Appendix H

Draft EIS Public Comments and Responses

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Anadarko Petroleum Corporation				
B01	03		The following benefits of year-round drilling should be noted in the FEIS in comparison to a similar project absent year-round drilling: · Year-round drilling provides the benefits of less overall surface disturbance and reduced time from project initiation to interim reclamation; · Year-round drilling coupled with operator-committed measures such as those envisioned in the Migratory Bird Conservation Plan ("MBCP") (DEIS, p. 4.18-30) will facilitate increased raptor nest monitoring and heightened infrastructure planning, affording protections to the most valuable raptor nests; and · Year-round drilling results in fewer drilling rig moves, resulting is less vehicular traffic (i.e., potentially fewer accidents, leaks, and spills) and lower air emissions (e.g., dust).	Text has been revised to quantify rig move assumptions associated with the analysis of Alternative B and Alternative C. Also note that the MBCP has been placed on hold and is not available for reference in the EIS. With regard to the benefits of year-round drilling, the EIS presents the impacts associated with Alternative B, which includes relief from timing stipulations, for comparison with the impacts associated with Alternative C, which assumes no relief from timing stipulations, in Chapter 4. The BLM does not agree that drilling during timing stipulations results in an overall environmental benefit.
B01	04		The DEIS analyses purports to be conceptual in nature (DEIS, p. 1.5), and further evaluation of impacts would provide necessary information for BLM decision-making. Although Anadarko does not dispute the need for site-specific NEPA evaluations in certain circumstances, Anadarko strongly believes, based on the information provided below, that year-round drilling has less impacts than a similar project absent year-round activity. See below Conceptual Example: Inclusive is information and analysis showing no significant impacts to avian resource from year-round drilling, as envisioned by the Proposed Action.	Please see the response to Comment B01-03.
B01	05		The second factor (the first is the high density of nests across the project area) driving the need for year-round drilling is the length of time needed to construct, drill and complete multiple horizontal wells on a single pad. The OG provided information to BLM during the development of the DEIS as to the time it takes to complete multi-well drilling and completion operations on a given pad. The OG estimated that if four or more wells emanate from an individual pad, the time it takes to construct, drill, and complete the wells exceeds the time between annual nest buffer TLS periods. For an eight-well pad, three separate drill rig mobilizations might be needed to complete the pad while adhering to TLS.	Thank you for your comment. Also, please see the response to Comment B11-024.
B01	06		As many as 45 percent of pads constructed in the project area are within nest buffers and cannot be avoided by pad placement planning. If these pads have more than four wells on them, operators will either: a) need to stop operations during the TLS period (the scenario for eagle nests and core area sage grouse leks under the Proposed Action) - resulting in a rig demobilization before the TLS period starts, followed by a re-mobilization after the TLS ends or b) continue operations through the nest TLS period (the scenario for non-eagle and non-core sage grouse leks envisioned under the Proposed Action). BLM needs to bolster in the FEIS the description of the timing it takes to drill and complete multi-well pads and highlight that the Proposed Action includes year-round drilling to reduce the environmental and socio-economic impacts associated with increased rig mobilizations.	Please see the response to Comment B01-03.
B01	07		BLM analyzes year-round drilling in the DEIS but fails to describe a clear process by which operators would achieves TLS exceptions/waivers on surface lands for which BLM has authority to manage surface impacts.	Please see the response to Comment B11-024 and Comment B11-059.
B01	08	Section 2.4.1 Development Overview	In Section 2.4.1 Development Overview for Alternative B, the BLM notes that each site-specific request for year-round development would require an environmental assessment ("EA") to be completed analyzing the effects of development on wildlife within the site-specific project area and include the requirement for an intensive wildlife monitoring plan (DEIS, p. 2-25). It is unclear what is meant by a site-specific request and whether this could be one well and road, an entire unit, or a township?	Please see the response to Comment B11-024.
B01	09		The MBCP should suffice as the "intensive wildlife monitoring plan." Anadarko assumes these documents are the same and if so, BLM should clarify that they are. The State of Wyoming Executive Order 2015-4 Greater Sage-Grouse Core Area Protection ("WY EO") does not require monitoring for non-core sage grouse TLS relief so it is unclear what other monitoring would be required;	The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.
B01	10		Acknowledge in the FEIS that the OG has described year-round drilling as envisioned by the Proposed Action as a programmatic approach that grants TLS relief at the point of application for permit to drill ("APD") approval. The current DEIS fails to acknowledge that reliance on the existing exception process for granting TLS relief will not allow programmatic year-round drilling on well pads over which BLM has authority to manage surface impacts and will therefore increase rig moves and associated impacts;	The text has been revised to clarify the policy the BLM will use to consider granting of exceptions to timing stipulations. See the response to Comment B11-024.

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Anadarko Petroleum Corporation (Continued)				
B01	11	Section 4.13.2, Table 4.13-1	Anadarko recommends indicating in the text that the vehicle trip counts in Table 4.13-1 (DEIS, p. 4.13-3) assume only one rig mobilization per well pad and that rig remobilizations for well pads left incomplete to avoid a nest buffer during the TLS will result in an additional 300 additional heavy truck trips per rig re-mobilization;	Table has been modified to note that only one rig mobilization per pad was assumed.
B01	12		Anadarko recommends indicating that even under the Proposed Action, some well pads will require a second mobilization because they fall in eagle or core habitat sage grouse lek nesting buffers;	Thank you for your comment. The text has been revised to more consistently reflect the assumptions regarding mobilizations/rig moves between Alternatives B and C. Under Alternative B one rig move is assumed to occur for each well pad, whereas under Alternative C one rig move is assumed to occur for each well pad except for pads within a non-eagle raptor timing stipulation buffer in which case the BLM assumed three rig moves per pad.
B01	13	Section 4.18.2.2	Add to Section 4.18.2.2 Impacts on Migratory Bird Species from Alternative B – Proposed Action (DEIS. P. 4.18-30) a fourth bullet that recognizes the operational flexibility contemplated by the United State Fish and Wildlife Service (“USFWS”) and the OG by the MBCP: “Facilitate TLS exception/waiver at the APD approval step for wells over which BLM has authority to manage surface impacts.”	The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review. Reference to the MBCS has been removed from the EIS.
B01	15		The number of pads impacted by not granting TLS relief is underestimated (DEIS, 4.11-45, bullet five) for Alternative C. Although Alternative C has arbitrarily reduced the well pad count by 562 pads, all of the remaining 938 pads have four or more wells per pad by definition of the alternative and, consequently, will take longer than a year to construct, drill and complete. In the Proposed Action, the average well count per pad is 3.3 wells per pad (5000/1500). By definition under Alternative C, TLS exceptions would not be granted for the allocated 938 pads, yet nearly half of them are expected to be in nesting buffers given the previous conceptual example (figures 1 and 2). The BLM should more clearly compare in the FEIS this offset of fewer pads but a higher percentage of pads requiring a second or even third drilling rig mobilization. The statement “The overall number of rig mobilizations and demobilization activities would be lower than Alternative B due to the higher average number of wells per pad” needs to be quantitatively qualified.	The text has been updated to quantify the number of rig moves for Alternative C and to update the impact analysis accordingly.
B01	16		Alternative C assumes that more wells would be drilled from single pads yet assumes that development would occur at the same pace in terms of the same number of wells per year as Alternative B. The pace of activity during the period between raptor nest and sage grouse lek TLS would in fact be significantly higher than the same annual activity if it were spread out over the course of an entire year and impacts from this periodicity of activity should be noted in the FEIS.	Due to the programmatic nature of the Proposed Action where the specific location and timing of drilling activity is not currently known, the BLM has assumed that development activity would be spread out through the year. The BLM further assumes that drilling activity impacted by a timing stipulation would be moved to another location in the CCPA. Note that the BLM has revised the analysis of Alternative C to provide more detail on the change in the number of rig moves relative Alternative B.
B01	17		(DEIS, p. 2-36) This analysis is not correct. Reduction of the estimate from 33 percent to 15 to 20 percent because there are long laterals is a false assumption – longer laterals actually increase the chance than an individual well bore will intercept federal minerals. Anadarko would suggest BLM maintain a range from 20 to 33 percent of federal permits might have an associated TLS. Furthermore, BLM should clearly indicate whether they intend to impose TLS on split estate well pads and on well pads located on off-lease, non-federal surface, and the legal and policy basis for such conclusions.	The text has been revised to update the BLM's estimates of the portion of the CCPA that could be located within a non-eagle raptor timing stipulation buffer. In addition, a new section (Section 1.4.3) has been added to Chapter 1 to clarify the extent of BLM's authority within the CCPA. This new text specifically addresses the BLM's surface management authority under split estate and Fee-Fee-Fed situations.
B01	18		BLM asserts that 80 to 85 percent of sites on federal mineral ownership are not affected by TLS (DEIS, p. 4.11-45, bullet two). See Anadarko’s comment in the bullet above. It is unclear how this percentage is derived (it appears low) and it is not clear how this percentage accounts for split estate ownership or well pads located on off-lease, non-federal surface where BLM has historically requested that operators commit to honoring raptor timing stipulations as an operator-committed measure in order to reach a Finding of No Significant Impact (FONSI) on the underlying NEPA analysis.	Please see response to Comment B11-024.
B01	19		BLM needs to address the change in traffic impacts associated with fewer rig moves associated with programmatic TLS relief (Alternative B) and no TLS relief (Alternative C). Anadarko estimates non-eagle, non-core timing stipulations impact 28% of all pads. Not granting TLS relief could result over the course of 10 years in extra rig move for 100s of pads over which BLM potentially has jurisdiction.	Please see the response to Comment B11-044.
B01	20		The OG provided information in a 2014 White Paper2 indicating water usage for the drilling and completion of wells. Longer lateral lengths and experimentation with different completion techniques now suggest that the previously provided water usage numbers were under-estimated. Anadarko does not anticipate this higher volume will result in higher usage of groundwater resources or in higher disposal volumes. Converse County Oil and Gas Project; Water Sources, Volumes, and Management White Paper, 2014.	Based on the comments from the Operator Group (OG) the BLM is assuming that the maximum yearly water consumption will be approximately 14,000 acre-feet. The OG's water use estimates (OG 2014) indicated there are sources of water up to 21,000 acre-feet, primarily groundwater, available to the OG. The text has been revised to reflect the change in water consumption for the proposed project (see the response to Comment B11-154).

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Anadarko Petroleum Corporation (Continued)				
B01	21		In light of this potential increase in completion volumes the following should be included in the FEIS: i. In section 2.2.2.4 Water Requirements, Supply, and Use (DEIS, p. 2-12) and in section 2.4.3.4 Water Requirements, Supply, and Use (DEIS, p. 2-27) it should note that recycling of flowback water and supplemental water from the North Platte River are additional sources for completion water. ii. In section 2.2.3.4 Produced Water Management and Disposal (DEIS, p. 2-13) and in section 2.4.4.3 Produced Water Management and Disposal (DEIS, p. 2-29) it should note that recycling of flowback water is anticipated in the play. iii. Disposal volumes are not expected to increase from the increase in completion volumes noted above, as recycling of flowback water is expected to become prevalent in the Proposed Project Area. A change or increase in the number of disposal wells outlined in the Proposed Action is not anticipated or requested. (DEIS, p.2-27).	Text has been modified as suggested in the comment.
B01	22		BLM notes “to prevent drawdown of 10 feet or greater reaching any existing water wells, any proposed new well would need to be located 2,000 feet or greater from existing wells.” (DEIS, Appendix E, p. E-78). Groundwater well permitting is the responsibility of the State Engineer and BLM does not have the authority to establish water well setbacks. Evaluation of potential drawdown impacts to surrounding water wells and any associated permitting requirements to address such potential impacts fall under the jurisdiction of the State Engineer.	The mitigation measure GW-1 was deleted from Section 4.16.2.3. A recommendation for a setback of 2,000 feet for new wells from existing water wells was included with the groundwater modeling summary on page 4.16-14. The BLM recognizes that the SEO has the authority to implement such setbacks, not the BLM.
B01	23	2.2.2.3	2.2.2.3 Well Completion (DEIS, p. 2-11). BLM needs to change the word “states” to “stages” in Line 23.	Text modified as requested.
B01	24	2.2.5.1	2.2.5.1 Hazardous Materials (DEIS, p. 2-14). BLM should clarify that while wastes associated with drillings, completion, and operations may be considered hazardous from an OSHA perspective they are often not deemed hazardous when it comes to disposal.	Please see Section 2.2.5.2 - Solid Waste.
B01	25	2.2.5.3	2.2.5.3 Spills of Hazardous Materials and Solid Wastes (DEIS, p. 2-15). Anadarko recommends use of the more appropriate term “well control situations” rather than “blow outs” in Line 15.	The term “blow out” is a commonly accepted oil and gas industry term. Text remains unchanged.
B01	26	3.4.1.3	3.4.1.3 Regulatory Definition of Solid Waste (DEIS, P 3.4-4). NORM and TENORM can both be associated with oil and gas operations. The DEIS appears to only associate TENORM with oil and gas operations.	It is acknowledged that NORM and TENORM occur in other extractive industries, for example, copper ore refining. However, the focus of this EIS is upstream oil and gas and the occurrence of NORM in other industrial activities is not relevant here.
B01	27		The DEIS references “Schieffelin 2017” (Colorado Department of Health and Environment Solid Waste and Materials Management Program Manager) notice to landfills as it’s basis for determining what waste streams TENORM occurs in. The reference is incorrect in the listing from Scheiffelin’s May 12, 2017 notice which states the following: “The department believes the following subset of the E&P Waste stream has a potential to contain TENORM:” followed by a listing of wastes they “believe” has a “potential” to contain TENORM, which is not correctly cited in the DEIS. The DEIS language “TENORM occurs in the following waste streams” is not correct and should be removed. The Schieffelin notice is an interim policy and guidance pending rulemaking from EPA. WDEQ Solid and Hazardous Waste Division Guideline #24 is for NORM not TENORM. All references to TENORM should be removed from this language. “TENORM (or NORM)” as written in the DEIS is inaccurate as NORM and TENORM are not the same.	The text has been revised by removing the references to Scheiffelin (2017). A list of typical NORM waste has been provided, which was taken from the WDEQ SHW Guideline 24. The guideline does not differentiate between NORM and TENORM: “NORM may also be referred to as Technologically Enhanced NORM (TENORM).” However, the text has been revised to delete all references to TENORM.
B01	28	4.1.3.3	Air Modeling: In Section 4.1.3.3 Assessing Impacts to Criteria Pollutants (DEIS, 4.1-23) Anadarko notes that the phrase “large fires in the vicinity…” implies emissions from wildfire events were included every day in the Community Multiscale Air quality (“CMAQ”) modeling. Such inclusion would result in an overestimation of PM10 impact to air quality. The DEIS lacks a rationale as to why the BLM selected to approach air modeling with constant wild fires included in the regional cumulative emission inventory, and Anadarko recommends that the DEIS recognize that the air modeling took an extremely conservative, perhaps unrealistic approach.	The regional modeling was completed for a full year with emission source-specific daily and hourly temporal profiles. The fire emissions were obtained from actual fire emissions for the year 2008, as discussed in Appendix A, Attachment B, Section B-4.2.2. The fire emissions vary hour by hour, capturing the temporal and spatial profile from 2008. Large fires on a given day influence modeling results for a given time period and correspond to the high modeling concentrations during that time period. Text has been modified for clarification.
B01	29		(DEIS, p 4.18-60). Anadarko recommends that the FEIS and Record of Decision (“ROD”) provide a statement recognizing primacy of the WY EO, including but not limited to split estate ownership and on well pads located on off-lease, non-federal surface. The FEIS should not provide recommendations, management objectives or mitigations that contradict the WY EO, which provides increased flexibility in sage-grouse general habitat for energy development, primarily in the form of TLS relief for non-core leks, as an incentive to shift development away from sage-grouse core (priority) habitats.	Text has been revised to reference standards consistent with the BLM and USFS amendments to their LUPs and the WY EO 2019-3.

