in the DEIS as currently proposed because they may adversely affect the lower Green River's tentative classification as a scenic river (H-8351.53). Minimizing and reducing drilling and production impacts is not sufficient and is inconsistent with the Vernal RMP. See 43 CFR 1610.5-3 (consistency required).			
030-G	10	Section 2.2.9, page 2-27. We recommend adding measures to protect Mexican spotted owl nesting habitat near Nine Mile Canyon. Surface-disturbing activities in habitat considered "Fair" or "Good" should be avoided.	Special Status Species	Applicant-committed measures/mitigation	Under Alternative F, no project development would take place in habitat classified as "Fair" or "Good" for MSO (see Map 8). In addition, the following statement has been added to the FEIS under the Applicant-committed Environmental Protection Measures: Gasco has committed to avoid all "Fair" and "Good" MSO habitat (as currently mapped) below the rim of Nine Mile Canyon. BLM has clarified the mitigation measures in Section 4.12.2.3.3 of the FEIS as follows: • Where technically and economically feasible, direction drilling including drilling multiple wells from the same pad would be used to reduce surface disturbance and eliminate drilling in "Fair" or "Good" habitat for MSO nesting. • For all temporary actions that may impact owls or "Fair" or "Good" habitat: • If the action occurs entirely outside the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, the action can proceed without an occupancy survey. • If the action will occur during a breeding season, surveys for owls will occur prior to the commencement of the activity in accordance with USFWS survey protocol for the species. If owls are found, the activity must be delayed until outside of the breeding season. • Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc. • For all permanent actions that may impact owls or "Good" or "Fair" habitat: • Survey two consecutive years for owls according to the USFWS survey protocol for the species prior to commencing activities. If owls are found, no actions will occur within 0.5 mile of an identified nest site. If the nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC). • Avoid drilling and permanent structures within 0.5 mile of "Fair" or "Good" habitat unless it is determined, based on the surveys, that the habitat is not occupied. • Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from "Fair" or "Good" habitat. Siting of permanent noise-generating facilities would be determined based on a noise analysis to ensure noise does not encroach upon the 0.5-mile buffer for "Fair" or "Good" habitat. • Stay on approved routes and limit new access routes.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
030-G	35	Sections 4.12.2, page 4-237. We recommend that Gasco adopt all of these mitigation measures as applicant committed conservation measures.	Special Status Species	Applicant-committed measures/mitigation	Thank you for your comment. Please be aware that Gasco has not agreed to these proposed mitigation measures as applicant-committed measures. However, BLM retains the authority to require that these mitigation measures be implemented through their inclusion in the ROD, even if the Proponent does not agree to them as applicant-committed measures. Accordingly, the impacts of implementation of these mitigation measures are analyzed and disclosed in the FEIS in the Unavoidable Adverse Impacts section (Section 4.12.3).
026-G	2	Pg. 4-196–4-197: There are two species of bats—big free-tailed bat and spotted bat—potentially impacted from proposed activities, but there is no discussion of these species, or how impacts will be avoided or minimized. Suggest the FEIS include an assessment of potential impacts and a discussion of proposed mitigation actions to avoid or reduce impacts from the proposed activities.	Special Status Species	Bats	Section 3.12.2.2.2 of the DEIS discusses affected environment, and Section 4.12.1.1.2.5 discusses impacts to big free-tailed bat. Section 3.12.2.2.3 of the DEIS discusses affected environment, and Section 4.12.1.1.2.5 discusses impacts to spotted bat. Mitigation for both of these species is discussed in Section 4.12.2.7 of the DEIS. Additional discussion regarding the effects of evaporation ponds on bats has been included in Section 4.16.1.1.6 of the FEIS. References to this section have been included in Section 4.12.1.1.2.5 of the FEIS.
032-G	93	The potential impacts to migratory birds or other wildlife from the WEF are not analyzed in the DEIS. 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.	Special Status Species	Evaporation ponds	Sections 4.16.1.1.6, 4.16.1.2.5, 4.16.1.3.5, 4.16.1.4.5, and 4.16.1.5.5 of the DEIS analyze the effects of the evaporation ponds under each alternative on wildlife. Additions were made to Section 4.16.1.1.6 of the FEIS, including potential effects of evaporation ponds on birds and bats and an assessment of the efficacy of deterrents in keeping bats and birds away from these ponds.
024-O	2	Between Flaming Gorge Dam and Lake Powell, the Green River flows uninterrupted for almost 725 miles, which provides the best opportunity for the federal government and the seven states of the Colorado River Basin to recover its endangered fish and to preserve riparian habitat. There are currently four programs on the Colorado River spending millions of dollars every year to restore habitat to a condition that naturally exists in Desolation Canyon. The proposed Gasco development is without question an inappropriate and contradictory use of these desirable resource values.	Special Status Species	Fish	Comment noted. A more detailed analysis on potential effects of oil, gas, and associated drilling chemicals on threatened and endangered fishes and their habitat was added to Section 4.12.1.1.1.11 of the FEIS. This section incorporated peer-reviewed articles that were provided by USFWS. In addition, a new alternative has been developed in response to comment on the Public DEIS. Alternative F, which is now the Agency Preferred Alternative, does not propose any wells within the 100-year floodplain of the Green River, thereby reducing effects on the fishes of the Green River. Additional information regarding descriptions of spawning habitat and effects of oil and gas development on fish spawning areas and fish larvae can be found in Sections 3.12.1.3 and 4.12.1.1.1.11 of the FEIS. Mitigation measures for Colorado River system endangered and sensitive fishes can be found in Section 4.12.2.6 of the DEIS.
030-G	1	We have coordinated closely with the BLM and Gasco since 2007 in the development of the DEIS. As you are aware, one of our primary	Special Status Species	Fish	Alternative F, the new Agency Preferred Alternative, has been added to the FEIS. Under this alternative, the referenced wells in the NWRS have been removed. The wells were removed from this alternative based on public comment and because they are on part of

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		recommendations is to avoid new surface disturbances within the 100-year floodplain of the Green River to ensure the long-term conservation and recovery of the endangered Colorado River fish and their designated critical habitat (59 FR 13374; see USFWS email 8/09/2007; EIS draft comments from 8/13/2007, 11/19/2007, 11/20/2007, and 11/28/2007). We developed conservation measures in coordination with your office to avoid any new developments within the floodplain habitats [see 2007 Lease Notice Consultation and Vernal BLM Resource Management Plan (Vernal RMP) Record of Decision 2008]. However, the agreed-upon conservation measures to protect these species and their habitats were not included in the DEIS. In fact, all alternatives include the development of up to 11 natural gas wells within a 463-acre flood easement managed as a component of the National Wildlife Refuge System by the Colorado River Endangered Fish Recovery Program to aid in the recovery of the four Colorado River fish.			the project area that is private property with private mineral rights; therefore they are not a connected action and not within BLM's authority to permit or deny. In addition, this new alternative precludes all development in the 100-year floodplain of the Green River. BLM will consult with the USFWS on this alternative through the ESA Section 7 process. Finally, Section 4.12.2.6 of the DEIS details mitigation measures for fish.
030-G	33	Section 4.12.1.1.1.10, page 4-166 to 170. We recommend the analysis on impacts to threatened and endangered fish contain a more detailed review of potential effects of oil, gas, and associated drilling chemicals on fish and their habitat. Multiple peer-reviewed articles are available that detail the negative impacts of hydrocarbons on the aquatic environment.	Special Status Species	Fish	A more detailed analysis on potential effects of oil, gas, and associated drilling chemicals on threatened and endangered fishes and their habitat has been added to Section 4.12.1.1.1.11 of the FEIS. This section incorporates peer-reviewed articles that were provided by USFWS.
031-G	10	Applicant shall protect any potentially affected fish spawning areas.	Special Status Species	Fish	See response to comment 024-O-2.
020-O	23	The drastically reduced impacts of Alternative E, which would be further reduced by Mr. Kreckel's modifications, when compared to the other alternatives, advocates for the selection of this alternative. It would lead to significantly reduced impacts in habitat for most, if not all, special-status species (see, e.g., DEIS at 4-158, comparing disturbance among the various alternatives, Alternative E results in the lowest amount of disturbed acreage).	Special Status Species	General	Alternative F has been added to the FEIS in response to comments on the Public DEIS, and selected as the BLM's Preferred Alternative. As in Alternative E and Mr. Kreckel's suggestions, Alternative F would reduce or minimize impacts to special status species in the project area. In addition, as noted in Section 4.12 and Appendix B of the FEIS, implementation under all alternatives would require site-specific evaluations that would further minimize impacts to special-status species plants on a site-specific basis.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
027-O	16	Finally, in consideration of long-term planning and in connection with ANY other projects in the area, the Utah state BLM sensitive species list for plants must first be updated and taken into account before actions are taken.	Special Status Species	General	Updates to the BLM sensitive species list are out of scope of this EIS. However, the current Utah state BLM sensitive species list (updated in 2011) was taken into account in this EIS analysis process.
027-O	17	The state BLM sensitive species list has not been updated since August of 2002, i.e., is now over eight years old. Since that time, significant floristic publications have occurred, innumerable Utah Rare Plant Guide changes have been made and the UNPS Rare Plant Committee produced a list in 2009, none of which have been taken into account.	Special Status Species	General	See response to comment 027-O-16.
030-G	34	Sections 4.12.1.1.2.1 and 4.12.1.1.2.2, page 4-170-172. We recommend replacing the term "known occurrences" with "potential habitat," "suitable habitat," or "occupied habitat" as appropriate. Additionally, we recommend adding the following language to the Graham's penstemon write up: "Site-specific surveys and 100% avoidance of occupied habitat would occur under all alternatives as per the conservation agreement."	Special Status Species	General	All references to “known occurrences” have been revised in the FEIS to read “potential habitat,” “suitable habitat,” or “occupied habitat.” All references to special-status plant habitats have been revised to reflect the USFWS definitions for these terms. The recommended language for Graham’s penstemon has been added to Section 4.12.1.1.2.3 of the FEIS.
032-G	92	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 DEIS. Although audible and vis ble deterrents are planned as BMPs to deter birds from utilizing the ponds,	Special Status Species	General	Agency Preferred Alternative F has been added to the FEIS in response to comments on the Public DEIS. This new alternative includes reduced surface disturbance and the potential for produced water recycling. A description of this alternative can be found in Section 2.7. As noted in Section 4.12 and Appendix B of the FEIS, surface-disturbing activities under all alternatives would require site-specific evaluations that would further reduce impacts to special-status species plants on a site-specific basis. Sections 4.16.1.1.6, 4.16.1.2.5, 4.16.1.3.5, 4.16.1.4.5, and 4.16.1.5.5 of the DEIS analyze the effects under each alternative of the evaporation ponds on wildlife. Additions were made to Section 4.16.1.1.6 of the FEIS, including potential effects of evaporation ponds on birds and bats and an assessment of the efficacy of deterrents in keeping bats and birds away from these ponds.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
026-G	3	General: Because there are bird species that might be impacted, it would be beneficial for the FEIS to include information from the most recent USGS Breeding Bird Survey, such as species status and trends information, distr bution and trend maps, and population change analysis results (Sauer et al. 2008). Based on this data, the FEIS may need to include possible impacts and mitigation actions for bird species. Reference: Sauer, J.R., J.E. Hines, and J. Fallon. 2008. The North American Breeding Bird Survey, Results and Analysis 1966-2007. Version 5.15. 2008. USGS Patuxent Wildlife Research Center, Laurel, MD. Available online: <http://www.mbr-pwrc.usgs.gov/bbs/>.	Special Status Species	Migratory Birds	The BLM feels that Chapter 3 of the DEIS sufficiently addresses migratory birds and their habitat associations, specifically Section 3.12.3.2. This is because the USGS database reports either statewide trend analyses or trend analyses by point count route. The scale of the statewide trend analysis is too broad to be applicable to this document. The point count route trend analyses are often based on too few data points to be statistically valid. The current analysis, which is based on habitat associations and SWreGAP vegetation mapping, is currently the preferred way to describe migratory bird use at the scale of this project.