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Anadarko Petroleum Corporation (Continued)				
B01	30		As a general comment, it is important the BLM include a statement that NEPA does not require mitigation, rather only evaluation of environmental impacts, and therefore these recommended mitigation measures may be considered and utilized but are not intended to be imposed as binding requirements in all circumstances.	Thank you for your comment. NEPA (and BLM's NEPA Handbook) calls for the analysis of potential mitigation measures in an EIS. However, the mitigation measures presented in an EIS are not adopted until inclusion within the agency's Record of Decision (ROD) which is issued after the Final EIS.
B01	31		Additionally, BLM needs to state clearly that for each of the following mitigation measures, they do not apply to lands for which BLM does not control surface use.	Please see the response to Comment B11-059.
B01	32		AQ-1 Anadarko recommends removing this mitigation, as the State of Wyoming, not the BLM, is the appropriate government entity to address permitting of compressor stations and gas plants. The Wyoming Department of Environmental Quality ("WDEQ") air quality permitting process provides abundant review, regulation and planning measures to ensure the well-being of its residents;	The BLM has retained the cited mitigation measure as it addresses impacts from HAP emissions disclosed in the analysis. The BLM acknowledges that the Wyoming DEQ has primary responsibility for permitting of gas plants and compressor stations. Also see the response to Comment B11-194.
B01	33		ABR-4 Anadarko recommends that the FEIS substantiate the need, legal authority, and whether permitting is implicated for this recommendation;	The text has been revised to remove mitigation measure ABR-4 and to add text to the impact analysis acknowledging existing WDEQ permitting requirements for the discharge of hydrostatic test water.
B01	34		CR-1 Anadarko recommends removal of this mitigation. Such monitors are not required by Section 106 of the National Historic Preservation Act ("NHPA"), the regulations at 36 C.F.R. part 800, or any BLM manuals or handbooks. Furthermore, BLM generally does not require archeological monitors for oil and gas activities, and BLM has not identified any characterizations that compel monitoring. At a minimum, BLM must refine where monitoring will be required. As drafted, the monitoring requirement could be interpreted to apply throughout the Proposed Project Area. Anadarko requests clarification in the FEIS on when this mitigation measure would be deployed in terms of land ownership. Provide examples of what defines "cultural materials" and how these areas "that may contain" such materials be identified? It is typical to receive a Condition of Approval (COA) for monitoring if through cultural surveys buried cultural material are identified in an area where surface disturbing activities are planned. BLM needs to acknowledge private property rights in this mitigation;	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3.
B01	35		CR-4 Anadarko recommends removal of this mitigation. Such monitors are not required by Section 106 of the NHPA, the regulations at 36 C.F.R. part 800, or any BLM manuals or handbooks. Furthermore, BLM generally does not require tribal monitors for oil and gas activities, and BLM has not identified any characterizations that compel monitoring. At a minimum, BLM must refine where tribal monitoring will be required. As drafted, the monitoring requirement could be interpreted to apply throughout the Proposed Project area. Anadarko requests clarification in the FEIS on when this mitigation measure would be deployed in terms of land ownership (provide examples of what "resources of Native American Concern" might be and how will these areas be identified?) and otherwise acknowledge private property rights in this mitigation;	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3.
B01	36		MIG-1: Anadarko recommends removal of this mitigation as raptor nest monitoring will be outlined in the MBCP;	Recommendation noted. The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.
B01	37	Table 3.12-1	SOIL-2: As suggested by Table 3.12-1, (DEIS, p. 3.12-3) 114% of the Proposed Project Area has soil with limiting soil characteristics; therefore, all soil disturbance would potentially be avoided. Anadarko recommends removal of this mitigation as it is not practical.	Mitigation measure SOIL-2 has been retained in the Final EIS.
B01	38		SOIL-2: Anadarko also recommends further text description for Table 3.12-1 to indicate that multiple characteristics can apply to the same soil within the Proposed Project Area.	Text has been updated in Table 3.12-1 to add language on multiple limiting characteristics.
B01	39		SOIL-3: Anadarko recommends revision to this mitigation. Specifically, that topsoil segregation and the amount salvaged be based on individual site characteristics. The 12-inch requirement is not an accurate description for the Proposed Project Area, as many well pad locations will have less suitable soil for salvaging. This mitigation also contradicts Mitigation SOIL-1 that requires characterizing soil for reclamation potential;	Mitigation measure SOIL-3 has been revised in the Final EIS
B01	40		SOIL-4: Anadarko recommends removing this mitigation as it is duplicative as there are existing requirements for stormwater pollution prevention plans (SWPPP) as administered by WYDEQ.	Mitigation measure SOIL-4 has been removed from the Final EIS.
B01	41		SOIL-5: Anadarko recommends this requirement include a higher degree of timing flexibility in application as it will not always be possible to comply given winter weather conditions in Wyoming;	Mitigation measure SOIL-5 (now SOIL-4) has been updated to include more flexibility in the timing of reclamation.

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Anadarko Petroleum Corporation (Continued)				
B01	42		SSPS-1: Anadarko recommends that BLM add language that allows alternative survey protocols for the presence of Ute ladies'-tresses to be recommended by operators during the APD permitting process for evaluation by BLM;	Text not revised. The USFWS protocol will be used for Ute ladies'-tresses.
B01	43		SSWS-2 Anadarko recommends removal of this mitigation. Operators should not be subject to a Raven Management Plan requirement. The FEIS should state that management of Ravens is not the obligation of operators. Ravens are a controversial species; both protected under the MBTA while at the same time subject to efforts to reduce their populations by both the USFWS and the State of Wyoming. See links to the EA for Bird Damage Management in the Wyoming Wildlife Services Program (USDA, APHIS and WS prepared along with the DOI, USFWS, FAA, WGFD, WDH and WDA) as well as the associated FONSI: 3 3 https://www.aphis.usda.gov/regulations/pdfs/nepa/WY%20Bird%20EA%20_4-2-08_.pdf https://www.aphis.usda.gov/regulations/pdfs/nepa/WY%202008%20Bird%20Damge%20Management%20FONSI.pdf	The BLM agrees that it is not the obligation of the operator, but predation from ravens can limit greater sage-grouse populations in areas of degraded habitats. Offering the plan as an additional mitigation measure has potential short-term benefits to grouse populations. No change to mitigation measure SSWS-2.
B01	44		SSWS-4: Anadarko recommends removal of this mitigation, as commercial herbicide applicators are already required to take precautionary measures for various wildlife and domestic species. Operators commonly spray herbicides on roads/wells/pipelines and requiring this degree of coordination is not justified.	Text has been revised to remove this mitigation measure.
B01	45		SSWS-5: Anadarko recommends removal of this mitigation, as there is no justification for this mitigation provision found in the DEIS or supporting materials;	Mitigation measure has been retained. As described in Section 3.181.3.5, suitable roost habitat is located within the CCPA for special status bat species. In addition, this is a guideline in the TBNG LRMP and would help reduce impacts to bats project wide.
B01	46		SSWS-6: Anadarko recommends that BLM qualify by what criteria they would impose this requirement, as this type of habitat is not widespread in the project area;	Thank you for your comment. The BLM has retained this mitigation measure in its current form as potential bat habitat is widespread within the CCPA.
B01	47		VEG-1 Anadarko recommends changing the mitigation to: "The OG will support the collection of native seed, specifically through statewide efforts that are already in place." This requirement as written is unnecessary and it is not clear who would oversee quality control, processing, and preservation. This would be a significant commitment with limited to no return on the investment. The University of Wyoming ("UW") has a group that undertakes this effort;	The mitigation measure has been revised to incorporate input from this comment.
B01	48		WLF-2: Anadarko recommends more specificity for this mitigation such as "Exhaust stacks greater than 2-inches in diameter on fired vessels (e.g., line heaters and heater-treaters) should be fitted with protective measures such as cone-shaped wire or expanding metal devices that fit over the end of the exhaust stack."	Comment noted, but USFWS recommendations for minimizing impacts do not include specifics requested. They recommend screens, caps, covers on all pipes, vents, and stacks: https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/entrapment-entanglement-drowning.php
B01	49		WLF-5: Anadarko recommends that this requirement be qualified to clarify for what habitats, species, and landowners it applies and whether it is required or supported by the Casper RMP;	Those details will be determined during site-specific NEPA. Important habitats are described in Section 3.18. Note, mitigation measures are offered as a way of further minimizing or reducing impacts in addition to existing stipulations and requirements from the Casper RMP.
B01	50		WLF-6: Anadarko requests that this requirement be qualified to clarify for what habitats, species, and landowners it applies and whether it is required or supported by the RMP. Clarify the meaning of the term "movement" and how it is measured in the context of big game;	This mitigation measure is specific to big game species and associated seasonal habitats described and located in Section 3.18.1.5. Text was added to include "Seasonal" to movements.
B01	51	6.6.2.2	Anadarko recommends that the FEIS language be consistent and supported by current BLM policy as it relates to "net conservation gain", as this language has recently been removed from DOI policy and guidance documents.	The text has been revised to reflect current BLM policy.
B01	52	Table 3.12-1	Soils Data for Limiting Soil Characteristic (DEIS, p. 3.12-1, Table 3.12-1); Anadarko recommends acknowledgement in the FEIS that using and relying on the Natural Resource Conservation Service ("NRCS") soil ratings and guidance is not practical for reclamation practices related to oil and gas development-related disturbances. Rather, NRCS guidelines are appropriate for commercial farming practices and active tillage operations that are not comparable to the nature of oil and gas development disturbance. Using NRCS data to identify "compaction prone" soils in the Proposed Project Area (DEIS, p 3.12-4, lines 20-24, Figure 3.12-4) is helpful when soils are undergoing active long-term cultivation but again are not relevant to the short-term nature of oil and gas soil disturbance.	The NRCS SSURGO database is the most comprehensive for soil mapping and descriptions. While applicable to agricultural practices, this database is the best resource for soils identification including compaction prone soils. While O&G activities differ from agricultural disturbance, the identification of soils disturbed does not change.

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Anadarko Petroleum Corporation (Continued)				
B01	53		Anadarko recommends removing this statement as the Avrimed et al 2015 study4 only evaluated Wyoming Big Sagebrush and overestimates the time needed for successful reclamation. He did not study “shrub and woody dominated vegetation.” This statement misrepresents the recovery time for shrub and woody vegetation. Moreover, the DEIS lacks quantitative data on how much of the Proposed Project Area is dominated by shrub and woody vegetation. Much of the Proposed Project area is upland prairie grassland with limited shrub density. Furthermore, the Avirmed study only evaluated sites with no reclamation practices implemented, so its applicability to this project is highly speculative. Avirmed’s study was on oil and gas sites in south central Wyoming big sagebrush ecosystems. Avirmed states: “In this study, we measured the natural recovery of the big sagebrush plan community across the chronosequence of 29 oil and gas well sites that were abandoned without reclamation between 1923 and 1980.” Avirmed also states, “We estimated that it takes at least 87 years for Wyoming big sagebrush cover to recover naturally, although big sagebrush density recovered in fewer than 70 years. Grasses and non-sagebrush shrubs recovered rapidly, as shown by the high cover of those groups in the youngest sites.”	Text revised to include an additional reference supporting the timeframe and reclamation observations.
B01	54		Anadarko recommends removing this statement for the reasons noted in the previous comment.	See response to comment B01-53.
B01	55	5.3.18.1, 5.3.18.2	Anadarko recommends this requirement be removed from the DEIS. There is no supportive evidence for this reclamation timeframe. It is extremely speculative, as noted in the previous comments, and misrepresents the successful reclamation of oil and gas disturbances ongoing in the Powder River Basin within upland prairie grassland habitats.	See response to comment B01-53.
B01	56	6.4.14	Separate the portion discussing ripping/de-compaction from vegetation monitoring. Anadarko recommends placing the ripping and de-compaction requirements in Section 6.4.12 Soils.	The text has been revised as requested.
B01	57		Due to the variety of pressure testing methods for pipelines, it would be more accurate to say, “Newly constructed pipelines would be pressure tested to ensure structural integrity of the line.” Poly lines are typically pneumatically tested.	The text has been updated as suggested.
B01	58	3.7.1	The WY EO states, "New project noise levels, either individual or cumulative, should not exceed 10 decibels (as measured by L50) above baseline at the perimeter of a lek from 6:00 pm to 8:00 am during the breeding season (March 1 to May 15)." Anadarko supports use of this EO definition and recommends it be included in the FEIS.	The text has been revised to include reference to EO 2015-4 (now EO 2019-3 in the Final EIS). Additionally, Section 3.18.3.1 Regulatory Background, details that the project will follow regulations set forth in EO 2019-3 that includes this noise restriction.
B01	59	3.7.2	Anadarko recommends removing any and all statements suggesting “typical” background noise levels are 24 dBA “in Wyoming.” This background noise level is based on one study. Either this section needs to be revised per the comments provided, herein, or Section 3.7.2 needs to be omitted from the DEIS. There is limited data regarding what the ambient noise level is in Wyoming. Data collected by Hessler Associates, Inc. an acoustical engineering firm for a project site in Converse County, Wyoming found the average sound level in a lower valley with a wind speed of ten miles per hour (“mph”) was 45 A-weighted decibels (“dB(A)”), while at two open plain elevations with wind speeds of 18-20 mph the ambient noise level was 50-52 dB(A).5 Suggesting that a sound pressure level of 24dBA is the ambient noise level associated with sagebrush ecosystems in Wyoming based on one study is not scientifically defendable. This low ambient background level fails to recognize the significant impact that wind has in Wyoming on ambient noise levels. The proposed ambient background level is presumptive and fails to recognize the acoustical contributions of the natural environment (e.g. Wind). 5http://deq.state.wy.us/isd/downloads/Permit%20Wasatch.pdf	Please see the response to Comment L01-12. The BLM recognizes that wind can increase ambient noise levels.