030-G	6	We recommend that you evaluate and minimize impacts to migratory bird habitat, focusing on the species on the USFWS's 2008 List of Birds of Conservation Concern and species that are listed among the Partners in Flight Priority Species. To help meet responsibilities under Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds), and the recently signed Memorandum of Understanding between the U.S. Department of the Interior Bureau of Land Management and the U. S. Fish and Wildlife Service To Promote the Conservation of Migratory Birds, we recommend conducting activities outside of critical breeding seasons for migratory birds; minimizing temporary and long-term habitat losses; and mitigating unavoidable habitat losses. If activities occur in the spring or summer, we recommend conducting surveys for migratory birds and their nests prior to ground-disturbing activities.	Special Status Species	Migratory Birds	Effects on migratory birds are analyzed in Section 4.12.1.1.3.2 of the DEIS. Mitigation measures specific to migratory birds are listed in Section 4.12.2.4 of the DEIS. Under these measures, a survey for breeding birds will be conducted prior to surface disturbance. If nests of important bird species are found (e.g., the USFWS BCC, PIF Priority bird species, Utah Sensitive Species), coordination with the BLM would take place to determine if additional protection measures should be required. A new alternative (Alternative F) has been developed in response to comment on the Public DEIS. Under Alternative F, the Agency Preferred Alternative, temporary and long-term habitat losses would be minimized through directional drilling. Sections 2.2.6 (Abandonment and Reclamation) and 2.2.6.1 (Interim Reclamation) of the DEIS descr be the interim and final reclamation procedures that would mitigate unavoidable habitat losses.
030-G	7	Appendix D. The mountain plover is proposed as a threatened species (75 FR 37353, June 29, 2010). Thus, we recommend including the mountain	Special Status Species	Mountain plover	Analysis on the mountain plover has been added into Sections 3.12 (Affected Environment), 4.12 (Impacts), and 4.12.2 (Mitigation) of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		plover in your analysis and implementing appropriate measures to avoid and minimize impacts. The project, as proposed, will impact the remaining nesting habitat for this species in Utah. Surface disturbance in mountain plover nesting habitat should be avoided.			
030-G	23	Section 3.12.2.1.2, page 3-79. We recommend adding the following language to this section: "In 2008, the BLM, USFWS, and Utah Department of Natural Resources entered into a conservation agreement to conserve and protect Penstemon grahamii and its ecosystem. This agreement formalized an interagency conservation program to survey and monitor for the species, and address threats by implementing avoidance and minimization measures as needed."	Special Status Species	*Penstemon grahamii*	The 2006 proposed rule to consider Graham's beardtongue (*Penstemon grahamii*) for federal listing as a threatened species under the ESA (USFWS 2006a) was reinstated on June 9, 2011 (U.S. District Court of Colorado). The species' current status as proposed for federal listing under the ESA provides protections that supersede the referenced 2008 interagency conservation agreement. The recommended sentence has therefore not been added to the FEIS.
003-O	1	As currently written, the DEIS lacks any reference to the "Utah Supplemental Planning Guidance: Raptor Best Management Practices" published by the Utah State Office of BLM. This document is to "be applied to all ongoing and future land use planning efforts. The 'Raptor Best Management Practices' will be placed in the Appendices of the Draft Plan, Proposed Plan, and Final Plan/ROD, or amendment as appropriate." (refer to Instruction Memorandum No. UT 2006-096; available at http-J/www.blm.gov/ut/st/en/res/efoia/instruction_memorandums/2006/im_no_ut_2006096.html).	Special Status Species	Raptors	A reference to this document has been added into Chapter 2 of the FEIS. The tables containing raptor nest spatial and temporal buffers in Chapters 2 and 4 (Tables 2-6 and 4-121) have been updated to reflect the buffers provided in the BLM Raptor BMP Guidance document and the Vernal FO RMP. Note that raptor BMPs would be prescribed for each drill location at the site-specific implementation level during BLM site visits.
003-O	2	In addition, Table 2-6 on pages 2-29 and 2-30 in chapter 2 of the DEIS suggests timing constraints of April I–July 15 for Burrowing Owls and Swainson's Hawks. Our extensive monitoring of these species in the West Desert of Utah for over 10 years suggests these species are relatively late breeders and that more appropriate timing constraints for these two species would be April I5–July 31.	Special Status Species	Raptors	The FEIS has been updated to reflect the spatial and temporal buffers provided in the Utah Supplemental Planning Guidance: Raptor Best Management Practices, which are consistent with the Vernal FO RMP. Temporal buffers both for burrowing owl and Swainson's hawk are listed as March 1 through August 31 in the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
030-G	17	Table 2-9, page 2-67. Clay reed-mustard: At least one occurrence of clay reed-mustard and potential habitat lies within the project area. We recommend that the BLM estimate the amount and distribution of clay reed-mustard potential habitat that will be impacted by the proposed action. The EIS should also include a commitment to minimize impacts by conducting surveys where necessary and following the applicant committed conservation measures. Despite commitments to survey and implement conservation measures, it is likely that some unavoidable impacts would remain. Therefore, we recommend rewriting this section by deleting "Applicant committed measures would eliminate" and rewording as "Applicant committed measures will minimize."	Special Status Species	Reed-mustard, clay	There are approximately 1,231 acres of clay reed-mustard habitat in the Gasco project area based on the most recent habitat polygons for the species. However, no acres of known clay reed-mustard habitat would be directly impacted under any of the alternatives. Additionally, as indicated in Appendix B, pre-project habitat assessments would be required at the site-specific level to ensure that potential habitats and individual plants are identified and avoided. All references in Table 2-9 to "Applicant-committed measures will eliminate…" have been revised in the FEIS.
030-G	27	Section 4.12.1.1.1.2, page 4-154. Potential habitat for clay reed-mustard exists within the project area. Based on the project area location we believe clay reed-mustard will be directly impacted by the proposed alternatives.	Special Status Species	Reed-mustard, clay	See response to comment 030-O-27.
030-G	18	Table 2-9, page 2-67. Shrubby reed-mustard: We recommend clarifying the term "known habitat", i.e., does this term refer to occupied, suitable, or potential habitat. The applicant committed conservation measures are intended to avoid development in occupied shrubby reed-mustard habitat. The EIS should clearly show the relationship of planned development to shrubby reed-mustard habitats. Thus, please identify the acreage and distribution of suitable and occupied habitats that will be impacted by the project. As previously stated, we recommend rewriting "Applicant committed measures would eliminate" as "Applicant committed measures will minimize…"	Special Status Species	Reed-mustard, shrubby	The term "known habitat" has been replaced with the terms "potential habitat," "suitable habitat," or "occupied habitat," as defined in Appendix B of the DEIS. Table 2-9 of the FEIS has been revised to include impact acres of potential and occupied habitat. Chapters 2, 3, and 4 of the FEIS have been revised based on the most recent habitat polygon for S*. suffructescens* and the draft 5-year review. Maps have been added to Chapter 3 of the FEIS showing the distr bution of special-status plant species in the project area. In addition, Table D-3 has been added to FEIS Appendix D that indicates how acres of disturbance were calculated for each of the special-status plant species retained for analysis. Table 2-9 of the FEIS has further been revised to state "Applicant-committed measures will minimize" rather than "eliminate."
030-G	28	Section 4.12.1.1.1.3 Table 4-86 shrubby reed-mustard. Please provide the source for calculations contained in the table on page 4-155-156. We recommend updating these numbers with information from the shrubby reed-mustard five-year review available at:	Special Status Species	Reed-mustard, shrubby	Section 4.12.1.1.1.3, Table 4-100 of the FEIS has been revised based on the most recent habitat polygon for shrubby reed-mustard and the draft 5-year review. Although the proposal to postpone all development within shrubby reed-mustard potential habitats is outside the scope of this EIS, as noted in Section 4.12 and Appendix B of the FEIS, surface-disturbing activities under all alternatives would require site-specific evaluations that would further reduce impacts to SSS plants on a site-specific basis.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		<http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=QIN9> According to our shapefiles, the project area overlaps with at least 700 acres of potential shrubby reed-mustard habitat. We can provide shapefiles of potential habitat polygons for both Schoenocrambe spp. and both *Sclerocactus* spp. to your office upon request. We recommend postponing all development within potential habitat for shrubby reed-mustard, at least until we evaluate the preliminary results from ongoing disturbance studies for this species. We expect preliminary results by December 2011. We recommend working with our office to develop a phased approach to development in shrubby reed-mustard potential habitat, and identifying core conservation areas for long-term protection of the species.			The “core conservation areas” will be taken into consideration during site specific review when they become available. Adaptive management verbiage has been inserted to address this concern.
026-G	1	Pg.4-164: The DEIS states that surveys will be conducted for specific species, including the greater sage-grouse. Suggest the FEIS include the initial survey results and references. If the survey results indicate poss ble adverse impacts, the FEIS will need to include mitigation actions to minimize or avoid impacts.	Special Status Species	Sage-grouse	The referenced paragraph on page 4-164 refers to site-specific pre-construction surveys, as described in the ACEPMs. There are no initial survey results to include in the FEIS. Results of surveys will not be known until after the ROD is signed and implementation begins. Site-specific analysis will use these survey results to determine impacts and possible mitigation actions, if needed. In addition, refer to Section 4.12.2.5 (Mitigation for Greater Sage-grouse) and Section 3.12.1.2.2 for discussion about one known, inactive lek within 2 miles of the project area.
030-G	5	Oil and gas development can negatively impact sage-grouse populations and their habitats. Lek persistence is positively influenced by the proportion of sagebrush habitat within 6.4 km (4 miles) of the lek (Walker et al. 2007); 74%–80% of hens are known to nest within 4 miles of leks (Colorado Greater Sage-Grouse Conservation Plan Steering Committee 2008); energy development results in the removal and fragmentation of sagebrush habitats. Sage-grouse also avoid suitable wintering habitats once they are developed for energy production (Doherty et al. 2008). For these reasons, we recommend no new surface disturbance associated with this EIS be allowed within greater sage-grouse breeding, brood-rearing, and wintering habitats. If development in these habitats is allowed to proceed, we recommend	Special Status Species	Sage-grouse	It was determined by the BLM and UDWR that due to the valid existing leases with few or no surface use restricting stipulations within 4 miles of the active greater sage-grouse leks that implementing a "4-mile NSO" year-round would not be legally implementable. Rather, as described in Mitigation Measures for Greater Sage-grouse (Section 4.12.2.5) a 0.5-mile NSO would be implemented to prevent new well locations within close proximity to the greater sage-grouse leks. Note, however, that the only known sage-grouse lek in the project area has been inactive for several years. As described in Section 4.12.2.5, Mitigation Measures for Greater Sage-grouse, appropriate noise-reducing technology would be implemented within 0.5 mile of an active lek. The best available technology, such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise would be used. Please note there is no identified crucial wintering habitat in the project area.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		the following conservation measures be implemented: 1. No surface-disturbing activities (roads, pipelines, power lines, facility construction, etc.) should occur within a 6.4 km buffer (4 miles) of an active sage-grouse lek year-round; 2. Topography and/or the latest muffling technology should be used to ensure noise levels do not exceed 45dB within 5 km (3.1 miles) of a lek; 3. Surface-disturbing activities should not occur within identified crucial wintering habitat between December 1 and March 15; and 4. Permanent structures or facilities should not be placed within identified crucial wintering habitat.			
027-O	4	The genus *Schoenocrambe* has been frequently misspelled as "Schoencrambe" and needs to be fixed in a number of places (e.g., Appendix B and D) in the DEIS.	Special Status Species	*Schoenocrambe*	The spelling of *Schoenocrambe* has been revised as requested throughout the FEIS. *A Utah Flora* (Welsh et al. 2003) and the *Uinta Basin Flora* (Goodrich et al. 1986) uses the *Schoencrambe* spelling. The USFWS uses the *Schoenocrambe* spelling.
027-O	5	Both of these federally listed *Schoenocrambe*s appear to be likely even rarer and more threatened than thought. S. argillacea has been confused with another species and its total number of occurrences may be even less than what has been known. S. suffrutescens has suffered terrible incursions into its habitat due to the collection of building stone, and from roads and other impacts.	Special Status Species	*Schoenocrambe*	The FEIS has been revised with the most recent habitat polygon for *Schoenocrambe argillacea*. There have been minimal changes to the distribution polygon for *S. suffructescens*. Additional updates have been made to Chapters 3 and 4 of the FEIS based on the 5-year review documents for both species.
027-O	1	The BO contained in RMP is dated Oct. 23, 2008 (and is very confusing and inconsistent in general in its treatment of the Sclerocacti). The subsequent FR publication (clarifying taxonomic handling and status of several Sclerocacti) was on Sept. 15, 2009. So the RMP's BO is out of date and cannot be necessarily relied on.	Special Status Species	*Sclerocactus*	The BO for the Vernal FO RMP was not relied on for the analysis in the DEIS. As noted in Section 5.2 of the DEIS, coordination with the USFWS has been ongoing during preparation of this EIS, and BLM has made use of the best available information from the USFWS. This EIS doubles as a Biological Assessment, and the USFWS issued a Biological Opinion (BO) for the project as part of the formal consultation process.
027-O	2	Further in 75 FR 69221 69294 of Nov 10, 2010, the status of *Sclerocactus brevispinus* was found to be warranted as endangered (but precluded for reasons that do not have to do with true urgency and need of its protection nor priorities in this	Special Status Species	*Sclerocactus*	As noted in Section 5.2 of the DEIS, coordination with the USFWS has been ongoing during preparation of this EIS. Any decision on the listing or categorization of *S. brevispinus* under the Endangered Species Act is a decision for the USFWS, and is outside the scope of this EIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		region). *S. brevispinus* therefore needs to be treated in Gasco and other projects as de facto endangered and requires a higher level of consideration.			
027-O	3	*Sclerocactus brevispinus* can no longer be “lumped in” with *S. wetlandicus* as it has been consistently for the past almost three decades in NEPA-type analyses, including in the RMP BO dated Oct. 23, 2008.	Special Status Species	*Sclerocactus*	The species were not addressed as a single species in the DEIS and are addressed as two distinct species in the FEIS. Consultation is separate for each species.
027-O	6	In Appendix B, page B-9, paragraph 2(b) with respect to *Sclerocactus wetlandicus* refers to "30" rather than 300 feet. This requires correction.	Special Status Species	*Sclerocactus*	Appendix B of the FEIS has been revised to reflect the most recent conservation measures.
027-O	7	Only a 100-foot right-of-way is being provided for in connection with *Sclerocactus brevispinus*. (Yet 300 feet is specified for *S. wetlandicus*.) Some 300 feet is also being required for the other TES species. S. *brevispinus* is l kely the rarest and most threatened/endangered of the TES taxa involved with this project and is very small/fragile and its habitat is probably the most vulnerable to surface disturbances.	Special Status Species	*Sclerocactus*	All sections have been revised to reflect the most recent conservation measures for species-status plant species.
027-O	8	*Sclerocactus brevispinus* buffer zone should probably not be less than 1,000 feet, and certainly should not be less than the others. It should be noted that even 300 feet is a very bare minimum amount and is really not adequate to protect equally essential habitat needed by critical pollinators from disturbances and incursions and based on extensive literature reviews ("edge effects") for all of the TES taxa, and it is also inadequate based on the recommendations of Dr. Vincent Tepedino with respect to Penstemon grahamii which we and CNE previously commented on in the Vernal RMP process. In <http://www.sidney.ars.usda.gov/grasshopper/Handbook/pdfs/Mont_III/III5.pdf> (Citation: Tepedino, V. J. 2000. The reproductive biology of rare rangeland plants and their vulnerability to insecticides. In: *Grasshopper integrated pest management user handbook*. Tech. Bull. 1809, USDA, Animal and Plant Health Inspection Service. Washington, DC.) Note: "The size of the	Special Status Species	*Sclerocactus*	All sections of the FEIS have been revised to reflect the most recent conservation measures for species-status plant species. As noted in Section 5.2 of the DEIS, coordination with the USFWS has been ongoing during preparation of this EIS. Any decision on the suitability of buffer zones or critical habitat for threatened and endangered plants would be made at the guidance of the USFWS, and is outside the scope of this EIS. Information relevant to special-status plant species pollinators from Tepedino 2006 (*Penstemon grahamii*), and Tepedino et al. 2010 (*Sclerocactus wetlandicus* and *S. brevispinus*) has been added to Section 3.12. Impacts to pollinators are discussed in Sections 4.12.1.1.1.4 and 4.12.1.1.1.5 of Chapter 4 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		buffer zone that should be left around rare plant populations that rely exclusively on insect pollination depends on how far bees fly to obtain their resources. Presently, a buffer zone of 3 miles is being left around rare plant populations, but this is provisional in that it is based on best guesses rather than accurate estimates. By experimentation, we can help resolve questions about the value of buffer zones and whether they should be expanded or contracted in size." This article includes references to species involved in this DEIS. While this article was looking at the effect of insecticide sprays and so the 3-mile buffer zone might be larger than expected, the distance that a pollinator can fly is a critical factor in determining a buffer zone around a rare plant species. The pollinators observed to date with respect to these species can in probably every case fly far in excess of 300 feet. Specifically with respect to *Penstemon grahamii*, in a Feb. 10, 2006, e-mail Dr. Tepedino indicated that there were a lot of problems with a set buffer zone size of 200 to 300 ft. One known pollinator that had been identified as of that time (and discovered by Dr. Tepedino) was a wasp species, Pseudomasaris vespoides. Dr. Tepedino felt that there was likely that a number of other species were likely to pollinate *P. grahamii* based on his fairly extensive experience with other species of Penstemons (and I believe that subsequent investigations has proven this to be the case). Almost all of these pollinators are ground nesting and capable of flying much farther than 300 feet. And we know little of their nesting requirements. In the case of Pseudomasaris vespoides, it builds mud nests on ledges and boulders, so Dr. Tepedino advised that any critical habitat or ACEC designation would include such areas to the extent possible. His final recommendation to us was: "My feeling is that the “minimum” buffer zone should be a half-mile radius (and this is probably restrictive). Penstemon species need pollinators to reproduce; only one species (digitalis) has been reported to be fully autogamous and that finding has been challenged by another study. (Citation: Tepedino,			

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		V.J. 2006. Personal communication [Buffer recommendations for Graham's penstemon]. USDA ARS, Bee Biology & Systematics Lab, Dept of Biology, Utah State University).			
027-O	9	The recommended course of action in the Gasco DEIS involving some 325 miles of new roads has not taken into account recently published research (see below) relating to Uinta Basin Sclerocacti and their pollinators which requires a detailed review. The impacts of these roads with respect to isolation of these species and extreme likelihood of greatly increased access to the habitat by cactus poachers has not been addressed. (See: Tepedino, V.J., T.L. Griswold and W.R. Bowlin. 2010. Reproductive biology, hybridization, and flowers visitors of rare *Sclerocactus* taxa in Utah's Uinta Basin. Western North American Naturalist 70(30):377–386.) In this very recently published article, it is noted that ground nesting bees in the subfamily Halictinae are the principal observed pollinators and that these pollinators are necessary for sexual reproduction to occur, and that: "Protecting habitat for halictine bees also means managing for abundance and diversity of flower species (Tepedino et al. 1997). Most members of the subfamily Halictinae visit a wide variety of flowers (Moure and Hurd 1987) which they use both when *Sclerocactus* is in bloom and when it is not. Thus any general habitat deterioration that would substantially reduce native flower abundance and diversity would have an adverse effect on bee populations and must be avoided." Further, Tepedino argues that land managers should not attempt to isolate these species, i.e., it cannot be argued that the construction of roads and pads will benefit these species by isolating them. In general: critical pollinator conservation issues have not been addressed in the Gasco DEIS that in turn impacts the TES analysis.	Special Status Species	*Sclerocactus*	Alternative F, the new Agency Preferred Alternative, has been added to the FEIS in response to comments on the Public DEIS; this new alternative includes reduced water withdrawal, reduced surface disturbance, and produced water recycling. A description of this alternative can be found in Section 2.7. As noted in Section 4.12 and Appendix B of the FEIS, surface-disturbing activities under all alternatives would require site-specific evaluations that would further reduce impacts to SSS plants on a site-specific basis. Information relevant to special-status plant species pollinators from Tepedino et al. (2010) has been added to Section 3.12 of Chapter 3 of the FEIS. Revisions have been made to Chapter 4, Section 4.12 of the FEIS to clarify the degree and nature of impacts to pollinators under the different alternatives.
027-O	14	We disagree with the allowed survey times for these Sclerocacti. March 15 to June 30 is too wide of a range for *S. brevispinus*. S. brevispinus is best surveyed when it is in bud. A period of April 15 to	Special Status Species	*Sclerocactus*	As noted in Section 5.2 of the DEIS, coordination with the USFWS has been ongoing during preparation of this EIS. Any decision on the survey window for Sclerocacti was made based on the guidance of the USFWS, which has both expertise and jurisdiction regarding this resource.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		May 15 would be more appropriate. Further, allowing for *Sclerocactus wetlandicus* surveys at any time of year absent snow cover is likely a very poor/inadequate/overly lenient approach that is most l kely leading to a lot of botanical survey trampling of habitat when soil is moist and more vulnerable to damage. While it is true that *S. wetlandicus* is normally a much larger species, often it too can be quite small and difficult to see, and it is well-known that it hybridizes with *S. brevispinus* (a species that can be difficult to survey for even when in flower). The hybrid plants are equally protected under the Endangered Species Act given that both of its parent plants are covered. Therefore it is illogical to come to the conclusion that *S. brevispinus* surveying should be restricted but that *S. wetlandicus* should not. A much more narrow time frame of proper surveying time with respect to *S. wetlandicus* should be adopted.			
030-G	3	The threatened Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) and Pariette cactus (*Sclerocactus brevispinus*) occur in the project area. In addition, potential habitat for the threatened clay reed-mustard (*Schoenocrambe argillacea*) and endangered shrubby reed-mustard (*Schoenocrambe suffrutescens*) occurs in the project area. The DEIS should be updated to reflect the most current distribution information for each species. Our office can provide this information upon request.	Special Status Species	*Sclerocactus*	The FEIS has been revised based on the most recent habitat polygon (USFWS 2011) for the *Sclerocactus* species. In addition, the FEIS has been revised to reflect the most current distribution polygons and 5-year review documents for *Schoenocrambe argillacea* and *S. suffrutescens.*
030-G	4	The 2008 Vernal RMP recommends implementing 300-foot buffers between plant locations and surface disturbances to help protect these plants from impacts associated with habitat fragmentation and dust accumulation (ELM 2008). However, the DEIS recommends only a 100-foot buffer between plants and surface disturbances for all proposed action alternatives. We believe that the proposed action should be consistent with the Vernal RMP and recommend the DEIS include a minimum 300-foot buffer from surface disturbances. The 300-foot buffer distance is important for the conservation and	Special Status Species	*Sclerocactus*	*Sclerocactus* habitat acreages and related buffers have been updated throughout the FEIS to ensure consistency with the current Vernal FO RMP.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		recovery of these species, particularly given the landscape-level impacts associated with oil and gas development in the Uinta Basin.			
030-G	19	Table 2-9, page 2-67. Pariette cactus: Please clarify if "occurrence areas" means "occupied habitat", keeping in mind applicant committed conservation measures are intended to avoid development in occupied habitat. Additionally, our maps show overlap between the EIS project area and the Pariette cactus potential habitat polygon. Please include the amount of potential habitat that will be disturbed by the project, using the potential habitat polygon. We recommend rewriting the sentence "Dust and weed impacts would be largely mitigated" to read "Dust and weed impacts would be minimized".	Special Status Species	*Sclerocactus*	The FEIS has been revised to change “zone of occurrence” and “occurrence areas” to “occupied habitat.” Throughout the FEIS, the terms “potential habitat,” “suitable habitat,” and “occupied habitat” are used as defined in Appendix B. Table 2-9 of the FEIS has been revised to include impact acres of potential and occupied habitat. Table 2-9 (Summary of Impacts), under Special Status Species: Pariette Cactus, has been revised to read, “Dust and weed impacts would be minimized by applicant-committed measures.”
030-G	20	Table 2-9, page 2-68. Uinta Basin hookless cactus: We recommend deleting the term "zone of occurrence" -- please specify if this is "potential habitat." We recommend using the *Sclerocactus* spp. potential habitat polygon developed by the USFWS and BLM to calculate the amount of habitat that will be impacted by the proposed action. We recommend replacing "nearly eliminate" with "mitigate." Direct impacts to cacti and other listed species are not likely to be entirely "eliminated" under the proposed action, just minimized or mitigated.	Special Status Species	*Sclerocactus*	Table 2-9 has been revised as requested. The FEIS has been revised throughout based on the most recent habitat polygons for the *Sclerocactus* species. Table 2-9 has been revised to read “mitigate,” “mitigated,” or “minimized” instead of “eliminate” or “eliminated.”
030-G	22	Section 3.12.1.1.2, page 3-70. Please remove the sentence "Pariette cactus is currently under 5-year review for federal listing as endangered (USFWS 2006c)." This no longer reflects the most current information. Pariette cactus is currently listed as threatened but was found to be "warranted but precluded" for uplisting to endangered.	Special Status Species	*Sclerocactus*	Section 3.12.1.1.2 of the FEIS has been revised as requested by the commenter.