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Anadarko Petroleum Corporation (Continued)				
B01	60	4.7.2.1	Activities generating noise may have, under certain conditions, the potential to disrupt normal behavior patterns of greater sage-grouse or other animals. However, correlating actual disruption of behavior patterns to noise is extremely uncertain. Further, animals may rapidly habituate to noises that they learn do not pose a threat (Grubb et al. 1992, Brown et al. 1999, Krausman et al. 2004), which can complicate gathering and interpreting dose-response data.6 BLM should provide a balanced discussion of noise impacts in the FEIS. References: · Brown, B. T., G. S. Mills, W. A. Russell, G. D. Therres, and J. J. Pottie. 1999. The influence of weapons-testing noise on bald eagle behavior. Journal of Raptor Research 33:227–232. · Grubb, T. G., W. W. Bowerman, J. P. Giesy, and G. A. Dawson. 1992. Responses of bald eagles, Haliaeetus leuocephalus, to human activities in north-central Michigan. Canadian Field Naturalist 106:443–453. · Krausman, P. R., L. K. Harris, C. L. Blasch, K. K. G. Koenen, and J. Francine. 2004. Effects of military opertions on behavior and hearing of endangered Sonoran pronghorn. Wildlife Monographs 157.	See Section 4.18.1.1: “The most common wildlife responses to noise and human activity include avoidance or accommodation.”
B01	61	4.7.2.1	Anadarko recommends the values “20 to 24 Dba” in parenthesis be deleted in the FEIS as these values do not necessarily define background noise levels in the PRB, especially under windy conditions.	Text has been revised as recommended.
B01	62	3.14.3.3	Anadarko has concerns that this paragraph as currently drafted is an inaccurate portrayal of available information. First, it is highly speculative and draws unsubstantiated conclusions that consultation is necessary. Second, it does not mention and fails to consider that the North Platte River system is highly regulated. Water use from the river and its tributaries is permitted through the State Engineer.	The impact analysis text in Section 3.14.3.3 has been moved to Section 4.14 to be similar to the Platte River Species (Wildlife and Aquatic) description in Section 4.18.
B01	63	4.14.1.3	Anadarko recommends revising this section significantly to represent an analysis based on available information and eliminate speculation. As the analysis of Section 4.14.1.3 is currently drafted it is highly speculative rendering it misleading and uncertain. It also fails to account for the North Platte River Consent Decree and the Platte River Recovery Implementation Program (2006) and other regulatory mechanisms (permitting by the State Engineer) that are in place to protect endangered species in and near the North Platte River.	Revised impact analysis text in Section 4.14 to be similar to the Platte River Species (Wildlife and Aquatic) description in Section 4.18.
B01	64	4.18.2.2	Anadarko recommends the FEIS state in this section that the Converse County landscape is one where raptors are already accustomed to a certain level of disturbance. Proposed activities are unlikely to increase the likelihood of a "take" especially in light of applicant-committed measures, such as those outlined in the MBCP, as well as the recent solicitor’s opinion, which provides for a narrow interpretation of the term "take." As noted on the USFWS Wyoming Ecological Services Field office website, "Buffer recommendations may be modified on a site-specific or project-specific basis based on field observations and local conditions. The sensitivity of raptors to disturbance may depend on local topography, density of vegetation, and intensity of activities. Additionally, individual birds may be habituated to varying levels of disturbance and human-induced impacts. Modification of protective buffer recommendations may be considered where biologically supported and developed in coordination with the Service’s Wyoming Ecological Services Field Office." https://www.fws.gov/wyominges/Species/Raptors.php	As referenced in Section 4.18.2.1, impacts to migratory birds are similar as those discussed in Types of Impacts Common to All Species in Section 4.18.1.1, including accommodation to disturbance. Text has been revised to include the variables mentioned in the comment and note the USFWS raptor buffer guidance in addition to RMP/LRMP guidance.

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Anadarko Petroleum Corporation (Continued)				
B01	65	Section 4.18.2.3 Table 4.18-16	Anadarko recommends the FEIS highlight that these stipulations are general guidelines, not prescriptive regulatory requirements, and are not required at all times. Failure to present these stipulations with such context in the FEIS will limit flexibility and fact-specific determinations of appropriate action. Given the significant existing development activities within the PRB over the last several decades, it is a safe assumption that raptors, as well as many other species, have become accustom to the infrastructure and machinery utilized in an oil and gas development program. In a 1993 helicopter overflight study involving red-tailed hawks (Buteo jamaicensis), Anderson et al. found that nine out of 12 birds flushed at a site with no previous experience with helicopter overflights, versus one out of 12 at a site with a history of exposure. Habituation is inferred, and presumed to reduce the impact of disturbance. Based on this study and other studies such as Knight and Temple, 1986, it can be assumed that effects resultant from infrastructure presence have likely been mitigated through past exposure and acclimation through the region encompassing oil and gas activity in the PRB. It is important to note that additional disturbances within already altered environments may be less disruptive than disturbances associated with isolated breeding pairs of raptors in unaltered habitats.8 The FEIS should include a discussion of raptor habituation studies in its impact analyses sections. References: § Andersen D. E., O. J. Rongstad, and W. R. Mytton 1993. Response of nesting red-tailed hawks to helicopter overflights. Condor 91(2): 296–299. § Knight. R. L. And S.A. Temple. 1995. Wildlife and Recreationists: Coexistence Through Management. In Wildlife and Recreationists: Coexistence Through Research and Management. R.L. Knight and K.J. Gutzwiller, Eds. Island Press. California. 372 pp.	These are regulatory requirements under current BLM and USFS RMP/LRMP and apply to BLM/USFS managed lands and mineral estates. As referenced in Section 4.18.2.1, impacts to migratory birds are similar as those discussed in Types of Impacts Common to All Species in Section 4.18.1.1, including accommodation to disturbance. As suggested, the text has been revised slightly to note that buffer distances may be modified based on further consultation with the USFWS and to note the USFWS raptor buffer guidance in addition to RMP/LRMP guidance. The studies cited by Anadarko are not related to disturbance from development activities.
B01	66	4.18.4.2	Anadarko recommends revising this section significantly to represent an analysis based on available information and eliminate speculation. As the analysis of Section 4.18.4.2 is currently drafted it is highly speculative and fails to account for the North Platte River Consent Decree and the Platte River Recovery Implementation Program (2006) and other regulatory mechanisms (permitting by the State Engineer) that are in place to protect aquatic species in and near the North Platte River.	Thank you for your comment. The text already makes reference to the Platte River Recovery Implementation Program.
B01	67	4.18.5.2	Presenting an inaccurate portrayal of available information, this section suggests water usage by the project will result in new depletions within the North Platte River subbasin and does not adequately acknowledge that the Proposed Action includes the buying or leasing of existing water rights. The Proposed Action does not suggest new depletions within the North Platte River subbasin. This section needs to be revised to more accurately reflect how water from the river would be derived, as in its current form it is highly misleading and high speculative.	The text already discloses the potential for new groundwater wells drilled within an area of hydrological connectivity to the North Platte River could result in new depletions of the river. Absent a commitment not to place wells that could deplete the North Platte River, NEPA requires disclosure of this potential impact. No change to text.
B01	71		it is imperative that we define the business constraints and uncertainties associated with energy development in federal sage-steppe habitats. The DEIS as currently written does not accurately reflect policy changes that have taken place over the last 18 months that reduce or clarify business uncertainties. We are hopeful that BLM will make serious efforts to reflect new Department of the Interior ("DOI") policies as they relate to sage grouse, the MBTA, the NHP A, the NEPA, and private property rights.	The text has been revised to reflect the current agency and department guidance and/or policy.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
ARC Consultants, Inc.				
B02	01		As a geoarcheologist and cultural resource management (CRM) archeologist who has worked in eastern Wyoming for many years, I ask that you consider potential effects to previously undiscovered buried archeological sites. Such sites are by nature low visibility and rarely located during conventional Class III pedestrian or shovel test surveying (Frison 1991) as generally required through Section 106 of the National Historic Preservation Act (NHPA). Moreover, buried sites generally have a better chance for preserving both perishable artifacts (such as charcoal and bone) and the spatial layout of those artifacts, than surface-exposed sites of similar age (Ebert 1992). Therefore, sites with arguably the best data potential are also the hardest to find and consequently the most likely to be disturbed inadvertently during activities such as well pad construction.	Text has been added in Section 3.2.1.1 and Section 4.2 to address this comment.
B02	02		My suggestion regarding the proposed undertaking is to minimize the negative impacts (both to oil and gas contractors and to the sites themselves) of unexpected archeological discoveries through the following actions: 1. Make at least a cursory evaluation of what areas within the Converse County project area (CCPA) have high archeological burial potential. From a purely geoarcheological standpoint, these may include, but are not limited to, areas dominated by deep packages of sandy (or other low energy) alluvial and eolian sediments. Such deposits may be associated with Torrifluvent, Torripsamment and other recent soils types in Converse county (NRCS 1999). Soil type extents are easily obtainable through Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm). High potential areas may also include floodplains and lower terraces adjacent to (both permanent and ephemeral) streams.	Buried cultural resources would be treated as undiscovered resources. Text remains unchanged.
B02	03		My suggestion regarding the proposed undertaking is to minimize the negative impacts (both to oil and gas contractors and to the sites themselves) of unexpected archeological discoveries through the following actions: You are likely familiar with the Adaptive Management and Planning Models for Cultural Resources in Oil and Gas Fields in New Mexico and Wyoming technical report (Ingbar et al. 2005; see reference and link below). In Chapter 4 of that report, Eckerle et al. (2005) provide detailed criteria for identifying sediments and soils of 'high sensitivity' for buried archeology in the Tongue River and western Powder River Basins of northeastern Wyoming. Their study area borders on Converse county to the northeast. I believe many of their geoarchaeological criteria could be operationalized for avoidance of high burial potential areas in Converse County as well.	Buried cultural resources would be treated as undiscovered resources. Text remains unchanged.
B02	04		My suggestion regarding the proposed undertaking is to minimize the negative impacts (both to oil and gas contractors and to the sites themselves) of unexpected archeological discoveries through the following actions: Anticipating which areas of the CCPA have high archeological burial potential and are more likely to produce unanticipated finds and may require archeological monitoring during construction (per NHPA Section 106 clearance) will help oil and gas contractors plan for such eventualities in those locations.	Text has been modified in Section 4.2.2.4 to refer to monitoring in areas determined through NHPA to have high potential for buried cultural deposits. Text has been added to Section 4.2 to address alternative procedures for complying with NHPA on federal and non-federal lands, including treatment of unanticipated discoveries and monitoring.
B02	05		Where possible, areas deemed sensitive should be avoided. This will help minimize effects to buried archeological sites as well as decrease costs of construction delays if buried finds are encountered.	Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts to cultural resources.
B02	06		Where avoidance is not possible, establish plans (such as anticipated archeological monitoring, on-call data recovery teams, or project-specific Programmatic Agreements) for how unexpected discoveries will be dealt. Such planning should help maximize the efficiency and quality of data recovery from exposed sites as well as minimize time lost during construction while mitigation efforts take place.	Text has been modified in Section 4.2.2.4 to refer to monitoring in areas determined through NHPA to have high potential for buried cultural deposits. Text has also been added to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts.

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Big Sky Limited of Wyoming				
B03	03		While Alternative B is by far the most sensible and workable option, it is worth noting that even this alternative does not fully comport with recently adopted policies established by the White House and the Department of the interior; in particular, Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth, and Doi Secretarial Orders 3349 and 3360. For the sake of continuity, and to guard against the possibility of confusion and costly delays, we believe it is imperative that the BLM's ROD be fully in line with directives passed down from the Department and the Administration.	The text has been updated to reflect the current agency guidance and policy.
B03	04		Furthermore, we believe that the issue of development of federal minerals from private surface leases has been fully addressed in the DEIS. Given that only a small amount of the surface within the project area is federally-owned land, while a majority of the sub-surface mineral resource is federally owned, it seems as though a more thorough discussion regarding the agency's proposed treatment and management of these off-lease wells is warranted for future projects.	Note that the text has been updated to clarify the extent of BLM's authority (see new Section 1.4.3).
Cole Creek Sheep Company				
B04	02		Additionally we would request adoption of a requirement that the perator/applicant send notice of intent Additionally, we would request adoption of a requirement that the operator/applicant send notice of intent to drill to any landowners within 1/2 mile of a proposed well at the time the APD is submitted and provide a written comment period for 15 days for site specific information and data prior to approval of a permit.	The BLM field office is required to post an APD for a 30-day public notification period before approving the APD. The WOGCC also has notification requirements under their operational and drilling rules for oil and gas development activities. Therefore, the BLM does not see the need to impose additional notification requirements.
W.I. Moore Ranch, Co. Inc.				
B09	04		1) Dramatic Underestimate of Total Water Usage: The BLM and OG based its analysis of water usage and produced water quantities on the claim that each oil and gas well would use approximately 100,000 barrels of water. In fact, each horizontal oil and gas well drilled within Converse County within the last six months has utilized between 250,000 and 300,000 barrels of water on average. This means that the BLM's analysis of impacts is based upon an inaccurate and unreasonable belief that a mere 33-40% of fresh water is going to be utilized and 33-40% of produced water is going to be generated than is in reality currently being used. This makes the BLM's analysis fundamentally flawed and not legally sufficient to support the choice of either Alternative B or C.	The impacts were assessed based on the new water consumption estimates provided by the Operator Group and the text was revised accordingly.
B09	05		2) Reliance on Outdated Data: All data and studies relied on in the EIS is from 2014 or older. As this EIS came out in 2018, this means that the newest data is still 4 years old. The age of the data significantly reduces its validity and cannot and should not be relied upon by the BLM in analyzing the potential impacts of the alternatives. The BLM should require the OG to produce newer data with a higher degree of reliability and validity to base any decisions upon.	The BLM endeavors to obtain the latest data to support a NEPA analysis but a defined point in the process must establish a cut-off date for updating with additional data in order to avoid a potentially continuous cycle of document updating. The BLM believes the data is sufficiently representative of site conditions to support the impact analysis in the EIS.
B09	06		3) Failure to Provide Analysis of Current Groundwater Levels and Conditions This EIS acknowledges that there are few to no monitor wells in the EIS area. This results in all information contained in the EIS in regards to amount of groundwater being nothing more than a guess. Combining the gross underestimation of freshwater usage with an unknown water table (as well as unknown recharge rates for that water table) creates an unacceptable risk of depletion of the aquifer under either Alternative B or Alternative C.	Due to the lack of reliable data, the groundwater analysis was based on certain assumptions as is common practice for these types of documents.
B09	07		4) Range Resources Damage is Significantly Underestimated The BLM calculates that the total loss of AUM's due to Alternative B and Alternative C is 25,198 and 22,812. Analysis of the impacts was based upon these numbers. However, these numbers clearly only apply to range resource destruction on federally owned lands. As federally owned lands make up only 10% of the EIS area, the actual impact to range resources is ten times greater than what the BLM considered in this document. This so dramatic underestimation is the equivalent of no analysis at all and neither Alternative B and Alternative C should be chosen without a true and correct analysis.	Analysis of impacts in terms of private AUMs would be highly speculative as it would require the BLM to make many assumptions regarding how private landowners and ranchers are managing their livestock. However, an analysis of estimated impacts to private surface acreage is included to the disturbance analysis.