030-G	26	Section 4.12, page 4-153: We recommend replacing the statement "...with the poss ble exception of the Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) (for which an incidental take permit would need to be issued by the USFWS prior to any "take" occurring)," with "If occupied habitat cannot be avoided, the applicant	Special Status Species	*Sclerocactus*	Section 4.12 of the FEIS has been revised as requested.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		and the BLM will work with the USFWS to minimize and mitigate impacts to the species."			
030-G	29	Section 4.12.1.1.1.4 Pariette cactus, page 4-156. Please replace "previously known range" with "potential habitat" and recalculate the acreage overlap based on the *Sclerocactus* spp. potential habitat polygons. This project area overlaps small areas of potential habitat and some known plant locations of Pariette cactus. Importantly, the overlap comprises habitat that may be included in core conservation areas for the species. We are coordinating with your office in the development of these areas. Protection of these habitats, and particularly the core conservation areas, is important for the conservation and recovery of the Pariette cactus. As previously discussed (General Comments, Threatened and Endangered Plants), the DEIS should be revised to include a 300-foot buffer to protect the cacti from surface disturbances, and to avoid surface disturbances within core conservation areas.	Special Status Species	*Sclerocactus*	"Previously known" has been revised in the FEIS to "potential" habitat as requested by the commenter. The FEIS has been revised throughout based on the most recent habitat polygon for Pariette cactus and the 300-foot avoidance and minimization buffer. Discussion of newly identified "core conservation areas" for this species have been inserted into Section 3.12 and 4.12 of the FEIS. In addition, acres of direct and indirect impacts to Pariette cactus core conservation areas are addressed in Section 4.12 of the FEIS.
030-G	30	Section 4.12.1.1.1.4 Pariette cactus and Section 4.12.1.1.1.5 Uinta Basin hookless cactus, page 4-156 and 4-159: We are phasing out the project-specific three-year monitoring requirement for the *Sclerocactus* spp. In its place, we are developing a landscape-level monitoring program that will more accurately assess cumulative effects of ongoing energy development activities, and help us develop more effective recovery approaches. In addition, the minimum buffer needed to minimize the effects of surface disturbance to cacti is 300 feet. Thus, we recommend rewriting this section as follows: "Cactus surveys will be conducted within 300 feet of all surface disturbances, across all project areas within the potential habitat polygon. Project area disturbances outside of the potential habitat polygon will be evaluated by the BLM botanist for suitable habitat; surveys will be conducted if necessary. In cooperation with the BLM, the USFWS is developing a landscape-level, long-term monitoring	Special Status Species	*Sclerocactus*	Sections 4.12.1.1.1.4 (Pariette cactus) and 4.12.1.1.1.5 (Uinta Basin hookless cactus) (Direct and indirect effects/Alt A/Federally listed…) of the FEIS has been revised as requested, however "botanist" has been changed to "Authorized Officer."

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		program for both *Sclerocactus* species across their ranges in the Uinta Basin. As part of that program and to mitigate for negative impacts to cacti from the proposed action, the applicant will work with the BLM and the USFWS to contr bute to this monitoring effort. This contribution will be in lieu of the previously required project-specific three-year monitoring (as descr bed in Appendix B of the DEIS). Though the protocol is still being refined, it is hoped that effects of development from this and other projects will be better understood on a broad scale, allowing us to develop and implement more effective recovery measures for the species".			
030-G	31	Section 4.12.1.1.1.5 Uinta Basin hookless cactus, page 157 and 158. Please update acreage figures provided in the text and Tables 4-87 and 4-88 using the updated *Sclerocactus* spp. potential habitat polygon and use the terms "potential habitat, suitable habitat, and occupied habitat" where appropriate in place of "zone of occurrence".	Special Status Species	*Sclerocactus*	Section 4.12.1.1.1.5 of the FEIS has been revised as requested. The FEIS has been revised throughout the potential habitat polygons for the two *Sclerocactus* species and the 2009 core conservation areas for *Sclerocactus brevispinus*. "Zone of occurrence" has been replaced throughout the FEIS with "potential habitat," "suitable habitat," or "occupied habitat" as appropriate. Definitions of each term are presented in the introduction to Section 4.12.
030-G	32	Section 4.12.1.1.1.5 Uinta Basin hookless cactus, page 159. This section indicates that cactus will be transplanted to avoid losses of individual plants. In general, we do not believe transplanting cacti is an effective conservation measure. Thus, we recommend rewriting this section as follows: "When individual plants cannot be avoided without unduly constraining operations or impacting other sensitive resources, the applicant will work with the BLM and the USFWS to develop additional mitigation measures to prevent loss of individual plants. Salvage and translocation of cacti should only be considered as a last resort to other mitigation options". Finally, the project area overlaps portions of occupied *Sclerocactus wetlandicus* habitat for which the USFWS and BLM are currently developing core conservation areas to further recovery efforts for the species. The applicant will work with the BLM and the USFWS to develop their project in a way that avoids or limits disturbance or impacts within core conservation areas.	Special Status Species	*Sclerocactus*	Section 4.12.1.1.1.5 of the FEIS has been revised as requested. In addition, Appendix B has been revised to reflect the most recent conservation measures for Uinta Basin hookless cactus and Pariette cactus. The "core conservation areas" will be taken into consideration during site specific review when they become available. Adaptive management verbiage has been inserted to address this concern.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	29	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.	Transportation	General	A transportation plan has been added to the FEIS (as Appendix M). Impacts associated with access roads should be reduced by implementing the plan, which lists the following objectives: • Maximize use of the existing road system • Facilitate identification of roads not needed for operations • Construct roads to the minimum standard necessary to accommodate anticipated traffic and weather • Minimize the number of loop roads • Minimize the crossing of side slopes greater than 40% • Minimize profile grades • Minimize drainage crossings, with emphasis placed on drainages with potentially large runoff flows and floodplains • Meet the needs and requirements of Gasco, the BLM, Uintah and Duchesne counties, the State of Utah, and private surface owners • Incorporate environmental and resource considerations • Provide for inspection and maintenance activities A project-specific reclamation plan can be found in the FEIS in Appendix G (Plan for Surface Reclamation and Monitoring).
016-O	19	The Nine Mile Canyon Backcountry Byway traverses part of the proposed action area, and plans must be made to preserve the integrity of the Byway.	Transportation	Nine Mile Canyon Backcountry Byway	Sections 3.5 (Land Use and Transportation) of the FEIS has been revised to include a discussion of the Backcountry Byway designation, and defines the Nine Mile Canyon Backcountry Byway by road segment. Section 4.5 of the FEIS has been updated to clarify use of Nine Mile Canyon Road and each segments of the Backcounty Byway under all alternatives.
016-O	15	Chapter 3 of the DEIS, in section 3.5.2, lists the Nine Mile Canyon road as a major road in the study area, and yet there is no mention of impacts to the road itself. Elsewhere in the DEIS it states that all traffic will come from the Uinta Basin. The DEIS neglects to recognize the road upgrades and future plans of Carbon County and Bill Barrett Corporation with financial assistance from Duchesne County and the State of Utah. These upgrades are designed to control the dust and direct water runoff away from the road. There may also be a hard surface applied according to plans discussed by Carbon County and Jones & DeMille Engineering in the Carbon County Nine Mile Canyon Road Cooperative Board meetings. This will make the Nine Mile road much more attractive to industry subcontractors and workers living in	Transportation	Nine Mile Canyon Road	The transportation section (Section 4.5) and the Cumulative Impacts analysis (Section 4.18) of the FEIS has been revised to include information regarding the reasonably foreseeable road improvements to Nine Mile Canyon Road, acknowledge the potential for increased travel along the roads by Gasco suppliers or employees and/or other operators, and disclose impacts from that travel. Gasco currently does not use any suppliers from the Price area or any area requiring traffic and transportation through Nine Mile Canyon. Gasco's current access (by employees and contractors) to even the most southwestern areas of the project area are not from the south or through Nine Mile Canyon. It would be speculative for BLM to assume that Gasco's supplier or employee access patterns would change, and it is impossible to make any reasonable assumptions about any potential traffic increases from the south as a result of any pattern change.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Carbon County. What the DEIS fails to recognize is that although all of Gasco's workers and subcontractors may be located in the Uinta Basin at the present time, the drill pipe comes in from the railroad in Price and the CO_2 comes from Carbon County. It is 73 miles from Price just to Myton going over Indian Canyon and through Duchesne, or a one-hour and twenty-minute drive. Alternately, it is 75 miles from Price to Myton traveling through Wellington and Nine Mile Canyon. Although the speed limit is much lower through the Canyon, it would still save time and gas (money) for industry workers to drive from Price to the project area through the Canyon because they won't have to travel all the way to Myton before they reach the project area. In addition, the DEIS mentions that socioeconomic impacts to the Uinta Basin include a shortage of affordable housing and loss of hotel/motel accommodations for the tourism industry. We think it likely that project workers will discover the possibly lower prices and greater availability of housing in Carbon County and choose to relocate here realizing that it makes more economic sense. All of the projections of travel routes and impacts to the Nine Mile road need to be revised with this new information.			
021-O	7	The DEIS acknowledges that the proponent will use segments of the Nine Mile Canyon Road to access the project area under Alternative C (full development) (DEIS at 4-73). The DEIS also suggests that the proponent will use the Nine Mile Canyon Road under Alternative A, and perhaps under additional project alternatives, but is ultimately ambiguous about whether this will happen. Compare id. at 4-72 ("the Nine Mile Canyon Scenic Byway would experience no project traffic below the rim of Nine Mile Canyon [under Alternative A]…No project traffic would occur below the rim of the Gate Canyon segment of this byway") with id. at 4-360 ("primary means of access to the project area would be via the Nine Mile Canyon, Sand Wash, and Wells Draw roads" [emphasis added]); id. at 4-96 (evaluating Alternative A's impacts on recreation in Nine Mile	Transportation	Nine Mile Canyon Road	Below the rim of Nine Mile Canyon (defined as beginning 1.2 miles south of the Gate Canyon Road/Wrinkle Road/Wells Draw Road intersection), the Nine Mile Canyon Road and Gate Canyon Road would not be used under any alternative other than Alternative C. Use under Alternative C would be limited to the access needed to develop and operate 98 wells. Above this intersection, Wells Draw Road would be used under all alternatives, to varying degrees. Sections 4.5 (Land Use and Transportation) and 4.18.3.4 (Land Use and Transportation) of the FEIS have been revised to clarify use of Nine Mile Canyon Road and Gate Canyon Road under all alternatives.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Canyon, since "increased traffic may impact visitors along Nine Mile Canyon Road, Sand Wash Road, and other roads used to access the canyon" [emphasis added]).			
021-O	8	Yet, at no point in the DEIS has BLM established baseline conditions for traffic in Nine Mile Canyon, quantified the projected increase in traffic in Nine Mile Canyon due to the Project or evaluated the impacts of the Project's traffic on historic properties in Nine Mile Canyon, even though BLM did just that in the FEIS for the West Tavaputs Project. See Final EIS, West Tavaputs Project at 4-231; 4-239; 4-243–45; App. F (establishing baseline conditions, projecting project's traffic and evaluating traffic impacts on Nine Mile Canyon).	Transportation	Nine Mile Canyon Road	Section 4.5.1.1.2 of the DEIS discusses the use of Nine Mile Canyon (one section of the Nine Mile Canyon Backcountry Byway) under each of the alternatives. Use of Nine Mile Canyon Road itself would only occur under Alternative C and would be limited to the access needed to develop and operate 98 wells. Section 3.5 of the FEIS has been updated to include the baseline traffic conditions on the Nine Mile Canyon section of the Byway gathered as part of the West Tavaputs EIS. Section 4.5 discloses the percentage increase in traffic within Nine Mile Canyon under all alternatives.
021-O	10	Nor are we reassured by an assumption permeating the DEIS that all of the Project's traffic—from tanker trucks (oil and water) to maintenance and passenger trucks—will originate from Roosevelt and Vernal and at no point travel the Nine Mile Canyon Road (see e.g., DEIS at 3-40). In short, BLM cannot avoid taking a "hard look" at the impact of the Project's traffic on Nine Mile Canyon by relying on a bare assertion (as opposed to a legally binding commitment) that the proponent and its contractors will not use the Nine Mile Canyon Road.	Transportation	Nine Mile Canyon Road	See response to comment 016-O-15 Please note that under the new Agency Preferred Alternative, Alternative F, no wells, roads, or pipelines are proposed below the rim of the Canyon in the ACEC.
027-O	13	The BMPs and recommendations made by the Intermountain Oil and Gas BMP project should be reviewed and followed to the greatest extent possible: <http://www.oilandgasbmps.org/resources/vegetation.php>	Vegetation	Applicant-committed measures/mitigation	The Intermountain Oil and Gas BMP project database was searched and 254 BMPs for vegetation and special-status plant species specific to Utah have been reviewed. The proposed mitigation in Section 4.13.2 of the FEIS for vegetation addresses most of the BMPs identified in the Intermountain Oil and Gas BMP Project database. Some of the identified BMPs would be impracticable given the time frame involved between proposed infrastructure (e.g., stockpiling topsoil, vegetation and rootstocks) and reclamation. These methods are appropriate for short-term activities that would allow for the retention and use of viable topsoil, biological soil crust inoculant, and vegetative plant propagules. The following additional BMPs have been added to Section 4.13.2 of the FEIS: • Mulching, soil amendments and other state-of-the-art techniques will be used as determined necessary on a site-specific basis to assure the highest poss ble re-vegetation success. • In areas that contain environmentally sensitive fragile soils and vegetation, the operator may be required to perform special measures such as mulching, erosion fencing, use of erosion fabric, etc., per the direction of the AO, to

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					stabilize any disturbed areas and ensure the re-establishment of long-term perennial vegetation. • Inter-seeding (i.e., seeding into existing vegetation), secondary seeding, or staggered seeding may be used as determined necessary on a site-specific basis to accomplish revegetation objectives. • Vegetation removed from short-term surface-disturbance areas will be spread over the disturbed site to capture native seed and facilitate revegetation.
027-O	10	Gravel is being required for use in roads yet is a known carrier of seed of invasive and other undesirable plant species. The impact of bringing large amounts of gravel into the area for roads is potentially an explosion of invasive species. This requirement needs more careful analysis and restrictions.	Vegetation	Invasives	In Chapter 2, Table 2-1, page 2-12, the DEIS states that "Gasco would treat project-related weeds as required by all applicable regulations." In addition, the analysis in Chapter 4 of the DEIS assumes weed invasion potential from road development including construction equipment, other vehicles, erosion control and revegetation materials, gravel, OHVs, etc. See Sections 4.13.1.1.2, Noxious and Invasive Weeds, and 4.13.2, Mitigation.
027-O	11	Reclamation monitoring should occur for at least five to seven years rather than three years. If the first year efforts do not succeed as they very commonly do not, three years would be a completely inadequate timeframe. Furthermore, the applicant should be responsible for proper reclamation and mitigation throughout the 45+ year expected period of its involvement in the area.	Vegetation	Reclamation	Reclamation monitoring would not be limited to three years. The commenter may be confusing avoidance and minimization monitoring requirements for special status plant species as presented in the DEIS (the 3-year monitoring requirement is no longer valid). Reclamation and monitoring requirements identified in Section 2.2.9.4, Section 4.13.2, and Appendix G (Section G.4, bullet 4) of the DEIS indicate that monitoring would occur on an annual basis or as determined by the AO throughout the life of the project.
027-O	12	Non-indigenous species should NOT be used in reclamation efforts whatsoever, including any so-called "sterile" hybrid seed (which are proving to in fact be fertile at least at a certain level). Reclamation efforts in general should follow <http://www.oilandgasbmps.org/resources/reclamation.php>. Note comments about preserving and salvaging sufficient topsoil as an integral part of the reclamation plan, and comments concerning erosion control.	Vegetation	Reclamation	As stated in Section 2.2.6.1 of the DEIS, all seed mixtures would be accepted and approved by the AO. Native plant seed can require longer time periods to develop sufficiently to provide erosion control, habitat structure, and other ecological functions. Where native species are not appropriate for erosion control, weed exclusion, or habitat development, desirable non-native species may be used. The BMPs included in Section 4.13.2 and Appendix G are standard BMPs. As suggested by the commenter, the Intermountain Oil and Gas BMP project database was searched and 254 BMPs for vegetation and special-status plant species specific to Utah have been reviewed. The proposed mitigation in Sections 4.13.2 of the FEIS for vegetation addresses most of the BMPs identified in the Intermountain Oil and Gas BMP Project database. Stockpiling topsoil is proposed as a BMP in Section 2.2.6.1. However, some of the BMPs listed in the Intermountain Oil and Gas BMP project database would be impracticable given the time frame involved between proposed infrastructure (e.g., stockpiling topsoil, vegetation and rootstocks) and actual reclamation. These BMPs would be appropriate for short-term activities that would allow for the retention and use of viable topsoil, biological soil crust inoculant, and vegetative plant propagules.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
					The following additional BMPs have been added to Section 4.13.2 of the FEIS: • Mulching, soil amendments, and other state-of-the-art techniques will be used as determined necessary on a site-specific basis to assure the highest poss ble revegetation success. • In areas that contain environmentally sensitive fragile soils and vegetation, the operator may be required to perform special measures such as mulching, erosion fencing, use of erosion fabric, etc., per the direction of the AO, to stabilize any disturbed areas and ensure the re-establishment of long-term perennial vegetation. • Inter-seeding (i.e., seeding into existing vegetation), secondary seeding, or staggered seeding may be used as determined necessary on a site-specific basis to accomplish revegetation objectives. • Vegetation removed from short-term surface disturbance areas would be spread over the disturbed site to capture native seed and facilitate revegetation.
020-O	22	The DEIS briefly acknowledges that potential direct impacts [from project development] would include artificial light and associated sky glow from night lighting required for night-time drilling. This would be of particular concern in the high-recreation-use areas of the Nine Mile Canyon SRMA and the Green River corridor near the river floating put-in at Sand Island. Night lighting would degrade scenic quality by introducing intrusive, artificial lighting into an otherwise unlit natural landscape.‖ (DEIS at 4-253 to -254) This is the only time these impacts are mentioned in the visual resources section. The DEIS does not attempt to quantify these impacts or compare and disclose the differences between alternatives to this important aspect of visual resources.	Visual Resources	General	The FEIS has been revised to include a qualitative discussion of the impacts of night lighting for each alternative in Sections 4.14, Visual Resources. Also as noted on page 4-261, bullet point No. 3 in Section 4.14.3, Mitigation, of the DEIS: "Night-lighting and light pollution skyglow impacts would be reduced as feasible by using only the minimal lighting required for safety and security, installing lights at the minimal heights required, and installing hoods on lights to reduce light diffusion, as possible without conflicting with other laws." In addition, Alternative F, the new Agency Preferred Alternative, would not include wells below the rim of Nine Mile Canyon or within 0.5 mile or line-of-sight, whichever is less, of the Green River.
020-O	29	The Gasco DEIS erroneously relies on the VRM classes in the Vernal RMP for its discussion and analysis of project area's visual resources and the potential impacts from the proposed development and alternatives to those resources. BLM did not, however, prepare a new visual resource inventory as part of the RMP process, as required by FLPMA. BLM has recognized the Vernal RMP's shortcomings, along with all the other RMPs finalized in 2008, and recently contracted to have the missing inventories completed. Personal communication with Rob Sweeten, BLM Visual	Visual Resources	General	The DEIS incorporates VRM classes into its analysis, but does not rely on them for its description of the affected environment or to determine environmental consequences. Sections 3.14 and 4.14 of the DEIS document four Key Observation Points (KOPs) as the basis of much of the visual resources analysis. In addition, three more KOPs have been documented in the FEIS, per public comments. FLPMA states under Sec. 201 [43 USC 1711] that "the Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values (including, but not limited to, outdoor recreation and scenic values), giving priority to areas of critical environmental concern. This inventory shall be kept current so as to reflect changes in conditions and to identify new and emerging resource and other values." Please note that the inventory for the Vernal FO RMP ROD (2008) is outside the scope of this project. FLPMA states that "the preparation and maintenance of such inventory or

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Resources Program Lead (Oct. 2010). The Vernal inventory is scheduled to be completed by August 2011. Its findings must be incorporated into the Gasco EIS, preferably as part of a supplemental DEIS to allow the public to review and comment on BLM information and analysis.			the identification of such areas shall not, of itself, change or prevent change of the management or use of public lands." Therefore, that inventory will be subject to the valid existing leases being proposed for development in this EIS.
020-O	30	This new inventory must also take into account Secretarial Order 3310 which sets forth a presumption that lands with wilderness character will be managed to protect those values until BLM conducts a plan amendment or other land use planning action. Secretarial Order § 4. See also BLM Manual H-8410-1.III.A.5 (Sensitivity Level Analysis, Special Areas). The Order establishes that management of wilderness characteristics is a high priority for BLM and directs the agency to protect wilderness characteristics through land use planning and project-level decisions unless the BLM determines, in accordance with this Order, that impairment of wilderness characteristics is appropriate and consistent with other applicable requirements of law and other resource management considerations.	Visual Resources	General	Any decision for this EIS will be in accordance with current policy. Lands with wilderness character are considered in Section 4.17, Wilderness Characteristics, of the DEIS and Section 4.18 of the FEIS.
029-I	2	In addition Desolation Canyon, because of its remoteness, has ambient light pollution. Any approved operations must control light at the drilling site and traffic accessing the site. These two requirements are not unreasonable, and frankly are rather simple to achieve.	Visual Resources	General	As stated in the DEIS on page 4-261, in Section 4.14.3, Mitigation: "Night-lighting and light pollution skyglow impacts would be reduced as feas ble by using only the minimal lighting required for safety and security, installing lights at the minimal heights required, and installing hoods on lights to reduce light diffusion, as possible without conflicting with other laws."
020-O	32	BLM's Visual Resource Contrast Rating Manual provides that key observation points should be located at the most critical viewpoints, and [f]actors that should be considered in selecting Key Obervation Points (KOPs) are: angle of observation, number of viewers, length of time the project is in view, relative project size, season of use, and light conditions (BLM Manual H-8431-1.II.C.). Taking these factors into account, BLM should have identified a KOP on Horse Bench in Carbon County, or a similar location that takes into account the impacts of development alongside and in the vicinity	Visual Resources	KOPs	Three more KOPs, one located on the Sand Wash Road and two on Wrinkle Road, were added to the visual impacts analysis in Section 4.14 Visual Resources of the FEIS. Horse Bench is remote and, based on the resource analysis criteria from BLM Manual Handbook 8431-1 Visual Resource Contrast Rating, would not be critical to impacts analysis because it is not heavily used. The distance of Horse Bench from the project area was also a factor used in rejecting its consideration. Horse Bench is several miles from proposed development areas within the project area. Heat shimmer and atmospheric haze and dust would obscure many visual impacts. The Wild Horse Bench KOP analysis included (as KOP 4) in the DEIS shows that the viewing distances would sufficiently obscure long-term project impacts, though the short-term placement of drilling rigs would be visible. Long-distance, remote,

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		of the remote Wrinkle Road. Development on this road could significantly impact the undisturbed vistas currently seen looking north from Horse Bench. A KOP should also be located to analyze project impacts to recreationists traveling on Wrinkle Road and Sand Wash Road, the two main dirt roads used by recreationists accessing the Desolation Canyon stretch of the Green River via the Sand Wash put-in.			recreation-type views are represented by the Wild Horse KOP and can generally be applied to this other area (Horse Bench) because the conditions are similar. Finally, Horse Bench is no longer access ble as per the West Tavaputs ROD which states on page 3, "Horse Bench, Jack Canyon, Jack Ridge, and Cedar Ridge roads will be gated within 6 months of signing this ROD. Use of these roads will be limited to those granted administrative access by the Bureau of Land Management (BLM). Bill Barrett Corporation (BBC) and other operators will be required to maintain and lock gates for the life of the project (LOP). The selection of actual sites and the color and design of the gates will be determined on a site-specific basis by the BLM."
020-O	33	Also, BLM's Visual Resource Contrast Rating Manual strongly recommends that agency staff prepare visual simulations to evaluate a particular project's impacts. BLM Manual H-8431-1.II.D. Inexplicably, BLM did not prepare such simulations to support the Gasco DEIS. Given the scope of development and numerous sensitive resources that will be adversely impacted (e.g., Desolation Canyon wilderness character area, Lower Green River suitable river segment, numerous ACECs, etc.), this simulation should be prepared and the results shared in the supplemental DEIS.	Visual Resources	Simulations	BLM considered the quality of visual resources in the project as directed by *BLM Manual Handbook 8431-Visual Resource Contrast Rating II.D. Prepare Visual Simulations*, and determined that a visual analysis using select KOPs would be adequate to disclose impacts to visual resources. Ninety-two percent of the project area is located in VRM Management Classes III and IV where the level of change to the characteristic landscape can be moderate to high. Please note that this is a programmatic type analysis, and that visual simulations are more suitable for site specific projects. As descr bed in Chapter 2 of the DEIS, before approving an APD, the BLM would conduct an on-site visual resource review to determine the appropriate site-specific mitigation measures to ensure that the proposed activities would comply with the VRM class objectives for the area or that impacts are minimized.