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W.I. Moore Ranch, Co. Inc. (Continued)				
B09	08		5) Alternative C Mitigation Requirements Cannot Be Enforced Alternative C includes several mitigating design requirements that the BLM has relied on to claim a diminution in impacts, thus making it more likely the BLM will find the Alternative C attractive. However, this EIS area is only 10% federally owned. Private landowners that own surface not over the lease minerals cannot be forced to accept the BLM's mitigation factors. Therefore, the OF should not get credit for mitigation that there is no guarantee can happen.	The text has been revised to clarify the extent of BLM authority. Beyond the limit of their authority BLM can only recommend the application of mitigation measures.
B09	09		6) Recycling Production Water Cannot Be Done at This Time. Alternative C also reduces the total impacts in the analysis by stating that much produced water will be recycled and used again. However, at this time, the recycling of production water in Converse County is not technologically feasible to conduct economically. Therefore, it should not be used to mitigate the impacts in the analysis.	Recycling of hydraulic fracturing water has approached rates exceeding 90 percent in the Piceance Basin in Colorado according to the USEPA. Hydraulic fracturing water is produced water. Due to the multitude of aquifers in Powder River Basin, it is not possible to analyze "current groundwater" levels.
B09	10		7) Disposal Wells Can Cause Significant Damage The EIS states that much of the produced water shall be disposed of in disposal wells. However, the known dangers of disposal wells are not analyzed in depth. It has been conclusively proven in Oklahoma and other places that these disposal wells cause serious and continuing earthquakes and tremors. And Oklahoma prior to the creation and use of the many disposal wells was not as seismically active as Wyoming is right now. Therefore allowing the OG to drill and use 30 more disposal wells in Converse County could very likely cause significant seismic activity here. Thus, it should not be allowed.	The geologic setting into which waste water has been injected in Oklahoma is quite different from the Powder River Basin. The injection in Oklahoma is generally into the Arbuckle Formation which is in direct contact with old "basement" rocks. It is believed that the water that is injected is migrating into the basement which is highly fractured and faulted. Injection of large amounts of produced water has resulted in the activation of movement along existing planes of weakness (Langenbruch and Zoback 2016). The proposed injection candidate formations in Converse County are thousands of feet above the basement. Injection into these formations is not likely to affect deep-based fracture systems. However, if the WOGCC and WDEQ have concerns they could amend the permitting requirements for Class II and Class I wells respectively and require information on the proximity of faults to injection wells. Such rulemaking is beyond the scope of this EIS. Langenbruch, C. and M.D. Zoback. 2016. How Will Induced Seismicity in Oklahoma Respond to Decreased Saltwater Injection Rates? Science Advances, volume 2, number 11. November 30, 2016.
Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy				
B11	004		An essential component to the Operator Group's Proposed Action is the ability to develop year-round by obtaining relief from raptor and greater sage-grouse timing stipulations outside of core areas,1 but the DEIS does not clearly explain how BLM will programmatically allow for year-round development. The analysis of Alternative B in Chapter 4 of the DEIS clearly contemplates that year-round development will occur and appropriately analyzes the impacts from such development. The discussion of Alternative B, however, fails to clearly outline the mechanism by which programmatic year-round development can be achieved.	Please the response to Comment B11-024.
B11	005		A clear mechanism to facilitate year-round development is critical to efficient development in the Project Area and to reduce impacts to air quality, soils, vegetation, truck traffic, and other resources resulting from adherence to timing stipulations.	Your comment is noted. Please see the response to Comment B11-024.
B11	006		As reflected by the map below, at least 1,400 nest buffers exist in the project area. Multiple buffers frequently overlap with one another, and siting development outside of buffers often is not feasible, particularly in the northern eastern portions of the Project Area. A modeling exercise conducted by the Operator Group suggests approximately 45 percent of all pads in the Project Area would fall within greater sage-grouse or raptor nest buffers. (2 To demonstrate the number of well pads potentially impacted by nest buffers across the Project Area, the Operator Group applied a conceptual development scenario of one pad per two sections (i.e., one pad per one 1280-acre drilling and spacing unit) to the overall project area.)	See the second paragraph of Section 2.5.2.1 for a description of how the BLM estimated the portion of the CCPA that could be affected by timing stipulations.
B11	007		Year-round development reduces the overall time to drill multiple wells from a single pad which, in turn, reduces the amount of time that well pads remain unreclaimed.	Thank you for your comment. Please see the response to Comment B01-03.
B11	008		Year-round development also eliminates the needs for rigs to move on and off a location when timing stipulations take effect, thus reducing truck traffic and associated air quality impacts.	Thank you for your comment. See the response to Comment B11-044.
B11	009		Year-round development also promotes continuous employment and economic returns because timing stipulations cause seasonal swings in activity.	Thank you for your comment. Also see the response to Comment B11-044.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	010		The DEIS, however, does not outline a clear process for year-round development within the Project Area or identify when the circumstances under which BLM will allow year-round development. These omissions create uncertainty for the Operator Group.	Please see the response to Comment B11-024.
B11	011		BLM attempts to impose unnecessary and burdensome limitations on exceptions, such as the requirement for an environmental assessment and the limits on the length of lapses in development.	The BLM has clarified the exception process; see the response to Comment B11-024.
B11	012		The DEIS states that year-round development may be achieved by utilizing BLM's process for exceptions to stipulations that limit activities near raptor nests and greater sage-grouse leks outside of Priority Habitat Management Areas (PHMA). DEIS, pg. 2-25. The DEIS, however, provides no guidance as to: (1) the circumstances in which BLM will grant (or deny) exceptions to seasonal timing stipulations; (2) any measures that BLM expects Operators to adopt in lieu of adhering to timing stipulations; and (3) whether Operators may request and receive exceptions when they submit Applications for Permit to Drill (APDs) or well in advance of the proposed work to be excepted if an APD has already been approved, rather than waiting to request exceptions only two weeks before initiating proposed work as suggested by the Casper RMP, see Casper RMP ROD, pg. F-1. The description of the process to obtain exceptions in the DEIS does not give operators the certainty they need to rely on the ability to develop year-round within the Project Area.	Please see the response to Comment B11-024.
B11	013		The requirement that an environmental assessment accompany each exception request will slow the process for obtaining exceptions.	Please see the response to Comment B11-024.
B11	014		Exceptions may be granted or denied in undefined circumstances, based on undefined criteria. The DEIS recognizes that exceptions will be granted on a case-by-case basis and also recognizes that exception requests may be denied. See DEIS, pgs. 4.18-27, line 16 (stating "[e]xceptions generally would be granted on a case-by-case basis"), 4.18-27, line 20–22; pg. 4.18-60, lines 21–23 (stating "[w]here seasonal wildlife stipulations are required, and exceptions are not available, drilling and completion of wells would be scheduled outside of the stipulation windows"). The DEIS, however, does not specify the circumstances in which exceptions would be granted or denied. See id.	Please see the response to Comment B11-024.
B11	015		The DEIS does not identify when Operators may submit requests for exceptions. Onshore Order No. 1 and the Casper RMP contain conflicting direction on the timing of exception requests. Onshore Order No. 1 allows exception requests to be submitted with a Notice of Staking or APD. See 72 Fed. Reg. 10,307, 10,337 (Mar. 7, 2007). The Casper RMP, however, directs that "[a]s a general rule," an exception request "should be made within 2 weeks of conducting the proposed work." Casper RMP, F-1. In order to promote certainty, allow for sufficient processing time, and avoid delays in operations, BLM should consider exceptions and approve requests that are submitted with Notices of Staking or APDs or, for previously approved APDs, well in advance of the proposed work to be excepted.	Please see the response to Comment B11-024.
B11	016		An environmental assessment is unnecessary to obtain an exception. Each exception request "would require an environmental assessment to be completed that would allow the BLM to analyze the effects of development on wildlife within the site-specific project area." DEIS, pg. 2-25, lines 15–18. This requirement presents an unnecessary regulatory impediment and will cause significant delay in Operators' ability to timely obtain exceptions. The Casper RMP does not contain any requirement that an environmental assessment accompany an exception; in fact, the Casper RMP's suggestion that exception requests be made within two weeks of conducting proposed work would not allow time for the preparation of an environmental assessment. See Casper RMP, pgs. F-1 – F-2. Furthermore, given the extensive analysis of the impacts of year-round development in the Project DEIS, additional environmental analysis is unnecessary. See 40 C.F.R. § 1502.20 (encouraging agencies to tier to existing environmental analysis). Developing an environmental assessment for one or more exception requests will deter operators from pursuing exception requests, undermine the year-round development proposed as part of the Operator Group's Proposed Action, and unnecessarily duplicate analyses under the National Environmental Policy Act (NEPA).	The BLM has clarified the exception process; see the response to Comment B11-024.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	017		An “intensive wildlife monitoring plan” would “be developed by the [Operator Group] for BLM review.” DEIS, pg. 2-25, lines 20–21. The plan would require monitoring during and possibly after the allowed development and “would include items such as notifications to BLM of when activities begin and end, reports on wildlife monitoring, and any other site-specific information developed under the environmental assessment.” Id. pg. 2-25, lines 21–24. The DEIS fails to explain how the requirement for a wildlife monitoring plan would interact with the migratory bird conservation plan referenced elsewhere in the DEIS.	The text has been revised to reflect the BLM's proposed amendment of the RMP to provide for relief from certain raptor timing stipulations as disclosed in the Supplemental Draft EIS. The text has also been modified to remove reference to the Migratory Bird Conservation Plan in recognition that the plan will likely not be completed by the Operator Group.
B11	018		The DEIS states that BLM “would work with the operator” to implement “avoidance, minimization, and compensatory mitigation.” DEIS, pg. 2-25, lines 13–15. The DEIS does not identify such measures.	The implementation of mitigation measures in the cited text would be approved at the site-specific level. See the response to Comment B11-024.
B11	019		It also does not specify whether an operator must implement all three forms of mitigation (avoidance, minimization, and compensation) or whether an operator may implement one form of mitigation, such as minimization, in lieu of another form of mitigation, such as compensatory mitigation.	See the response to Comment B11-018 and Comment B11-024. Also note that the mitigation sections of Chapter 4 and Chapter 6 have been updated to reflect the most recent agency guidance on compensatory mitigation.
B11	020		Furthermore, the suggestion that compensatory mitigation may be necessary conflicts with a statement elsewhere in the DEIS that “[d]ue to the temporary nature of disturbance to migratory birds and the application of avoidance and minimization mitigation, OG committed design features and the additional mitigation measures (Section 4.18.2.3), compensatory mitigation would not be warranted to offset the impacts resulting from development under Alternative B.” Id. pg. 4.18-35, lines 24–27.	Note that per recently issued BLM guidance (Instruction Memorandum IM 2019-018) the agency cannot require compensatory mitigation for the use of public lands. The mitigation sections of Chapter 4 and Chapter 6 have been revised to reflect this new guidance.
B11	021		Finally, the reference to a requirement of compensatory mitigation is inappropriate in light of changed Departmental policies. See, e.g., Secretarial Order No. 3360 (Dec. 22, 2017).	Please see the response to Comment B11-020.
B11	022		The DEIS explains that “the operator would be required to begin activities at the well pad no less than 30 days before the date of the timing limitation outlined in the [Conditions of Approval], with no break in activities on the well pad longer than 72 hours during the stipulations season.” DEIS, pg. 2-25, lines 18–20. First, BLM offers no justification for these limitations, and none exists. BLM offers no explanation for the maximum 72-hour break in activities; 72 hours appears to be entirely arbitrary. Second, this limitation is ambiguous because BLM does not define which “activities” may not cease for more than 72 hours, thus burdening operators to determine the conduct necessary to allow year-round development. These limitations unnecessarily constrain Operators’ ability to conduct year-round development and defeat the year-round development proposal in the Operator Group’s Proposed Action. Finally, BLM must consider the unintended consequences of unnecessarily constraining breaks in activity; for example, BLM risks personnel safety by creating an incentive to resume activities to avoid losing the ability to continue operations.	Please see the response to Comment B11-024.
B11	023		Operators may develop site-specific migratory bird conservation plans, but the DEIS does not specify (1) when plans will be used or (2) whether the plans may be used to obtain an exception to a raptor stipulation. The DEIS states that site-specific migratory bird conservation plans “would provide a strategy for assessing impacts, avoiding and minimizing impacts, guiding actions, and planning future impact assessments and actions to conserve raptors and their habitats.” DEIS, pg. 4.18-30, lines11–13. The DEIS, however, ignores one use of the Umbrella Migratory Bird Conservation Plan, if finalized, upon which site-specific plans could be based: to streamline the process of obtaining exceptions from raptor stipulations. The DEIS does not explain when plans will be used or whether they may be used to obtain an exception to a raptor timing stipulation. Further, the DEIS does not explain how the site-specific migratory bird conservation plans will integrate with the wildlife monitoring plans and conservation measures that BLM will require to obtain exceptions to raptor stipulations.	Please see the response to Comment B11-024.
B11	024		Given the density of raptor nests within the Project Area, see DEIS, pg. 3.18-25, fig. 3.18-9, the Operator Group is concerned that the exception process will not provide it with certainty as to how year-round development can proceed efficiently in the Project Area. Because the exception process may not provide the Operator with the relief they need to accommodate year-round development consistent with the Proposed Action, the Operator Group encourages BLM adopt a more durable solution: amendment of the Casper RMP to eliminate raptor timing stipulations within the Project Area and to permanently waive or modify raptor timing stipulations attached to existing leases.	Prior to issuing the Final EIS, the BLM released a Supplemental Draft EIS for public review in late April 2019. This supplemental EIS discloses the potential impacts of proposed amendments to the Casper RMP regarding timing limitation stipulations (TLS) for non-eagle raptors. These proposed amendments would address questions around the process for requesting exceptions from TLS for non-eagle raptors in the CCPA. The Final EIS incorporates the new text presented in the Supplemental EIS along with responses to comments on the supplement and text revisions.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	025		An RMP amendment is advantageous to the exception process for several reasons. First, it would not require BLM to consider exception requests on a case-by-case basis, thus reducing the burden of the permitting process on BLM. Second, because BLM would not consider exception requests on a case-by-case basis, it would streamline the permitting process and avoid delays to Operators' APDs. Third, this process eliminates the uncertainties surrounding when and how Operators could obtain relief from raptor stipulations.	Please see the response to Comment B11-024.
B11	026		The Operator Group maintains that BLM can efficiently amend the Casper RMP because waiving or modifying raptor stipulations only within the Project Area is a narrow amendment.	Please see the response to Comment B11-024.
B11	028		Because BLM has properly noticed and scoped an amendment to the Casper RMP, see 43 C.F.R. § 1610.2(c), a targeted amendment can be accomplished without additional process before the FEIS is released if BLM analyzes the amendment in an environmental assessment (EA) or in the FEIS itself. See 43 C.F.R. § 1610.5-5; BLM's Land Use Planning Handbook, H-1601 § III(B) (Rel. 1-1693 Mar. 11, 2005).	Please see the response to Comment B11-024.
B11	029		The Operator Group is willing to discuss with BLM measures that can avoid or minimize any impacts to raptors if necessary to allow BLM to determine the RMP amendment will not have significant impacts.	The BLM has met with the Operator Group multiple times to discuss the question of a land use plan amendment. Please see the response to Comment B11-024.
B11	031		The Operator Group also requests that the United States Forest Service (USFS) consider amending the Thunder Basin National Grassland Land and Resource Management Plan (TBNG LRMP) to similarly waive raptor timing stipulations. In the Notice of Intent for the Project, BLM advised the public that authorization of the Project "may require amendments of the 2007 Casper resource management plan or the 2001 Thunder [Basin] land and resources management plan because resource impacts will likely exceed those analyzed in the existing plans." 79 Fed. Reg. at 28,538.	Throughout project planning, request for an amendment to the LRMP for the TBNG was specifically not included as part of the Operator Group's plan of development. Therefore, the Forest Service did not consider raptor timing stipulation relief on the TBNG. Proposed amendment(s) to the LRMP for the TBNG were not considered or analyzed as part of this proposed action or alternatives and therefore would be outside the scope of analysis. Any requests to consider relief to timing stipulations on TBNG would necessitate an amendment to the LRMP. At this time any requests would constitute a separate action that is not part of the current proposed action or alternatives analyzed in this Draft EIS.
B11	033		Although the DEIS analyzes the environmental impacts associated with year-round development, it does not adequately disclose and compare the environmental impacts of adhering to raptor stipulations under Alternative C.	The text states (see Section 4.18.2.5, *Raptor* subsection) that impacts to raptors would be reduced under Alternative C, which would adhere to raptor stipulations, relative to Alternative A and Alternative B.
B11	034		Year-round development carries multiple environmental benefits, primarily for two reasons: the drilling rig does not need to move off the surface location during the stipulation period, and the amount of time to drill all wells from a single location is reduced. The DEIS, however, incorrectly assumes that application of timing stipulations under Alternative C generally will reduce environmental impacts. See DEIS, pgs. 4.1-35, lines 39–41 ("it is anticipated that the emissions, particularly PM10 and PM2.5, would be lower than Alternative B due to fewer well pads and less surface disturbance"); pg. 4.2-11, lines 11–12; pg. 4.5-3, lines 23–24 ("The impacts to land use types would be similar to Alternative B except less acreage would be disturbed from activities under Alternative C, resulting in an anticipated reduction in impacts."); pg. 4.6-3, lines 36–38; pg. 4.7-5, lines 7–8 ("Noise impacts from Alternative C activities would be similar in type but less in intensity then under Alternative B."); pg. 4.8-3, lines 6–8; pg. 4.9-6, lines 10–13; pg. 4.10-4, lines 11–12; pg. 4.11-45, lines 16–17; pg. 4.14-12, lines 17–18 ("The impacts to vegetation would be similar to Alternative B except 15,400 fewer acres would be disturbed, resulting in less impact."); pg. 4.17-4, lines 20–30; pg. 4.18-15, lines 19–28; pg. 4.18-36, lines 21–22; pg. 4.18-40, lines 4–5, 14–15, 24–25; pg. 4.18-79, lines 23–24 ("Impacts to greater sage-grouse under Alternative C would be similar to those from Alternative B, but the magnitude generally would be less."); pg. 4.18-91, lines 22–23; pg. 5-31, lines 41–43; pg. 5-47, lines 28–29. The DEIS must recognize that application of timing stipulations under Alternative C will increase impacts to certain resources.	For many resources impacts would be reduced under Alternative C relative to Alternative B due to a decrease in surface disturbance. The BLM has updated the impact analysis for Alternative C given input received during the public comment period and to reflect new information and input received during public review of the Supplemental Draft EIS.
B11	035		Application of timing stipulations will increase the amount of time necessary to develop all wells on a given surface location. Application of timing stipulations requires an Operator to stop development and move a drilling rig off a location. By allowing year-round development, an Operator does not need to move the drilling rig off the location. Thus, an Operator can finish operations on a four-well location between six months to a year more quickly than if the Operator adhered to timing stipulations3: 3 This scenario is for demonstrative purposes only and may not necessary represent future activity from a single location.	The impact analysis for Alternative C has been updated to reflect more detailed analysis of transportation impacts due to the increase in traffic associated with rig moves. The text has also been updated to reflect the input received during public review of the Supplemental Draft EIS.

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B11	036		The amount of time on a location is further reduced depending on the time of year when an Operator commences development:	Thank you for your comment. Note that the document has been updated to reflect public review of the Supplemental Draft EIS.
B11	038		The analysis of Alternative C does not acknowledge the significant environmental benefits of fewer rig moves and substantially reduced development times. Rather, the DEIS incorrectly assumes that application of timing stipulations under Alternative C will categorically reduce environmental impacts. The DEIS must be revised to disclose the potential impacts resulting from application of timing stipulations under Alternative C.	The EIS has been revised to disclose the impacts associated with an increase in the number of rig moves under Alternative C.
B11	039		The DEIS assumes that the same number of wells will be drilled during the 10-year Project timeframe, even though the development time for a given location will be extended by as long as a year on four-well pads and nearly two years for eight-well pads, even though Alternative C would increase the number of eight-well pads in the Project. See DEIS, pg. 2-35, lines 7–10 (stating Alternative C "would provide for drilling the same number of wells (5,000) at the same drilling rate (500 wells per year) as Alternative B"). Because application of timing stipulations significantly increases the length of time necessary to develop a single pad, and because timing stipulations limit access to much of the Project Area for six months of the year, BLM cannot assume that the same number of wells can be drilled at the same rate over a 10-year period under Alternative C as will be drilled under Alternative B.	Given the substantial portion of the CCPA that is unlikely to be impacted by timing stipulations (see second paragraph of Section 2.5.2.1), there would be sufficient area within the CCPA to support the assumed drilling rate.
B11	040		Although the analysis of socioeconomic impacts notes the increased drilling time, see id. pg. 4.11-45, lines 21–22, the analysis of other resources fails to account for increased drilling time.	The cited discussion refers to the duration of development activity on individual wells. The overall 10-year development schedule would remain unaffected.
B11	041		The DEIS also fails to account for increased impacts resulting from the additional time necessary to develop a single pad. The additional six to 18 months necessary to develop a well pad delays interim reclamation of the well pad, resulting in an increased potential for erosion. The DEIS, however, fails to note this potential impact, instead incorrectly stating that "Alternative C would have very similar impacts to Alternative B . . . ." See DEIS, pg. 4.12-5, lines 9–7. The increased time for interim reclamation also can increase air impacts, specifically PM10 emissions, yet the DEIS did not disclose this impact. See id. pg. 4.1-35 (anticipating PM10 emissions "would be lower than Alternative B due to fewer well pads and less surface disturbance").	The maximum number of wells drilled on a well pad would be the same for both Alternatives B and C. The PM10 air quality analysis for Alternative B, presented in Section 4.1.3.3, was based the maximum well pad size and represents potential impacts for both Alternatives B and C.
B11	042		The increased time for reclamation slows the return of vegetative cover. The DEIS does not acknowledge this impact, instead stating that because of timing stipulations, "indirect disturbance of vegetation due to fugitive dust emissions would be less than under Alternative B because development would not occur on a year-round basis." DEIS, pg. 4.14-12, lines 21–22.	Comment noted; text has been revised to include this impact.
B11	043		Application of timing stipulations also requires Operators to move drilling rigs on and off locations during the season when activities are limited. Moving drilling rigs throughout the Project Area carries its own set of impacts. Most significant, moving drilling rigs increases truck traffic. The Operator Group estimates that application of timing limitations to development of an eight well pad will increase truck traffic three-fold:	Text has been revised to quantify rig moves and the associated impact analysis for Alternative B and Alternative C.
B11	044		The DEIS, however, projects the exact same number of rig moves and truck trips under Alternative C as under Alternative B. Compare DEIS, pg. 4.13-3, tbl. 4.13-1 with id. pg. 4.13-9, tbl. 4.13-6 (assuming 10 light truck and 300 heavy truck trips per well). Elsewhere, the DEIS predicts that "[t]he overall number of rig mobilization and demobilization activities would be lower under Alternative C than under Alternative B." Id. pg. 4.11-45, lines 16–17. The DEIS must be revised to account for the increased truck traffic resulting from application of timing stipulations.	The text has been revised in Section 2.4.8, Transportation, and a new section has been added (Section 2.5.2.10, Transportation) to provide detail on the difference in rig move assumptions between Alternative B and Alternative C. In addition, the impact analysis has been revised (Sections 4.11 and 4.13) to reflect the rig move assumptions updated in Chapter 2.
B11	045		Furthermore, because truck traffic trips will increase, Alternative C presents a risk of increased vehicle emissions and fugitive dust resulting in higher emissions of PM10 and PM2.5, but the DEIS does not disclose such potential impacts. See id. pg. 4.1-35, lines 30–42.	As noted in the response to Comment B11-044, the text in Chapter 2 has been updated to clarify the difference in rig move assumptions between Alternative B and Alternative C. In addition, the air quality impact analysis for Alternative C has been revised (see Section 4.1.4) to discuss the emissions due to rig moves in Alternative C relative to Alternative B.
B11	046		Increased truck traffic also can increase noise levels, yet the DEIS describes noise impacts under Alternative C as "similar in type but less in intensity than under Alternative B." Id. pg. 4.7-5, lines 15–16.	As noted in the response to Comment B11-044, Chapter 2 has been revised to clarify the change in rig move assumptions between Alternative B and Alternative C. The noise impact analysis for Alternative C has not been revised since the difference in rig moves between Alternative C and Alternative B is minimal.
B11	047		Increased truck traffic could also increase the risks of traffic accidents and accidental releases, yet the DEIS also does not discuss these risks. See id. pgs. 4.4-8 – 4.4-9.	Please see the response to Comment B11-044.
B11	048		Finally, the DEIS does not account for potential disruptions to wildlife resulting from increased traffic. See id. pgs. 4.18-18, lines 30–35; pg. 4.18-35, lines 29–38.	Impacts as a result of increased traffic are discussed in Types of Impacts Common to All Species and throughout Section 4.18. In addition to this Section, the analysis for small mammals, game birds, and special status species include impacts as a result of increased traffic.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	049		The increased duration of development and the increased rig moves result in impacts that must be acknowledged and analyzed in the DEIS. Accordingly, BLM must, at a minimum, revise the following discussions of Alternative C in the DEIS to account for these increased impacts: rate of development (section 2.5.1); air quality (section 4.1.3); noise (section 4.7-5); soils (section 4.12.3); vegetation (section 4.14.3); truck traffic (section 4.13.3); and wildlife (section 4.18.3).	Please refer to the responses to comments B11-033 through B11-048.
B11	050		The DEIS does not acknowledge Solicitor Opinion No. M-37050 (Dec. 22, 2017), in which the Solicitor of the Interior determined that the MBTA does not prohibit incidental take of migratory birds.	The Solicitor Opinion No. M-37050 was issued after finalizing the Draft EIS text. However, the Draft EIS did not include discussion of Solicitor Opinion No. M-37041, which the more recent opinion supersedes; therefore, the Final EIS has not been revised to include Solicitor Opinion No. M-37050.
B11	051		The DEIS references numerous policies and guidance related to mitigation that have been rescinded or superseded or both. Specifically, the DEIS references BLM's Manual MS-1794 (Rel. 1-1782 Dec. 22, 2016), BLM Handbook H-1794-1 (Rel. 1-1783 Dec. 22, 2016), and Departmental Manual 600 DM 6. See DEIS, pg. 4.2-10, lines 40–42; pg. 4.2-13, lines 11–14; pg. 6-1, lines 32–24; pg. 6-2, lines 8–12; pg. 6-6, lines 7–8, 26–27; pg. 6-7, lines 6–7. This guidance, however, was rescinded via Secretarial Order No. 3360 § 4(a) (Dec. 22, 2017).	The text has been updated to reflect the current agency and department guidance.
B11	053		The DEIS must acknowledge that BLM and USFS are reviewing their land use plan amendments that impose regulatory measures related to the greater sage-grouse. See 82 Fed. Reg. 47,248 (Oct. 11, 2017) (BLM Notice of Intent); 82 Fed. Reg. 50,666 (Nov. 1, 2017) (errata); 82 Fed. Reg. 55,346 (Nov. 21, 2017).	The BLM has revised the EIS text, if appropriate, to reference the current land use plan amendments in force. At the time of finalization of the Final EIS text the 2015 Sage-grouse amendments are in force due to the ongoing legal challenge of the recently released 2019 amendments.
B11	054		The Project FEIS and ROD must account for potential changes to the federal regulatory framework for management greater sage-grouse. If BLM and USFS have completed their land use planning processes prior to issuance of the Project ROD, the ROD must incorporate any new management measures. Alternatively, if the Project ROD is issued before BLM and USFS have completed their land use planning processes, the ROD should provide the flexibility for BLM to manage the Project under the terms of any new land use plan amendments without the need for additional programmatic NEPA review of the Project.	Please see the response to Comment B11-053.
B11	055		The Operator Group requests that the FEIS analyze and adopt an adaptive management strategy to allow BLM to manage the Project in accordance with the outcome of the ongoing land use plan revisions.	The BLM has included a requirement for adaptive management in the land use plan option (Option 6) now included as part of the agency's preferred alternative (Alternative B). Note that future land use management decisions in regard to activity in the CCPA will be conducted in accordance with the land use plan in force at the time.
B11	056		In anticipation of potential changes to federal sage-grouse management, the Operator Group recommends that the adaptive management strategy allow for adherence to the Wyoming Core Area Strategy, which the U.S. Fish and Wildlife Service (USFWS) concluded is an "effective regulatory mechanism for conservation" and a key reason that the greater sage-grouse does not warrant protection under the Endangered Species Act. 80 Fed. Reg. 59,858, 59,882 (Oct. 2, 2015).	If BLM policy, guidance and future land use plan amendments are approved or implemented prior to completion of the Final EIS, the document will be updated to reflect those changes. Any subsequent future land use plan amendment or revision will apply to activities in the CCPA.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	057		This adaptive management strategy should include the following management measures that are included in Wyoming Executive Order No. 2015-4 but not in the 2015 amendments to the Casper RMP ("9-Plan RMPA")5 and USFS Greater Sage-Grouse ROD6: - Allowing construction activities outside of seasonal restrictions without an exception or waiver. Compare Wyoming Exec. Order No. 2015-4, Attachment B, at 6 (July 29, 2015) with 9-Plan RMPA, MD SSS 5, MD SSS 6, at 36; USFS Greater Sage-Grouse ROD at 99. - Allowing the placement of semi-permanent structures in no surface occupancy areas around occupied leks. Compare Wyoming Exec. Order No. 2015-4, Attachment B, at 6 with 9-Plan RMPA at 102 (definition of surface occupancy). - Excepting production and maintenance activities from seasonal restrictions on activities. See Wyoming Exec. Order No. 2015-4, Attachment B, at 6. - Excluding no surface occupancy areas around occupied leks from seasonal restrictions on activities. Compare Wyoming Exec. Order No.2015-4, Attachment B, at 6 with 9-Plan RMPA, MD SSS 7–9, at 36; USFS Greater Sage-Grouse ROD at 99. - Limiting noise only within Core Population Areas. See Wyoming Exec. Order No. 2015-4, Attachment B, at 8. - Providing for compensatory mitigation only when an activity does not comply with prescribed avoidance and minimization measures. Compensatory mitigation should be determined in accordance with the State of Wyoming's Mitigation Framework and should not require a net conservation gain. See Wyoming Exec. Order No. 2015-4 § 7; Wyoming Revised Greater Sage-Grouse Compensatory Mitigation Framework at 1 (July 10, 2017). - Requiring coordination with permitting agencies for monitoring and data collection if adaptive management triggers are met, rather than requiring the development of adaptive management plans or the deferment of discretionary authorizations. See Wyoming Exec. Order No. 2015-4, Attachment B, at 10.	Please see the response to Comment B11-056.
B11	058		The DEIS's analysis of impacts to greater sage-grouse and proposed management of greater sage-grouse relies on the State of Wyoming's Core Area Version 3 maps. Furthermore, the DEIS would impose operational restrictions in PHMA that reflects the Version 3 maps. See DEIS, pg. 4.18-46, lines 37–39; pgs. 3.18-48 (throughout); pg. 3.18-49, fig. 3.18-12; pg. 3.18-52, tbls. 3.18-7, 3.18-9; pg. 4.18-46, lines 37–39; pg. 4.18-47, tbl. 4.18-20; pg. 4.18-49, fig. 4.18-1; pg. 4.18-62, lines 17–18, tbl. 4.18-26; pg. 4.18-74, lines 3–8; pg. 4.18-74, fig. 4.18-2; pg. 5-69, tbl. 5.3-34; pg. 6-30, lines 2–8. The State of Wyoming, however, has updated these maps and replaced them with Version 4 maps. In October 2017, the Wyoming BLM State Office issued a maintenance action updating RMPs across Wyoming with the Version 4 map. See Plan Maintenance, Change #1 (Oct. 27, 2017).7 This action took place well in advance of the publication of the DEIS and should have been addressed by BLM. BLM must remove references to and any analysis that relies on the Version 3 Map and instead wholly rely on the Version 4 map. Further, any greater sage-grouse management measures that the governing RMP prescribes for PHMAs may only be applied in PHMAs that exactly correlate with Version 4 maps. Available at https://eplanning.blm.gov/epl-front-office/projects/lup/36597/130805/159604/RMP_Maint_2017-001_Sage-Grouse_Core_V4.pdf.	Comment noted, but as stated, direction to analyze Version 3 Core Area Maps is based on the ARMPA and BLM managed lands and mineral estates within the Project Area.