020-O	31	The DEIS asserts that development on leases issued pre-2008 (and thus before the Vernal RMP was finalized) would not be required to meet higher VRM management standards (e.g., VRM II). (DEIS at 4-255) This is incorrect. The fact that development cannot be outright precluded on a pre-existing lease does not mean BLM cannot require compliance with appropriate, current requirements. In fact, BLM regulations expressly permits BLM to implement reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed. To the extent consistent with lease rights granted, such reasonable measures may include, but are not limited to, modification to siting or design of facilities 43 CFR 3101.1-2 (surface use rights).	Visual Resources	Vernal FO RMP Plan conformance	The statement in question, "The VRM Class II objectives would not apply to impacts from those leases granted prior to the current RMP because the RMP recognized valid existing rights and did not impose new restrictions on those rights," has been removed from the FEIS. As described in Chapter 2 of the DEIS, before approving an APD, the BLM would conduct an on-site visual resource review to determine the appropriate site-specific mitigation measures to ensure that the proposed activities would comply with the VRM class objectives for the area or that impacts are minimized.
032-G	81	The preferred alternative also proposes 223 acres of disturbance in 100-year floodplains, including 48	Water Resources	Floodplains	Alternative F, the new Agency Preferred Alternative, avoids development in 100-year floodplains, as well as in wetlands and riparian areas. See Section 2.7 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
010-I	5	Seeps and springs were not shown on the Project Maps.	Water Resources	General	Known seeps and springs in the project area have been added to Map 29 in the FEIS.
032-G	6	Groundwater resources in the project area have not been adequately characterized in the DEIS 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 CFR 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 DEIS notes that the Uinta-Animas aquifer contains fresh water 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.	Water Resources	Groundwater	Several additional studies have been reviewed and the following information has been added to the FEIS in Section 3.15.2. • Nearest available cross-section • Information on location of saline aquifers • Locations of water users

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	7	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.	Water Resources	Groundwater	Additional data on water users in the area have been added to Section 3.15. This information is derived from the Utah Division of Water Rights and indicates the location, owner, use type, and source of both surface and groundwater users. Well depths and water quality have been added for the few wells available. A disclosure has also been added to Section 4.15.1 as to whether this lacking information "is essential to a reasoned choice among and the overall costs of obtaining it are not exorbitant" and an explanation of the relevance of the missing information to the analysis. Analysis of the potential impacts to these known water users has been added to Section 4.15. Section 4.15.1.1.1.2 of the FEIS discusses the cumulative impacts to aquifers. A Long Term Monitoring Plan for Water Resources has been prepared and referenced in Section 4.15.2, and in part details monitoring requirements for known water users in the area. This plan was based on the plans developed for the West Tavaputs EIS. The plan has been added as Appendix O of the FEIS.
032-G	8	EPA disagrees with the determination in the DEIS 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 fresh water 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 water evaporation facilities (WEF) should be addressed in the EIS.	Water Resources	Groundwater	A more detailed analysis to support the conclusion mentioned in the comment has been added to Section 4.15.1.1.1.2 of the FEIS. This analysis includes the following components: • The specific requirements for construction and leak detection of surface facilities, and cementing and casing requirements for drilling • The current knowledge of the depth of saline groundwater in the general project area • The Mitigation and Monitoring plans that have been produced and added to the FEIS (Section 4.15.2) • The shallow depth of fresh water wells in the area • The depth of the target zones for hydraulic fracturing and production and the typical separation from fresh water resources • The cumulative impacts of the project on aquifers
032-G	9	EPA is pleased to see the discussion of "suggested" or "encouraged" mitigation measures which the approving officer could require at the time of 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 descr bed in the EIS and required in the ROD. Monitoring is also critical to document impacts	Water Resources	Groundwater	The Long-term Monitoring Plan for Water Resources has been prepared and referenced in Section 4.15.2 of the FEIS. The plan was drafted to ensure that impacts on water quality from the project are minimized and follow the example developed for the West Tavaputs FEIS. The plan is included as Appendix O of the FEIS. A determination as to which mitigation measures will be carried forward into the ROD is predecisional and cannot be made at this time. However, historically in the Vernal FO, the majority of mitigation measures applicable to a selected alternative have been carried forward into the decision.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
032-G	46	The DEIS 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.	Water Resources	Groundwater	See response to comment 032-G-7.
032-G	47	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 descr be 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.	Water Resources	Groundwater	Several additional studies have been reviewed and the following information has been added to the FEIS in Section 3.15.2. With respect to the items listed in the comment: • Maps of aquifers in the project area—No areal maps of freshwater aquifers in the project area were identified in the available literature. • Formation names and depths—This information has been added to Section 3.15.2 of the FEIS. • Graphic of hydrostratigraphic units—This information has been added to Section 3.15.2 of the FEIS. • Local outcrops of the aquifer—No locations of outcrops of fresh water aquifers were identified in the available literature. • Chemistry of the formation water—Water chemistry for two wells in the project area have been added to Section 3.15.2. • Well yield data for water-bearing formations—No well yield data have been identified for any fresh water aquifers. • Recharge areas for the aquifers—No fresh water aquifers were identified. Mineral zones to be developed in relation to aquifers/aquitards—A generalized cross section (located just north of the project area) has been included in Section 3.15.2 of the FEIS. Although this does not show fresh water aquifers (as none were identified) it does identify the estimated depth to saline groundwater. Additional review will occur at the site specific level and necessary protection measures will be implemented at that time.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	48	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 1 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?	Water Resources	Groundwater	See response to comment 032-G-7.
032-G	49	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?	Water Resources	Groundwater	Potential impacts to the volume, storage, flow, and quality have been expanded in Section 4.15.1. Although additional data on existing water users in the area have been obtained and incorporated into Section 3.15.2, there remains a lack of site-specific hydrologic data, and therefore the impacts discussed are necessarily generalized based on the available published data for the area. This provides a basis for a programmatic estimation of the cumulative effects of drilling the wells in the project area. Additional review will occur at the site specific level and necessary protection measures will be implemented at that time.
032-G	50	The EIS should descr be 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?	Water Resources	Groundwater	Specific mitigation measures have been added to Section 4.15.2 of the FEIS to prevent or reduce impacts to groundwater. In addition, the Long-term Monitoring Plan for Water Resources has been prepared and is referenced in Section 4.15.2 of the FEIS. This plan was based on the plans developed for the West Tavaputs EIS. The plan has been added as Appendix O of the FEIS.
032-G	51	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,	Water Resources	Groundwater	The language from UT 2010-055, Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development has been expanded in Section 4.15.1.1.1.2 of the FEIS, particularly that from Attachment H (BLM Utah Ground Water Protection Template Language Recommended for Oil and Gas Development NEPA Documents), which clarifies the site-specific requirements under BLM policy and the enforcement/review powers of BLM.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		although the DEIS 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.			
032-G	52	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.	Water Resources	Groundwater	See response to 32-G-9.
032-G	53	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 fresh water 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	Water Resources	Groundwater	A Long-term Monitoring Plan for Water Resources has been prepared and referenced in Section 4.15.2 of the FEIS. This plan was based on the plans developed for the West Tavaputs EIS and includes measures to protect groundwater. The plan has been added as Appendix O of the FEIS. Requirements for leaching procedures have not been specifically added, as these requirements would be specified at the time of evaporative pond closure and are regulated by UDOGM. The UDOGM requirements for pond closure have been added to the FEIS in Section 4.15.2.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		the list of mitigation measures. Additional mitigation measures beyond those descr bed in the DEIS 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.			
032-G	60	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 fresh water 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 fresh water zones should not be considered. This includes fracturing production zones that are not adequately isolated from fresh water aquifers with zones of low permeability that would prevent fluid and gas migration.	Water Resources	Groundwater	Full details of the fracturing fluids to be employed have been added to Section 2.2.2.4 of the FEIS, in addition to details about the hydraulic fracturing (frac) process itself, which uses a closed loop system. Based on this information, a detailed analysis of the risk to fresh water aquifers associated with fracturing has been added to Section 4.15. The analysis incorporates the following components: • Low toxicity of frac fluids to be used and the closed-loop frac process • Vertical separation between any target production zones and potential fresh water aquifers • Mitigation and monitoring measures that would be implemented. These include the Long-term Monitoring Plan for Water Resources, which has been prepared and referenced in Section 4.15.2 of the FEIS. The plan is included as Appendix O of the FEIS.
019-I	2	Compliance with “all applicable agency policies, operating guidelines, and BMPs” is trivial when compared to the laws of the United States. Any and all road construction associated with the Gasco - Uinta Basin Natural Gas project must comply with the Federal Water Pollution Control Act (known as the Clean Water Act or CWA) and the Wild and Scenic Rivers Act regardless of any “Gold Book” direction.	Water Resources	Surface water	The FEIS in Section 4.15.1.2.1.2 Surface Water Quality has been updated to clearly state that the project would comply with Utah Water Quality Standards and the Clean Water Act. Impacts to Wild and Scenic Rivers are discussed in Section 4.11 Special Designations of the DEIS and FEIS.
019-I	3	Road construction harms the natural resources on public land more than any other development activity. This definitely includes temporary roads.	Water Resources	Surface water	Thank you for your comment. The article referenced applies to logging roads on USFS-managed lands and was not found to be directly applicable to the project area or Proposed Action. However, the statistical analysis of water quality change associated

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Even obliterated temporary roads continue to pump sediment into streams for four to six years after they are obliterated. Please read "Temporary Roads are L ke Low Fat Ice Cream" by George Wuerthner, 3-17-09. The link to this article is at: <http://www.newwest.net/topic/article/temporary_roads_are_like_low_fat_ice_cream/C564/L564/>.			with oil and gas development, including temporary roads, in the Pariette Draw watershed has been added to the FEIS in Section 4.15.1.1.2.2, Surface Water Quality.
019-I	4	I will expect the FEIS to disclose the mitigation measures (and past mitigation effectiveness) needed to eliminate all road-derived sediment that might enter the Lower Green River or its tributaries.	Water Resources	Surface water	An analysis of water quality change in Pariette Draw between the years of 1993 and 2010 has been added to the FEIS in Section 4.15.1.1.2.2 Surface Water Quality. During this period the number of wells in the watershed increased from 423 to 2,609. This analysis demonstrates the effectiveness of current laws and regulations regarding oil and gas development in the project area.
020-O	12	The alternatives analyzed in the Gasco DEIS will result in violations of the Clean Water Act (CWA), which the BLM cannot approve. Currently, Nine Mile Creek and Pariette Draw are found on Utah's 2006 303(d) list of impaired waters. (See DEIS at 3-111). The BLM acknowledges that every action alternative will increase various water contaminants in these two water bodies that will further exceed CWA standards. (See id. at 4- 263, 268 [discussing increased sediment loading in both streams that will result from this project and how impacts might vary in degree but the effects are the same]). Pariette Draw is impaired for total dissolved solids, among other things, and Nine Mile Creek is impaired because of temperature. (Id. at 3-111). The sedimentation that this project will contribute to those streams will elevate total dissolved solids in the Pariette Draw and increase temperature in Nine Mile Creek. See, e.g., Geoffrey C. Poole and Cara H. Berman, Pathways of Human Influence on Water Temperature Dynamics in Stream Channels, EPA, available at <http://www.krisweb.com/biblio/gen_usepa_pooleetal_2000_pathways.pdf> (attached as 10) (discussing how sedimentation can lead to elevated stream temperature); Sheila Murphy, General Information on Solids, City of Boulder/U.S. Geologic Survey Water Quality Monitoring, http://bcn.boulder.co.us/basin/data/NEW/info/TSS.html (Apr. 23, 2007) (explaining that soils erosion—sedimentation—increases total dissolved	Water Resources	Surface water	Additional summary of impairments and TMDL results for Pariette Draw and Nine Mile Creek (TDS, boron, and selenium) have been added to Section 3.15.3.3 of the FEIS. Pariette Draw is not impaired for sediment and the TMDL does not allocate sediment load reductions. Rather, the Pariette Draw TMDL and impairment listing address total dissolved solids (TDS). TSS, not TDS, is the best indicator of sedimentation. Surface disturbance, including oil and gas development, has not been identified in the TMDL as a major source of TDS. Further, the USGS determined that land disturbance associated with oil and gas development in the Upper Colorado River Basin was not a statistically significant factor in predicting dissolved solids in local surface waters (Buto et al. 2010). This finding is supported by a conceptual model of dissolved solids transport also developed by the USGS (Kenney et al. 2009: Figure 2). However, the USGS study acknowledges that the model has limitations due to a limited data set in a very large river basin. To accommodate this uncertainty, a long-term monitoring plan has been included as additional potential mitigation for water quality impacts (Appendix O of the FEIS). The plan provides additional assurance that the project would not contribute to exceedances of water quality standards in receiving waters. A more detailed discussion of major transport pathways associated with all water quality impairments in Nine Mile Creek and Pariette Draw has been added to Section 3.15.3.3 of the FEIS. The primary sources of salinity and boron in the watershed are irrigation and natural background sources. Additional discussion on this topic is provided in the FEIS. The selenium impairment in Pariette Draw is caused by agricultural practices and natural sources. The project area does not overlap formerly irrigated lands in the watershed and proposed surface disturbance would therefore not exacerbate existing selenium runoff in the watershed. Furthermore, the selenium impairment occurs primarily during low flow periods rather than during storm or runoff events. This suggests that surface disturbance, the only mechanism by which the project would affect water quality in the area, is not an important pathway for selenium transport to surface waters. Additional discussion on this topic is provided in Section 4.15.1.1.2.2 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		solids in a stream). The Gasco DEIS does not disclose that this project will lead to exceedances of state water quality standards established under the CWA, something that FLPMA prohibits and that NEPA requires the BLM to disclose. The BLM must require development practices that do not contribute to any exceedances of water quality standards in the Pariette Draw and Nine Mile Creek.			Although Pariette Draw and Nine Mile Creek are not impaired due to sediment (TSS), a statistical analysis of changes in water quality following development of 3,000 wells in the Pariette Draw watershed between 1993 and 2007 was used to further evaluate impacts to water quality in the area, including TSS. The regression analysis indicates that oil and gas development has not resulted in a statistically significant increase in TSS values in Pariette Draw. These results are reported in Section 4.15.1.1.2.2 of the FEIS. A discussion of stormwater permitting requirements and compliance with the Pariette Draw and Nine Mile Creek TMDLs and Utah Water Quality Standards has been added to Section 4.15.1.1.2.2 in the FEIS. Finally, a monitoring plan has been drafted to ensure that impacts on water quality from the project are minimized. The plan has been added as Appendix O of the FEIS.
030-G	36	Sections 4 4.15.2, page 4-284. We recommend that Gasco adopt all of these mitigation measures, as applicant committed conservation measures.	Water Resources	Surface water	Thank you for your comment. Please be aware that Gasco has not yet agreed to these proposed mitigation measures as applicant-committed measures. However, BLM retains the authority to require that these mitigation measures be implemented through their inclusion in the ROD, even if the Proponent does not agree to them as applicant-committed measures. Accordingly, the impacts of implementation of these mitigation measures are analyzed and disclosed in the FEIS in the Unavoidable Adverse Impacts section (Section 4.15.3).
031-G	5	About 74 acres of the Pariette Draw Wetlands (including 11 riparian acres) will be used for oil/gas development. The Pariette Draw was listed on the State's Clean Water Act 303(d) list in 2006 for not meeting its 3B and3D beneficial uses due to Se impairments, and listed in 2002 for not meeting its 4 use due to exceedances in boron and TDS. The Total Maximum Daily Load (TMDL) was submitted to EPA for approval in August 2010. The TMDL identified that a significant source of contamination is the surrounding soils (geology). Surface disturbance will increase sediment/salinity/TDS loads to Pariette Draw and ultimately the Green River. To assure state water quality standards are met in Pariette Draw, appropriate BMPs should be incorporated to minimize the erosion-sediment, salinity and trace element load during project construction activities and operation of the facilities. Potential impacts from runoff during construction or during project operation may include the degradation of water quality, increased quantities and intensities of peak flows, channel erosion, flooding, turbidity and geomorphologic deterioration that may directly or indirectly cause	Water Resources	Surface water	The FEIS has been updated to include impairment information and load allocations identified in the 2010 TMDL. Many BMPs are already included in Section 4.15.2, Mitigation. Additional potential mitigation measures have been added to the FEIS in Section 4.15.2, Mitigation, including those descr bed in the Duchesne River and Pariette Draw TMDLs. A long-term monitoring plan has been drafted to ensure that impacts on water quality from the project are minimized. The plan has been added as Appendix O of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		further inability for the stream to meet its designated beneficial uses. Suspended sediment can potentially have a large amount of trace elements attached. Water quality standards in Pariette Draw may be further violated unless appropriate BMPs are incorporated to minimize the erosion-sediment load during project activities and operation of the facilities. Sediment retention efforts will be put in place on all stream crossings along the construction corridor to minimize movement of sediment into the water courses. These could range from silt fencing and culverts to sediment retention basins, depending on the location.			
031-G	6	Nine Mile Creek was listed in 2002 for not meeting its 3A designated use due to temperature impairments. The Utah Division of Water Quality (UDWQ) is currently investigating a change of use from cold-water fishery (3A) to warm-water fishery (3B); this is scheduled to be completed in the spring of 2011.	Water Resources	Surface water	The FEIS has been updated in Section 3.15.3.3 Surface Water Quality to reflect the 2010 303(d) list and current efforts underway to change the use of Nine Mile Creek to Class 3B, Warm-water fishery.
031-G	7	If an applicant causes the water turbidity in an adjacent surface water to increase by 10 NTUs or visibly increases turbidity, the applicant shall notify UDWQ.	Water Resources	Surface water	This water quality standard, along with all other applicable standards, has been added to Section 3.15.3.3 of the FEIS.
031-G	11	Table 1-3 in the EIS indicates the need for the UDWQ UPDES surface water discharge permit. Please indicate where this would be necessary.	Water Resources	Surface water	Review of the Proposed Action indicates that there are not instances where a UDPES surface water discharge permit would be required (other than the General Stormwater Permit for construction). This item has been removed from Table 1-3 in the FEIS.
031-G	12	The following permits, certification and review from the UDWQ are required prior to the construction phase of the project: • All activities regulated under Clean Water Act §404 must require a State antidegradation review. • A State Water Quality Certification of the project pursuant to § 401 of the Clean Water Act, 33 USC § 1341. • Construction activities that disturb 1 acre or more are required to obtain coverage under the Utah Pollutant Discharge Elimination System (UPDES) Storm Water General Permit for	Water Resources	Surface water	Table 1-3 has been updated to incorporate all of the permits required from UDWQ prior to construction. The project would not include any discharges of produced water to surface waters. As descr bed in Section 2.2.4, produced water would be transported to an evaporative surface-disposal facility.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		Construction Activities, Permit No. UTR300000. The permit requires the development of a storm water pollution prevention plan (SWPPP) to be implemented and updated from the commencement of any soil-disturbing activities at the site until final stabilization of the project. A fact sheet describing the permit requirements and application procedures are located on our website: <https://secure.utah.gov/stonnwater/main.html>. • Dewatering activities, if necessary during construction, may require coverage under the UPDES General Permit for Construction Dewatering, Permit No. UTG070000. The permit requires water quality monitoring every two weeks to ensure that the pumped water is meeting permit effluent limitations, unless the water is managed on the construction site.			
032-G	10	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 DEIS. 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 of 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	Water Resources	Surface water	See response to comment 020-O-12.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			
032-G	69	EPA approved a TMDL3 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 watershed, all loading and reductions in loading are from nonpoint sources. The DEIS (pg 4-268) has calculated that each well would result in an increased load of 259 tons per well pad. 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 well pads compared to Alternative A, increased loading of sediments to Pariette Draw would occur. Besides the sediment loading from well pads that were calculated in the DEIS, 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.	Water Resources	Surface water	See response to comment 020-O-12.
032-G	70	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 Resources	Surface water	A discussion of major transport pathways associated with water quality impairments in Nine Mile Creek has been added to Section 3.15.3.3 of the FEIS. In addition, current efforts underway to reclassify Nine Mile Creek from a cold-water fishery to a warm-water fishery have also been added to Section 3.15.3.3 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		water aquatic life use designation (3A).			
032-G	71	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 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 DEIS, 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% 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.	Water Resources	Surface water	Thank you for your comment. Additional discussion on local water quality impairments and potential impacts has been included in Section 4.15, Water Resources, of the FEIS. Although Pariette Draw and Nine Mile Creek are not impaired due to sediment (TSS), a statistical analysis of changes in water quality following development of 3,000 wells in the Pariette Draw watershed between 1993 and 2007 was used to further evaluate impacts to water quality in the area, including TSS. This broad-scale analysis of impacts to a local impaired waterbody indicates that oil and gas development has not resulted in a statistically significant increase in TSS values in Pariette Draw. These results are reported in Section 4.15.1.1.2.2 of the FEIS.
032-G	72	Based upon the information contained in the DEIS, 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	Water Resources	Surface water	Detailed maps of watershed boundaries, impaired streams, and perennial and intermittent streams, have been added to the FEIS. Additional discussion of surface disturbance associated with construction of the water evaporation facility (WEF) has been added to Section 4.15.1.1.2.2 of the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		proximity of surface water resources to the WEF.			
032-G	73	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.	Water Resources	Surface water	See response to comment 032-G-9 (located in the "Water Resources/Groundwater" section of this table).
032-G	74	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.	Water Resources	Surface water	Additional potential mitigation measures have been added to Section 4.15.2 of the FEIS, as necessary, to address the commenter's concerns associated with the Pariette Draw TMDL. The Long-term Monitoring Plan for Water Resources has been prepared to ensure that impacts on water quality from the project are tracked and addressed by appropriate agencies. The plan is included as Appendix O of the FEIS.
032-G	75	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	Water Resources	Surface water	Additional potential mitigation measures have been added to Section 4.15.2 of the FEIS, as necessary, to address the commenter's concerns associated with the Pariette Draw TMDL. The Long-term Monitoring Plan for Water Resources has been drafted to ensure that impacts on water quality from the project are minimized. The plan is included as

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		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.			Appendix O of the FEIS.
032-G	76	We appreciate the discussion on "Spills Potentially Contaminating Surface Waters" in Section 4.15.1.1.2.2 of the DEIS; however, we believe that some important information was left out of this discussion. Although the DEIS 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 DEIS 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 Applicant Committed Environmental Protection Measures (ACEPMS), such as use of shutoff valves, that will reduce the risks associated with pipeline spills.	Water Resources	Surface water	Additional discussion of potential impacts associated with a leak from the WEF has been added to Section 4.15.1.1.1.2 of the FEIS. Please note that the pipelines analyzed in the FEIS would likely be installed and maintained by a third party, and ACEPMs for the pipelines, such as use of shutoff valves, have not been agreed to by the proponent or added to the FEIS. However, the recommended BMPs have been added to the list of mitigation alternatives that the BLM could require in Section 4.15.2. BLM retains the authority to implement these mitigation measures through the ROD.
031-G	9	Utah Code Annotated 19-5-114 requires that any spill or discharge of oil or other substances which may cause pollution to the waters of the State, i.e.,	Water Resources	Wetlands	This requirement has been added to Table 1-3 in the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		adjacent wetlands, must be immediately reported to the UDWQ.			
032-G	79	Although Executive Order (EO) 11990 – Protection of Wetlands is referenced in Table 4-1 – Supplemental Authorities to be Considered, the EIS does not descr be how actions authorized through the Gasco NEPA process will comply with the EO. The DEIS 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.	Water Resources	Wetlands	Section 4.15.2 of the FEIS (mitigation) has been updated to include protective measures for isolated or ephemeral wetlands, and shows how this project will comply with EO 11990. Section 1.6, Authorizing Actions, has been revised to include regulation and permitting processes related to the Clean Water Act (including Section 401 and Section 404), as applicable to activity on portions of the Gasco project area within the restored boundary of the U&O Reservation known as “Indian Country.”