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B11	059		Because BLM and USFS manage a combined total of only ten percent of lands within the Project Area, BLM must recognize the limits of its authority over surface resources. First, BLM must recognize its limited authority to impose surface management stipulations when well pads are located off of the federal lease and on non-federal surface, as described in BLM Instruction Memorandum No. 2009-078 (Feb. 20, 2009) (commonly known as the “fee-fee-fed” situation). In this situation, the federal lessee’s ability to use the surface is based on its contractual relationship with the surface owner rather than the federal oil and gas lease. Thus, BLM has recognized that, in this situation, it lacks authority to require mitigation of impacts to surface resources. See id. Indeed, the BLM Wyoming State Office has set aside conditions of approval attached to APDs after finding they were not necessary to comply with a statutory or regulatory mandate. See Decision, SDR No. WY-2011-010, at 9 (Feb. 25, 2011).	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3.
B11	060		BLM’s limited authority to mitigate surface impacts when well pads are located off federal leases and on non-federal surface is particularly significant to the Project. Presumably, given the amount of horizontal development proposed for the Project, a significant number of the 1,500 proposed wells will be located on off-lease pads on private surface. BLM therefore must recognize that it lacks authority to impose mitigation measures to surface resources.	Please see the response to Comment B11-059.
B11	061		BLM must recognize that, given the interpretation of the Migratory Bird Treaty Act (MBTA) in Solicitor Opinion M-37050 (Dec. 22, 2017), it has no statutory obligation to prevent incidental take of migratory birds and, therefore, may not impose conditions of approval on APDs to prevent such take.	It is important to note that the M-Opinion did not remove or supersede a Clinton-era Executive Order, other related statutes, or the various inter-agency Memorandums of Understanding that compel agencies to take action to minimize incidental take. Further, the BLM (which is not governed by the Guidance Memo) could still condition its approval on the imposition of “voluntary” mitigation measures to address incidental take of migratory birds, and the FWS would aide in proposing such measures.
B11	062		Second, for purposes of complying with NEPA, the Endangered Species Act (ESA), and NHPA, BLM’s review of impacts from well pads located off federal leases on nonfederal surface is narrow if the well pad already exists or if the well pad was not placed to access a federal lease. Instruction Memorandum No. 2009-078 directs that, in such situations, NEPA analysis is limited to discussion of the environmental effects of the downhole operations, such as protection of aquifers and subsurface resources.	As noted in the response to Comment B11-059, the text has been updated by adding Section 1.4.3 which clarifies the extent of BLM authority within the CCPA. This new text also notes the recently released guidance from BLM (Permanent Instruction Memorandum PIM No. 2018-014) that provides updated direction on BLM's regulatory jurisdiction on the Fee-Fee-Fed ownership scenario and supersedes IM 2009-078.
B11	63		Further, “[c]ultural, non-special status species, or other related surveys are typically not required unless the act of drilling, completing, and/or operating the Federal well(s) has the potential to have an impact on the protected resource.” Id.	Please refer to the response to Comment B11-062.
B11	064		Additionally, NEPA review “may be limited to a discussion of environmental effects of the downhole operations to be approved . . . and the effects related to drilling and operating the well, such as the effect of noise generated by the Federal well drilling.” Id.	Please refer to the response to Comment B11-062.
B11	065		BLM “is not required to consider a range of alternatives in siting surface facilities because the actual location (and, therefore, more specific, site-determined effects), is not based on the Federal wells.” Id.	Please refer to the response to Comment B11-062.
B11	066		Finally, BLM must recognize the limits of its authority to manage for surface resources on split-estate lands within the boundaries of federal leases. The Associate Solicitor of the Interior has recognized that “[a]ctivities and use of the surface are not subject to planning requirements under the Federal Land Policy and Management Act (FLPMA), in part because BLM has no authority over use of the surface by the surface owner.” Memorandum from Associate Solicitor, Energy & Resources, to BLM Director 2 (April 1, 1988). BLM need only consider the impacts of development under NEPA, NHPA, and ESA. Id. Similarly, in the FEIS accompanying the Casper Proposed RMP, BLM stated, “The private surface is not public land; thus, it is not subject to the planning and management requirements of the FLPMA. The BLM has no authority over use of the surface by the surface owner.” Casper FEIS/Proposed RMP, pg. A-3. Because 90 percent of the Project Area is privately owned surface, BLM must recognize that it may not condition APDs to achieve surface management goals.	Please see the response to Comment B11-059.
B11	067		The Operator Group requests that BLM include a discussion in Chapter 1 of the FEIS recognizing that BLM lacks authority to mitigate surface impacts from well pads located off federal leases on non-federal surface. This discussion should also recognize BLM’s limited authority over split-estate lands.	Please see the response to Comment B11-059 and B11-062.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	068		Section 1.4.1, Page 1-5, Lines 8–11: This section suggests that site-specific environmental review would always occur prior to development, stating: Although the RODs may approve the proposed oil and gas wellfield development on a conceptual basis, a site specific environmental review of areas proposed for surface disturbance and sub-surface mineral extraction would be completed to determine the final location of facilities based on environmental considerations. This statement is misleading because it ignores that not all authorizations require environmental review. BLM may utilize categorical exclusions set forth in the Section 390 of the Energy Policy Act of 2005 to permit five statutorily-specified activities without preparation of an environmental assessment or EIS.8 See 42 U.S.C. § 15942. Additionally, even if site-specific review is required, such review frequently will have a narrow scope because of the substantial amount of private land in the Project Area and because oil and gas wells in the Project Area will be drilled horizontally. As explained in BLM Instruction Memorandum No. 2009-078 (Feb. 20, 2009), NEPA does not require that BLM analyze the surface impacts of the development of a well pad located off-lease on non-federal surface, except when the well pad is placed to access the federal mineral estate. Rather, in these situations, BLM's review is limited to the downhole impacts from development. Accordingly, BLM should revise this language to state: Although the RODs may approve the proposed oil and gas wellfield development on a conceptual basis, a site specific environmental review of areas proposed for surface disturbance and sub-surface mineral extraction would be completed only to the extent required by NEPA to determine the final location of facilities based on environmental considerations. 8 These activities are: (1) individual surface disturbances of less than five acres so long as the total surface disturbance on the lease is not greater than 150 acres and site-specific analysis in a document prepared pursuant to NEPA has been previously completed; (2) drilling an oil and gas well at a location or well pad site at which drilling has occurred previously within five years prior to the date of spudding the well; (3) drilling an oil or gas well within a developed field for which an approved land use plan or any environmental document prepared pursuant to NEPA analyzed such drilling as a reasonably foreseeable activity, so long as such plan or document was approved within five years prior to the date of spudding the well; (4) placement of a pipeline in an approved right-of-way corridor, so long as the corridor was approved within five years prior to the date of placement of the pipeline; and (5) maintenance of a minor activity, other than any construction or major renovation of a building or facility. 42 U.S.C. § 15942(b)(1)–(5).	The text has been revised as suggested. Also see the response to Comment B11-062.
B11	069		Section 1.5, Page 1-6, Lines 9–14: This section states: Where wells are proposed to be located on private land directly above private minerals but would penetrate and produce from federal mineral estate (i.e., in a fee-fee-fed scenario; WO IM 2009-078), BLM and USFS authority to regulate and/or mitigate impacts for surface resources is severely limited to compliance only with required federal statutes beyond NEPA. This language does not fully capture the limited nature of BLM's NEPA review of, and authority to impose, mitigation on wells drilled from pads located off the federal lease on private surface (i.e., fee-fee-fed scenario). This language should be revised to outline BLM's NEPA obligations for, and authority to mitigate impacts from, wells drilled from off-lease pads on private surface, as explained above. Furthermore, this section should note that Instruction Memorandum No. 2009-078 is currently being reviewed and revised by BLM; the FEIS must fully account for any revisions to the Instruction Memorandum. In practice, BLM has appeared to overreach in its application of NEPA and exercise of authority toward wells drilled from off-lease pads on private surface. Revisions to Instruction Memorandum No. 2009-078 are intended to provide clarity and reduce overreach.	The BLM has added new Section 1.4.3 to clarify the extent of BLM's authority within the CCPA. Also see the response to Comment B11-062.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	070		Section 6.2.1, Page 6-4, Lines 19–20: This section states, “Resources within the CCPA to be spatially and temporally avoided include the following: . . . .” The FEIS must expressly recognize that BLM may only impose these avoidance measures where it has the authority to do so and that BLM may not impose these avoidance measures on off-lease, non-federal surface (“fee-fee-fed” scenario). See Instruction Memorandum No. 2009-078 (Feb. 20, 2009).	Please see the response to Comment B11-059.
B11	071		Section 6.5, Page 6-22, Lines 36–40: This section states, “The Converse County Oil and Gas EIS establishes mitigation measures in addition to the regulations, goals and objectives, BMPs, and OG-committed design features to reduce or eliminate impacts to the resources analyzed in Chapter 4.0. The following is a summary of proposed mitigation measures by resource.” The FEIS must expressly recognize that BLM may only impose these mitigation measures where it has the authority to do so and that BLM may not impose these mitigation measures on off-lease, non-federal surface (“fee-fee-fed” scenario). See Instruction Memorandum No. 2009-078 (Feb. 20, 2009).	Please see the response to Comment B11-059.
B11	072		BLM’s requirement to provide compensatory mitigation to offset impacts to trails is inconsistent with the Casper RMP. BLM’s decision to authorize the Project must conform to the Casper RMP. 43 C.F.R. § 1610.5-3. The Casper RMP, however, does not contain any requirement for compensatory mitigation to offset impacts to trails. See Casper RMP at 2-47 – 2-48. Because a requirement for compensatory mitigation does not conform to the Casper RMP, BLM must remove it from the FEIS.	Per recently issued BLM guidance (Instruction Memorandum IM 2019-018) the agency cannot require compensatory mitigation for the use of public lands. The mitigation sections of Chapter 4 and Chapter 6 have been revised to reflect this new guidance.
B11	073		BLM may not rely on the NEPA process to manage impacts to historic trails or require compensatory mitigation to offset impacts to trails from the Project. To the extent BLM seeks to manage impacts to trails, section 106 of the National Historic Preservation Act provides the appropriate legal mechanism to avoid, minimize and, if appropriate, mitigate impacts to historic properties such as trails or their segments that are eligible for inclusion on the National Register of Historic Places. See 54 U.S.C. § 306108; 36 C.F.R. part 800	The BLM uses NEPA to identify potential mitigation for cultural resources, including historic trails, consistent with NHPA Section 106. Chapter 4.2 has been updated to clarify cultural resources for trails.
B11	074		The DEIS’s statement that mitigation measures would be developed to offset impacts to trails is inconsistent with the Casper RMP. The Casper RMP directs that the viewshed along segments that do not contribute to eligibility for the National Register of Historic Places (NRHP) would be managed as Visual Resource Management (VRM) Class III. See id. at 2-48. BLM may allow “moderate” changes to the characteristic landscape in areas managed as Class III; activities in Class III-managed areas may attract attention and should repeat the basic elements found in the predominant natural features of the characteristic landscape. BLM Manual 8431 – Visual Contrast Rating, appx. 2 (Rel. 8-30 Jan. 17, 1986). Because VRM Class III management contemplates impacts to the landscape, compensatory mitigation is unnecessary.	Mitigation of adverse impacts to cultural resources would be implemented in accordance with Section 106 of the NHPA. The text in Section 6.6 has been revised to reflect this.
B11	075		The DEIS inappropriately treats all trails as comparable resources with comparable management designations. In fact, the three primary trails within the Project Area have different designations. Child’s Cutoff has been designated as a segment of the California National Historic Trail; further, the National Park Service is conducting a feasibility study to determine whether Child’s Cutoff should be designated as a segment of the Oregon National Historic Trail. DEIS, pg. 3.2-18. The Bozeman Trail is eligible overall for the NRHP. Id. pg. 3.2-19. The DEIS does not disclose whether the Rock Creek to Fort Fetterman Stage Route has been evaluated for eligibility on the NRHP. See id. pg. 3.2-19. The DEIS also discloses that segments of other trails, including the Overland Trail and Yellowstone Highway, run through the Project Area.	The WY SHPO considers the Rock Creek to Fort Fetterman Stage Route and the Yellowstone Highway eligible overall for the National Register; this information has been added to Section 3.2.2.4. There is no segment of the Overland Trail within the CCPA; reference to this has been clarified.
B11	076		BLM cannot impose a uniform requirement of compensatory mitigation for impacts to all trails within the Project Area because each is managed under a different standard. Child’s Cutoff is managed in accordance with BLM Manual 6280, which prescribes specific analysis that BLM must undertake in NEPA documents. See BLM Manual MS-6280, Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation 1-18 – 1-19 (Rel. 6-139 Sept. 14, 2012).	Please see the response to Comment B11-072.
B11	077		Impacts to the Bozeman Trail must be evaluated through the section 106 process under the NHPA because the Bozeman Trail is eligible for the NRHP. See 36 C.F.R. part 800; BLM Manual 8110 – Identifying and Evaluating Cultural Resources § .33C1b (Rel. 8-73 Dec. 3, 2004).	Text has been added to Section 4.2 to state that identification of cultural resources and segments of historic trails would occur during site-specific NHPA processes, regardless of the specific NEPA process used in a given location.
B11	078		To the extent other trails are not eligible for the NRHP, they may not be evaluated through the section 106 process. See 36 C.F.R. § 800.1 (explaining purposes of identifying, assessing effects to, and resolving adverse effects to historic properties).	Please see the response to Comment B11-077.