032-G	80	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 DEIS 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.	Water Resources	Wetlands	The BLM has developed Alternative F as the Agency Preferred Alternative. Alternative F avoids development in wetland and riparian areas. For the other alternatives, the FEIS has been updated at Sections 4.15.1.1.3, 4.15.1.2.3, 4.15.1.3.3., 4.15.1.4.3, and 4.15.1.5.3 to include more detailed information on the types of development associated with impacts to wetland and riparian areas. In addition, the following mitigation measures have been added to the FEIS in Section 4.15.2 (Mitigation): • New surface-disturbing activities within active floodplains, wetlands, public water reserves, or within 330 feet of riparian areas would be avoided, and the construction of new stream crossings would be kept to a minimum unless: 1) there are no practical alternatives, 2) impacts could be fully mitigated, or 3) the action is designed to enhance the riparian resources. • Avoid pipeline crossings of riparian areas. • Where pipeline crossings are unavoidable, construct any crossings to minimize the area of disturbance and begin reclamation of disturbed riparian habitat as quickly as possible. • A closed system would be required for all well pads placed on terraces adjacent to the active drainage of a designated floodplain, and for all well pads placed adjacent to wetlands and riparian areas. • Maintain a buffer strip of vegetation between areas of surface disturbance and riparian vegetation.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
032-G	82	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 particular, 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 of 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.	Water Resources	Wetlands	These measures are included as potential mitigation for BLM consideration in the ROD. Due to the programmatic nature of this document, some measures and mitigation must be evaluated at the site-specific level. For example, many linear crossings would require appropriate permitting under Section 404 of the Clean Water Act. This would be done at a site-specific level, with appropriate compensatory mitigation completed as required under that permitting process. BLM has incorporated avoidance of wetlands and riparian areas into Alternative F and selected this alternative as the Agency Preferred Alternative. FEIS Sections 4.15 and associated applicant-committed measures have been revised. Also, please see response to comment 032-G-80.
013-B	18	In the Final ROD and FEIS, Gasco urges BLM not to impose any restrictions upon minerals activity that fall within these areas. These lands already contain extensive human imprints such as roads, wells, pipelines and associated infrastructure and do not provide opportunities for enjoyment of naturalness, or solitude, or primitive and unconfined recreation. BLM must protect these valid existing mineral lease rights.	Wilderness Characteristics	Desolation Canyon	See response to comment 013-B-2, located in the "Purpose and Need/Existing lease rights" section of this table.
013-B	21	The DEIS, Section 3.17, should make clear that Gasco's leases in the Desolation Canyon wilderness characteristics area are several miles from the Green River and development will not be seen or heard from the Green River. The EIS should also make clear that approval of Gasco's project will have no direct impacts on the Green River. Section 3.17 of the DEIS should also clarify	Wilderness Characteristics	Desolation Canyon	Comment noted. Development impacts (sights and sounds) on the Green River during drilling are described in Section 4.8.1.1.3 and Table 4-85 of the DEIS. There are no WSAs in the project area and this has been noted in the FEIS in Sections 3.11 and 4.11, Special Designations. Please note that the Desolation Canyon WSA is 2.7 miles from the project area.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
		that the WSA is at least 10 miles distant from Gasco's leases and proposed project area.			
024-O	1	The river corridor and viewshed of Desolation Canyon already enjoys an established designation as a National Historic Landmark and as a component of the National Wilderness Preservation System… Secretarial Order 3310, which was issued by Interior Secretary Ken Salazar on December 23, compels BLM to consider a policy for managing Desolation Canyon as a place where cultural and wilderness values do indeed exist. We ask that BLM please consider this as new information for this EIS and act upon it.	Wilderness Characteristics	Desolation Canyon	See response to comment 018-O-1, located in the "Recreation/River experience" section of this table.
004-G	3	Map 35 of the DEIS depicts lands in Duchesne and Uintah County that are identified as Non Wilderness Study Area (WSA) lands with Wilderness Characteristics. The County considers this classification to be inappropriate as it creates a de-facto wilderness designation without proper authority in violation of the Utah v. Norton settlement agreement dated April 11, 2003.	Wilderness Characteristics	General	The notice of intent for the Gasco project was published in the *Federal Register* on February 10, 2006. At that time, "Non-WSA lands with Wilderness Characteristics" was the term that BLM used to describe lands that had been inventoried and found to have wilderness characteristics. This term was used in the DEIS for consistency. How lands with wilderness characteristics are classified is beyond the scope of this EIS because the Proposed Action is to develop natural gas wells. As noted in Section 1.2.2 (Decisions to be Made After the EIS), "the BLM decision-maker will determine whether the Proposed Action and alternatives are in conformance with applicable land and resource management plans." If there are any violations of authority, they would be identified at that time. Please also refer to Section 3.17 for a discussion of the inventory of wilderness characteristics in the project area.
013-B	22	Section 3.17 should be clarified to include the proper standard for wilderness—"outstanding" opportunities for solitude and primitive recreation. It is not proper that opportunities merely be present. Prior to 2007, it was BLM's position for over 30 years that the lands encompassing Gasco's project area did not possess outstanding opportunities for solitude and unconfined recreation.	Wilderness Characteristics	General	Comment noted. The language has been changed throughout the document to add the word "outstanding".

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
025-O	9	The project area includes approximately 39,892 acres of non-WSA Lands with Wilderness Characteristics. There are particular concerns with this project's potential impacts to proposed wilderness (represented in light green on Figure 16), in the Green River corridor, the Wrinkle Ridge area (southern portion of the project), and the Sand Wash drainage (flows from the west down the label "Sand Wash" on the map). Surface impacts to these areas should be eliminated. Accordingly, Figure 15 shows a variant of Alternative E with the wells removed from these areas.	Wilderness Characteristics	General	Alternative F, the new Agency Preferred Alternative, has been added to the FEIS. Under this alternative, as noted in Section 2.7 of the FEIS, no wells would be proposed within 0.5 mile of the Green River or within line-of-sight, whichever is least, of the Green River. Also, no wells would be proposed within 0.5 mile of Sand Wash campsite and boat ramp. Section 1.4 (Conformance with BLM Land Use Plans and Other Laws and Policy Considerations) has been revised in the FEIS to reference page 21 of the Vernal FO RMP ROD, and clarify that the ROD did not alter valid existing rights. Please note that the CEQ regulations (40 CFR 1502.1) require BLM to consider reasonable alternatives, which would avoid or minimize adverse impacts or enhance the quality of the human environment, based on the nature of the proposal and facts in the case (CEQ 40 Most Asked Questions 1b.). The BLM Decision Maker may develop mitigation to avoid, minimize, rectify, reduce, or eliminate or compensate for impacts to the environment (40 CFR 1508.20). This mitigation may be carried forward into the decision as appropriate (40 CFR 1505.3). As noted in Section 3.17, Wilderness Characteristics, of the DEIS, "The Vernal ROD (2008) did not carry the Desolation Canyon area forward as a BLM natural area for the protection, preservation, or maintenance of the wilderness characteristics."
020-O	15	The Gasco DEIS fails to analyze the decreased primitive recreational experience and opportunities for solitude that will result to hikers, hunters, and river runners in the project area as a result of increased off-road vehicle use in the area facilitated by the increased development and improved and new roads. The DEIS acknowledges that the development alternatives considered here would likely lead to increased off-road vehicle use in the project area. See DEIS at 4-94.	Wilderness Characteristics	Recreation experience	Impacts to primitive recreational opportunities and solitude are discussed under each alternative in Sections 4.8, Recreation, and 4.17, Wilderness Characteristics, of the DEIS.
013-B	26	BLM is not required to analyze the impacts of the Project on lands in the Proposed Red Rocks Wilderness legislation. A legislative proposal is not a resource or part of the human environment that requires analysis under NEPA.	Wilderness Characteristics	Red Rocks	Comment noted. However, BLM is required to disclose project-related impacts to all resources in the project area, including lands with wilderness characteristics. The BLM's authority for managing lands is derived directly from FLPMA Section 202 (43 USC §1712).
017-O	3	In addition, BLM is not required to analyze the impacts of the project on lands in the proposed Red Rocks Wilderness bill which again failed to pass in the 111th Congress, after two decades of previous attempts. A legislative proposal is not a resource or part of the human environment as defined by NEPA that requires analysis, and should not be a reason to delay approval of the project.	Wilderness Characteristics	Red Rocks	See response to comment 013-B-26.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
020-O	34	As set forth in the Secretarial Order 3310, because "BLM has determined that the Desolation Canyon proposed wilderness area in the Gasco project area appears to have wilderness characteristics and the proposed project may impair those apparent wilderness characteristics, the BLM shall conduct an inventory". If the inventory identifies lands with wilderness characteristics, the BLM shall consider the potential effects of the proposed project on the wilderness characteristics and measures to minimize impacts on those characteristics as documented in an appropriate NEPA analysis. Based on this NEPA analysis, the BLM may approve a project that may impair wilderness characteristics if appropriate and consistent with requirements of applicable law and other resource management considerations consistent with this Order or necessary for the exercise of valid existing rights. BLM must comply with the Order and finalized agency guidance about the inventory process and, where wilderness character is confirmed, considering the impacts of the Gasco proposal on those values and determining appropriate next steps, including project deferral pending an opportunity to address wilderness characteristics in a land use planning process.	Wilderness Characteristics	Regulations	Impacts to lands with wilderness character, as identified in the Vernal RMP, are considered in Sections 4.17, Wilderness Characteristics, and 4.18, Cumulative Impacts, of the DEIS.
022-O	1	UT BHA would like to call attention to the Gasco EIS lack of evaluation of potential impacts to big-game migration corridors. Mention of big-game migration is presented on page 4-293… However, there is a lack of discussion regarding the project proximity to big-game migration corridors.	Wildlife	Big game	Neither BLM nor the Utah DWR maintain location data or manage specific migration corridors for big game species in the vicinity of the Gasco project area and so impacts to big game migration corridors cannot be quantified. However, movement patterns have been observed in the area by the UDWR (personal communication, Pat Rainbolt, Impact Analysis Biologist, UDWR, March 11, 2011). BLM does not feel that it is necessary to map these movement patterns, as many of them are local and diffuse, especially for pronghorn and mule deer. The FEIS has been updated with a more in-depth discussion of known movement patterns of mule deer, elk, and pronghorn in Sections 3.16.1.1, 3.16.1.2, and 3.16.1.3, respectively. Impacts to big game migration routes are discussed qualitatively in the DEIS under the impacts to big game (Sections 4.16.1.1.1, 4.16.1.2.1, 4.16.1.3.1, 4.16.1.4.1, and 4.16.1.5.1) and habitat fragmentation (Sections 4.16.1.1.7.2, 4.16.1.2.6, 4.16.1.3.6, 4.16.1.4.6, and 4.16.1.5.6). Further qualitative analysis regarding specific movement patterns has been added to these sections in the FEIS.

Table P-2. Draft EIS Comments and Responses

Letter No.	Comment No.	Comment	Resource	Subcode	Response
022-O	2	UT-BHA recommends that: The BLM assess and demonstrate that adequate information is available to map big-game migration corridors in the project area and vicinity, and If adequate information is not available, implement a field investigation to gather necessary data, and the DEIS be supplemented to include discussions of migration activities of big game, using a format similar to those presented in BLM/WY/ST-10/044+1110 “Sommers-Grindstone Wildlife Values,” Dan Stroud, available at <http://www.wy.blm.gov/jio-papo/docs/sommers-grindstone_wildlifereport.pdf>. Based on the lack of analysis of migratory corridors, UT BHA does not believe the BLM can finalize the DEIS.	Wildlife	Big game	See response to comment 022-O-1.
022-O	4	UT BHA opposes Alternatives A–C due to their impact on big-game usage of the area resulting from fossil fuel infrastructure development. Note the 60% decline in the deer herd on the Pinedale Anticline in Wyoming as an example of how this project will negatively impact hunters. Alternatives A–C will result in increased industrial activity which means more fragmented habitat; i.e., less habitat security, fewer mature animals, decrease in habitat usefulness, etc.	Wildlife	Big game	Comment noted. Analysis of the potential impacts to deer are included in Section 4.16.1.1.1 of the DEIS.
032-G	94	The potential impacts to wildlife from the WEF are not analyzed in the DEIS. Although aud ble 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 l kelihood of wildlife utilizing the WEF basins, the potential impacts to wildlife from utilization, and the predicted effectiveness of deterrent BMPs.	Wildlife	Impacts from evaporation ponds	Sections 4.16.1.1.6, 4.16.1.2.5, 4.16.1.3.5, 4.16.1.4.5, and 4.16.1.5.5 of the DEIS analyze the effects of the evaporation ponds under each alternative on wildlife. Additions were made to Section 4.16.1.1.6 of the FEIS, including potential effects of evaporation ponds on birds and bats and an assessment of the efficacy of deterrents in keeping bats and birds away from these ponds.