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B11	079		Given these different management directions, BLM's attempt to impose a uniform requirement of compensatory mitigation to all trails impacted by the Project is inappropriate. For all of these reasons, the BLM must remove the proposals to require compensatory mitigation in Section 6.6.2.1 and under Alternative B of the DEIS.	Please see the response to Comment B11-072.
B11	080		BLM inappropriately treats the Pine Ridge area as a "special management area." See DEIS, pg. 2-39, lines 4–10. The Casper RMP prescribes one management action for the Pine Ridge area: procedures for cultural resources surveys in the Pine Ridge area. See Casper RMP, pg. 2-30. This single management action does not transform the Pine Ridge area. The DEIS, however, suggests the opposite, characterizing the Pine Ridge area as the "Pine Ridge Special Management Area." DEIS, pg. 2-41, fig. 2.5-1. The DEIS also specifies that tribal consultation will occur for activities within the Pine Ridge area. Id. pg. 4.2-12, lines 10–24; pg. 4.11-51, lines 6–10. BLM should revise the discussions of the Pine Ridge area in the DEIS to clarify that it is not a special management area and is not afforded any substantive protections under the Casper RMP.	Pine Ridge is not a Special Management Area. The figure has been revised as appropriate.
B11	081		Oil and gas project approval, including a large project approval such as the Project approval contemplated in the DEIS, is an implementation-level decision by BLM under FLPMA and is subject to FLPMA's provisions. The authority conferred in FLPMA, in turn, is expressly made subject to valid existing rights. See Pub. L. No. 94–579, § 701(h), 90 Stat. 2743, f2786, reprinted in 43 U.S.C. § 1701, historical note. An implementation-level programmatic EIS prepared to analyze a large oil and gas project is likewise subject to existing rights. See Colo. Envtl. Coal., 165 IBLA 221, 228 (2005). The DEIS, FEIS, and ROD cannot defeat or materially restrain Operators' valid existing rights to develop their leases through conditions of approval or other means. See id. (citing Colo. Envtl. Coal., 135 IBLA 356, 360 (1996), aff'd, Colo. Envtl. Coal. V. Bureau of Land Mgmt., 932 F.Supp. 1247 (D.Colo. 1996); Mitchell Energy Corp., 68 IBLA 219, 224 (1982) (citing Solicitor's Opinion, M-36910, 88 Interior Dec. 908, 913 (1981)); BLM Manual 1601 – Land Use Planning, 1601.06.G (Rel. 1-1666 11/22/00) ("All decisions made in land use plans, and subsequent implementation decisions, will be subject to valid existing rights. This includes, but is not limited to, valid existing rights associated with oil and gas leases. . . .").	Text has been added to Section 1.5.1 to clarify existing lease rights.
B11	082		Federal courts have interpreted the phrase "valid existing rights" to mean that federal agencies cannot impose restrictions that make development on existing leases either uneconomic or unprofitable. See Utah v. Andrus, 486 F. Supp. 995, 1011 (D. Utah 1979); see also Conner v. Burford, 84 F.2d 1441, 1449-50 (9th Cir. 1988). If BLM issues a federal oil and gas lease without No Surface Occupancy stipulations, then, absent a nondiscretionary statutory prohibition against development, BLM cannot completely deny development on the leasehold. Nat'l Wildlife Fed'n, 150 IBLA 385, 403 (1999). Only Congress has the right to completely prohibit development once a lease has been issued. W. Colo. Cong., 130 IBLA 244, 248 (1994).	BLM does not intend to deny or prohibit development of any leasehold.
B11	083		BLM may not impose requirements on operators that are inconsistent with lease rights. See, e.g., 43 C.F.R. § 3101.1-2 (stating that measures are consistent with lease rights provided they do not require relocation of proposed operations by more than 200 meters, require that operations be sited off the leasehold, or prohibit new surface disturbance in excess of 60 days in any year). BLM cannot, for example, impose conditions that are inconsistent with Operators' existing, contractual lease rights, and BLM cannot restrict operations to the point that economic development on a lease is precluded. Sierra Club v. Hodel, 848 F.2d 1068, 1087-88 (10th Cir. 1988) (upholding BLM interpretation of duty not to impair wilderness study areas as not allowing BLM to prohibit a road improvement on a R.S. 2477 right of way grant), overruled on other grounds, Vill. of Los Ranchos de Albuquerque v. Marsh, 956 F.2d 970 (10th Cir. 1992); Colo. Envtl. Coal., 165 IBLA 221, 228 (2005) (determining that an RMP may not impose restrictions on the exercise of existing oil and gas leases that defeat or materially restrain existing rights); Colo. Open Space Council, 73 IBLA 226, 229 (1983) (holding that regulation of existing oil and gas leases may not "unreasonably interfere" with the rights previously conveyed in such leases).	BLM does not intend to deny or prohibit development of any leasehold.

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B11	084		BLM often cites the Interior Board of Land Appeals' Yates decision for the proposition that the agency can modify existing leases by imposing conditions of approval on APDs. Yates Petroleum Corp., 176 IBLA 144 (2008). The Yates decision does not stand for the proposition that BLM can impose conditions of approval whenever it deems necessary or in broad programmatic documents such as the Draft EIS. Rather, in Yates, the IBLA merely affirmed the imposition of an additional condition of approval based on site-specific information including recent and directly applicable scientific research. Yates, 176 IBLA at 157; see William P. Maycock, 177 IBLA 1, 16-17 (2009). The Yates decision does not authorize BLM to ignore relevant lease terms or BLM's regulation at 43 C.F.R. § 3101.1-2. Further, BLM must recall that it cannot impose new, unreasonable mitigation requirements on existing leases. Courts have recognized that once BLM has issued an oil and gas lease conveying the right to access and develop the leasehold, BLM cannot later impose unreasonable mitigation measures that take away those rights. See Conner v. Burford, 84 F.2d at 1449-50; 43 C.F.R. § 3101.1-2 (BLM can impose only "reasonable mitigation measures . . . to minimize adverse impacts . . . to the extent consistent with lease rights granted").	The BLM is imposing reasonable mitigation measures to address adverse impacts as required by NEPA.
B11	085		In its FEIS and ROD, BLM should clearly state that an oil and gas lease is a contract between the federal government and the lessee, that the lessee has certain rights thereunder, and that neither the ROD nor any decisions implementing the ROD will limit, restrain, or unreasonably interfere with these rights.	Text has been added to Section 1.5.1 to describe an oil and gas lease as a contract between the Federal government and the lessee.
B11	086		BLM must also state that it will only apply reasonable measures through conditions of approval or otherwise if such measures appear in the terms and provisions of Operators' original leases or if an Operator has otherwise agreed to such measures.	Thank you for your comment. The application of COAs during the APD approval process will be conducted under existing BLM policy.
B11	087		BLM must also clearly acknowledge in the FEIS and ROD that it must recognize Operators' existing contractual rights and may not impose unreasonable restrictions on development, whether through conditions of approval or otherwise. It is well established that federal oil and gas leases are contracts that cannot be unilaterally modified by BLM. See Mobil Oil Exploration & Producing Southeast, Inc. v. United States, 530 U.S. 604, 620 (2000) (recognizing that federal oil and gas leases are contracts and that the federal government's breach of lessees' right to explore for and develop oil and gas entitles lessees to refunds); Oxy USA, Inc. v. Babbitt, 268 F.3d 1001, 1006-7 (10th Cir. 2001) (noting that the Tenth Circuit has long held that federal oil and gas leases are contracts), rev'd on other grounds, BP America Production Co. v. Burton, 549 U.S. 84 (2006).	Thank you for your comment. Also see the response to Comment B11-085 and Comment B11-086.
B11	088		After BLM accepts the bid and the lessee fully pays for the lease, a contract exists between the lessee and BLM based solely on those terms and conditions identified at the lease sale. See, e.g., Coastal States Energy Co., 80 IBLA 274, 279 (1984); BLM Manual MS-3120 – Competitive Leases, § 3120.64.A (Rel. 3-337, 2/18/13) ("A properly signed bid on a BLM-approved lease bid form constitutes a legally binding lease offer and acceptance of a lease, including all terms and conditions of the lease."). The unilateral addition of new terms by BLM, through the addition of unreasonable conditions of approval or otherwise, is a breach of this contract and violates "the equal opportunity for all bidders to compete on a common basis for leases." See Anadarko Prod. Co., 66 IBLA 174, 176 (1982), aff'd, Civ. No. 82-1278C (D. N.M. 1983). BLM must acknowledge Operators' contractual rights in the FEIS and ROD and ensure any future decisions implementing the ROD do not unilaterally alter the original terms and conditions of the Operators' leases.	Thank you for your comment. Please see the response to Comment B11-085.
B11	089		2. BLM Must Recognize Valid Existing Rights in Greater Sage-Grouse Core Areas. As drafted, the DEIS suggests that oil and gas development could not occur in greater sage-grouse core areas in which surface disturbance caps have been exceeded. Although the development in core areas is not a specific element of the Proposed Action, the DEIS essentially forecloses the possibility that such development could occur where disturbance caps have been exceeded. If a PHMA contains oil and gas leases, this outcome would essentially extinguish this lease right.	See Sections 3.18 and 4.18 which state in numerous locations that development would be in compliance with the State of Wyoming Core Area Strategy (EO 2019-3), as well as the BLM ARMPA and USFS LRMPA for greater sage-grouse. The text has been revised to identify that development could occur within areas currently over the 5 percent cap similar to the text on Page 4.18-63 that states, "development could be approved on a site-specific basis consistent with the DDCT process if found to be under the 5 percent cap." The text regarding no development within PHMA under Alternative C remains is. This is the current BLM assumption that was analyzed under the alternative. Also see Section 6.3.3, Objective #14.
B11	090		In the FEIS, BLM must recognize that the Wyoming Core Area Strategy, as well as the 9-Plan RMPA, provides mechanisms for disturbance in core areas above surface disturbance and density caps where necessary to honor valid existing rights. See Wyoming Exec. Order No. 2015-4, Attachment B, pg. 4; 9-Plan RMPA, pgs. 23, 34 (MD SSS 2). In the FEIS, BLM must revise the statements listed above to specifically acknowledge that development may be permitted in accordance with the Core Area Strategy.	Please see the response to Comment B11-089.

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B11	091		The introduction to Chapter 6 of the DEIS makes clear that the purpose of Chapter 6 is to guide the use of compensatory mitigation as part of a larger effort to promote landscape-scale mitigation. BLM, Departmental, and national policies related to compensatory and landscape scale mitigation, however, have been withdrawn. Both Secretarial Order No. 3330, Improving Mitigation Policies and Practices of the Department of the Interior (Oct. 31, 2013), and the Presidential Memorandum on Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment (2015) ("Presidential Memorandum"), promoted the use of landscape-scale mitigation. At the direction of these policies, the Department of the Interior's Landscape-Scale Mitigation Policy Manual 600 DM 6 (2015), and the BLM Mitigation Manual MS-1794 (2016) and Handbook H-1794-1 (2016) were developed. All of these policies, however, have been revoked or rescinded. Executive Order 13783 revoked the Presidential Memorandum. Executive Order 13783, § 3(a)(i ii), 82 Fed. Reg. 16,093 (Mar. 31, 2017). Similarly, Secretarial Order No. 3349 (Mar. 29, 2017) revoked Secretarial Order No. 3330, while Secretarial Order No. 3360 (Dec. 22, 2017) rescinded Manual 600 DM 6 and BLM's Mitigation Manual and Handbook.	The text has been revised to be consistent with recently updated BLM guidance on mitigation (Instruction Memorandum 2019-018).
B11	092		Although the Operator Group recognizes that the CEQ regulations require agencies to analyze "appropriate" mitigation in an EIS, see 40 C.F.R. §§ 1502.14(f), 1502.16(h), 1508.20, BLM must revise Chapters 4 and 6 to remove the emphasis on compensatory mitigation. BLM cannot require compensatory mitigation as part of the Project ROD. Although compensatory mitigation may be appropriate in certain circumstances, BLM should identify appropriate mitigation in consultation with the federal lessee or operator.	The text has been revised to be consistent with recently updated BLM guidance on mitigation (Instruction Memorandum 2019-018).
B11	093		BLM cannot require compensatory mitigation whenever it determines that impacts cannot be "adequately" minimized. See DEIS, pg. 6-6, lines 25–26. BLM may authorize land use activities that impact the public lands, even significantly, as long as the impacts do not result in unnecessary or undue degradation. See 43 U.S.C. § 1732(b).	The text has been revised for consistency with recent BLM guidance on mitigation. Specifically, the BLM cannot require compensatory mitigation per IM 2019-018.
B11	094		BLM may not reinterpret its existing RMPs to require compensatory mitigation when the concept of compensatory mitigation was not disclosed to the public. See id. pg. 6-6, lines 32–33 ("When impacts that exceed RMP thresholds cannot be avoided or adequately minimized to an acceptable degree, compensatory mitigation may be necessary"). The Final EIS must recognize this limitation.	Please see the response to Comment B11-093 and Comment B11-059.
B11	095		BLM instead must analyze any compensatory mitigation under the direction of Instruction Memorandum No. 2008-204 (Sept. 30, 2008), which it must revise and reissue. See Secretarial Order 3360 § 4(c) (Dec. 22, 2017). Though it has not yet been revised, this guidance does not require mitigation but identifies circumstances when compensatory mitigation may be warranted. It provides (emphasis added): There may be a need for offsite mitigation when: • Impacts of the proposal cannot be mitigated to an acceptable level onsite; and • It is expected that the proposed land use authorization as submitted would not be in compliance with law or regulations or consistent with land use plan decisions or other important resource objectives.	Please see the response to Comment B11-093 and Comment B11-059.
B11	096		Though not yet revised, Instruction Memorandum No. 2008-204 cautions that "[o]ffsite mitigation is not to become the default resource mitigation practice for projects permitted by the BLM" (emphasis added). Rather, it directs that "[o]ffsite mitigation is a supplemental mitigation practice identified on a case-by-case basis and must be based on the need to address important resource issues that cannot be acceptably mitigated onsite" (emphasis added). BLM must review and revise the compensatory mitigation measures in the DEIS to ensure compliance with this guidance.	Please see the response to Comment B11-093 and Comment B11-059.
B11	097		Additionally, because Secretarial Order No. 3330 (Oct. 31, 2013), the Presidential Memorandum, the Department of the Interior's Landscape-Scale Mitigation Policy Manual 600 DM 6 (2015), the BLM Mitigation Manual MS-1794, and BLM Handbook H-1794-1 have been revoked or rescinded by Executive Order No. 13783 and Secretarial Order Nos. 3349 and 3360, BLM must also eliminate references to "no net loss" and "net gain" from the Final EIS. See DEIS, pg. 6-6, lines 27–28.	The text has been revised to reflect current BLM policy.
B11	098		In sum, in the FEIS, BLM must ensure that all references to compensatory mitigation are consistent with current policy and that all references to withdrawn or outdated policies have been removed.	The text has been revised for consistency with current BLM guidance on mitigation.

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B11	099		The FEIS must expressly state that BLM may only impose the mitigation measures listed in Chapters 4 and 6 where it has the authority to do so and that BLM may not impose these mitigation measures on off-lease, non-federal surface ("fee-fee-fed" scenario). See Instruction Memorandum No. 2009-078 (Feb. 20, 2009).	Please see the response to Comment B11-059.
B11	101	6.2.2.2	Furthermore, the discussion in Section 6.2.2.2, pg. 6-30, that outlines compensatory mitigation for greater sage-grouse should recognize that not all project-level impacts must be mitigated. For example, the 9-Plan RMPA Regional Mitigation Guidelines provide: Not all adverse or unavoidable impacts can or must be fully mitigated, either onsite or outside the area of impact. A certain level of adverse or unavoidable impact may be acceptable, and the BLM will identify these impacts during the NEPA analysis and acknowledge them in the decision document (such as a decision record or record of decision). 9-Plan RMPA, app. F, pg. 218. The FEIS should recognize and provide for the possibility that not all impacts to greater sage-grouse or its habitat require mitigation.	The text has been revised for consistency with current BLM guidance on mitigation.
B11	102	6.5.1	1. AQ-1 (Sections 4.1-35, 6.5.1) If located on BLM surface estate, gas plants and compressor stations will be located at least 2,000 meters from residences or other occupied dwellings. BLM must revise AQ-1 to clearly state it does not apply to well pads. The Operator Group also notes that a 500-foot setback for well pads is already required by Wyoming Oil and Gas Conservation Commission rules.	The mitigation measure as written specifically refers to gas plants and compressor stations, not well pads. Text change not necessary.
B11	103	4.2.2.4, 6.5.2	2. CR-1 (Sections 4.2.2.4, 6.5.2) A qualified professional archaeologist will monitor surface disturbing activities during construction in areas that may contain buried cultural materials. BLM must remove the requirement for an archaeological monitor during construction, for several reasons. The DEIS fails to identify any "areas that may contain buried cultural materials." Rather, the DEIS states that "distribution of recorded sites is spread across the analysis area," thus suggesting that the entire Project Area may contain buried cultural materials. See DEIS, pg. 3.2-12.	Text has been added to Section 4.2 to state that the federal regulations would be followed to avoid, minimize, or mitigate impacts to cultural resources. Text has been modified in Section 4.2.2.4 to clarify when monitoring of areas with the potential for buried cultural resources would occur.
B11	104		Furthermore, the DEIS fails to identify "cultural materials," a phrase which may cover more materials that "historic properties" that are offered procedural protections through the Section 106 consultation process. See 36 C.F.R. § 800.16(l)(1).	The term "cultural materials" was changed to "cultural resources," throughout the document. Cultural resources are defined in the EIS.
B11	105		No legal justification exists for the monitoring requirement, particularly one that could be interpreted to apply throughout the entire Project Area. BLM's guidance on managing for cultural resources does not require or even mention the need for archaeological monitoring during surface disturbing activities. See BLM Manual 8100 – The Foundations for Managing Cultural Resources (Rel. 8-72 Dec. 3, 2004); BLM Manual 8140 – Protecting Cultural Resources (Rel. 8-77 Dec. 3, 2004).	Text has been modified in Section 4.2.2.4 to refer to monitoring in areas determined through NHPA to have high potential for buried cultural deposits. Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts, including monitoring.
B11	106		Furthermore, to the extent BLM anticipates archaeological monitoring may be necessary for a particular activity, BLM should rely on Section 106 consultation to identify where monitoring is necessary; BLM should not attempt to end-run the Section 106 process by imposing monitoring requirements through the NEPA process.	Text has been modified in Section 4.2.2.4 to refer to monitoring in areas determined through NHPA to have high potential for buried cultural deposits. Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts, including monitoring.
B11	107		The requirement for monitoring throughout essentially the entire Project Area is unnecessary. Although monitoring may be appropriate if site-specific information, such as a Class III survey, indicates a likelihood that construction activities may disturb a historic property, grave, or funerary object, BLM acts arbitrarily and capriciously by imposing a monitoring requirement through most or all of the Project Area absent site-specific information.	Text has been modified in Section 4.2.2.4 to refer to monitoring in areas determined through NHPA to have high potential for buried cultural deposits. Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts, including monitoring.
B11	108		BLM estimates the Proposed Action will affect only 52 eligible cultural resources. Id. pg. 4.2-7, 4.2-9. Based on the estimated 52,667 acres of surface disturbance that will occur with the Project, see id. pg. 2-25, an average of one eligible cultural resource may be affected with every 1,012 acres of surface disturbance (or 84 well pads). Given that the likelihood of affecting a cultural resource is low, BLM lacks any factual basis to require archaeological monitors throughout the entire Project Area.	Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts, including monitoring.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	109		BLM should not arbitrarily impose mitigation measures that require access by third parties to private surface, particularly when 90 percent of the Project Area includes non-federal surface. Moreover, BLM lacks authority to require access to private surface for a monitoring requirement imposed through the NEPA process. BLM has only asserted it may request that an Operator access private surface for the purposes of complying with the NHPA and ESA. See Onshore Order No. 1, 72 Fed. Reg. 10,307, 10,336 (Mar. 7, 2007). Here, because BLM is not purporting to require monitoring to fulfill its obligations under the NHPA and ESA, the monitoring requirement must be removed from the EIS.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.
B11	110		Monitoring imposes costs associated with surface disturbance and, conceivably, the DEIS may require both an archaeological monitor and a tribal monitor for a given activity. See DEIS, Mitigation Measure CR-4, pg. 6-23, lines 14–15. Additionally, monitoring creates a risk of delay because construction cannot proceed if a monitor is not available, which is a risk given the number of Operators within the Project Area and possible lack of available monitors. Given that no factual, legal, or policy basis exists for requiring archaeological and tribal monitors, BLM should not impose unnecessary costs and delay on the Operators. Accordingly, the Operator Group requests that BLM remove the requirement for archaeological monitors from the FEIS.	Text has been modified in Section 4.2.2.4 to refer to monitoring in areas determined through NHPA to have high potential for buried cultural deposits. Text has also been modified in Section 4.2.2.4 to refer to tribal monitoring in areas determined through NHPA to contain or have high potential to contain Indian sacred sites and/or TCPs.
B11	111	4.2.2.4, 6.5.2	3. CR-1 (Sections 4.2.2.4, 6.5.2) A site specific monitoring and discovery plan may be developed for large or complex undertakings or areas known to contain buried cultural sites. This requirement is too vague; the phrase “areas known to contain buried cultural sites” could apply to the entire Project Area. Additionally, this requirement should not be included as a mitigation measure in a NEPA document. The Advisory Council on Historic Preservation regulations implementing Section 106 of the NHPA specifically address discoveries of historic properties. See 36 C.F.R. § 800.13. BLM should utilize this existing mechanism under the Section 106 process rather than imposing a vague and arbitrary requirement through the NEPA process.	Text has been modified in Section 4.2.2.4 to refer to monitoring in areas determined through NHPA to have high potential for buried cultural deposits.
B11	112	4.2.2.4, 6.5.2	4. CR-3 (Sections 4.2.2.4, 6.5.2) Mandatory training will be provided to all construction personnel and contractors regarding cultural resources and the federal regulations that protect them. BLM should remove this requirement from the FEIS because it is not customarily included in RODs for oil and gas projects or as a condition of approval attached to individual APDs.	This is a standard cultural stipulation that is applied to every federal permit issued. Worker Environmental Awareness Program (WEAP) training has been required for other large-scale developments on BLM land (e.g., the Blythe Solar Power Plant) and is offered by various companies (e.g., Energy Project Solutions LLC) for O&G operators. WEAP training is also cited in the template “Environmental Compliance Monitoring Plan” which is Attachment 1 to BLM Instruction Memorandum 2014-112 “Policy for Solar and Wind Energy Inspection and Enforcement.” Text remains unchanged.
B11	113	4.2.2.4, 6.5.2	5. CR-4 (Sections 4.2.2.4, 6.5.2) For areas most likely to contain resources of Native American Concern, tribal monitors will monitor sediment-disturbing activities during construction. BLM must remove the blanket requirement for tribal monitors. First, BLM fails to specify where tribal monitors will be required. The DEIS only provides that tribal monitors will be required in “areas most likely to contain resources of Native American Concern.” Id. pg. 4.2-10, lines 12–13; pg. 6-23, lines 14-15. The DEIS does not, however, identify the areas “most likely” to contain such resources.	Text has been modified in Section 4.2.2.4 to refer to tribal monitoring in areas determined through NHPA to contain or have high potential to contain Indian sacred sites and/or TCPs.
B11	114		The DEIS offers no concrete definition of “resources of Native American Concern,” defining it only as “those identified through tribal consultation as being culturally sensitive” and including “Indian Sacred Sites, properties of traditional religious and cultural importance, and [traditional cultural properties].” Id. pg. 3.2-20.	Section 3.2.3 was revised to include a clearer definition of the term “resources of Native American Concern.”
B11	115		BLM does not distinguish between “sediment-disturbing activities” and “surface disturbing activities.” BLM’s failure to specify where tribal monitoring would be required will lead to confusion and monitoring throughout significant portions of the Project.	Text has been modified in Section 4.2.2.4 to call out “sediment-disturbing activities” and to refer to tribal monitoring in areas determined through NHPA to contain or have high potential to contain Indian sacred sites and/or TCPs.
B11	116		No legal justification exists for the monitoring requirement. BLM’s guidance on managing for cultural resources does not require or even mention the need for monitoring during surface disturbing activities. See BLM Manual 8100 – The Foundations for Managing Cultural Resources (Rel. 8-72 Dec. 3, 2004); BLM Manual 8140 – Protecting Cultural Resources (Rel. 8-77 Dec. 3, 2004). Furthermore, to the extent BLM anticipates tribal monitoring may be necessary for a particular activity, BLM should rely on the Section 106 consultation to identify where monitoring is necessary; BLM should not attempt to end-run the Section 106 process by imposing monitoring requirements through the NEPA process. Accordingly, BLM lacks any legal or policy basis to require tribal monitors throughout large portions of the Project Area.	Tribal monitors are the most common stipulation used when there is a potential to affect Indian sacred sites and TCPs. Text has been modified in Section 4.2.2.4 to refer to tribal monitoring in areas determined through NHPA to contain or have high potential to contain Indian sacred sites and/or TCPs.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	117		Furthermore, the requirement for tribal monitoring potentially throughout large portions of the Project Area is unnecessary. BLM estimates that the 1.5 million acre Project Area contains only 1,495 eligible cultural resources of possible concern to tribes. DEIS, pg. 4.2-3, tbl. 4.2-1. BLM anticipates the Proposed Action will affect only 16 eligible cultural resources of possible concern to tribes over the 10-year life of the Project. Id. pgs. 4.2-7, 4.2-9. Based on the estimated 52,667 acres of surface disturbance that will occur with the Project, see id. pg. 2-25, an average of one eligible cultural resource of possible concern to tribes may be affected with every 3,291 acres of surface disturbance (or 274 well pads). Given that the likelihood of affecting a cultural resource of possible concern to tribes is low, BLM lacks any factual basis to require tribal monitors throughout large portions of the Project Area.	Text has been modified in Section 4.2.2.4 to refer to tribal monitoring in areas determined through NHPA to contain or have high potential to contain Indian sacred sites and/or TCPs.
B11	118		BLM should not arbitrarily impose mitigation measures that require access by third parties to private surface, particularly when 90 percent of the Project Area includes privately owned surface. Moreover, BLM lacks authority to require access to private surface for a monitoring requirement imposed through the NEPA process. BLM has only asserted it may request that an Operator access private surface for the purposes of complying with the NHPA and ESA. See Onshore Order No. 1, 72 Fed. Reg. 10,307, 10,336 (Mar. 7, 2007). Here, because BLM is not purporting to require monitoring to fulfill its obligations under the NHPA and ESA, the monitoring requirement must be removed from the EIS.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.
B11	119		Monitoring imposes costs associated with surface disturbance and, conceivably, the DEIS may require both an archaeological monitor and a tribal monitor for a given activity. Additionally, monitoring creates a risk of delay because construction cannot proceed if a monitor is not available. Tribal monitoring may also present logistical concerns because BLM does not specify which tribe would provide a monitor; conceivably, multiple tribes may have an interest in monitoring the same area. Given that no factual, legal, or policy basis exists for requiring archaeological and tribal monitors, BLM should not impose unnecessary costs and delay on the Operators. Accordingly, the Operator Group requests that BLM remove the requirement for tribal monitors from the FEIS.	Tribal monitors are the most common stipulation used when there is a potential to affect Indian sacred sites and TCPs. Text has been modified in Section 4.2.2.4 to refer to tribal monitoring in areas determined through NHPA to contain or have high potential to contain Indian sacred sites and/or TCPs. Tribes relevant to monitoring would be identified during the NHPA process.
B11	120	4.8.2.2, 6.5.8	6. PALEO-1 (Section 4.8.2.2, 6.5.8) On the ground surveys will be conducted by a qualified, permitted BLM consulting paleontologist to determine the presence or absence of paleontological resources in any areas of surface disturbance currently ranked PFYC 3-5 (moderate to high). Recommendations will be made, and the appropriate mitigation and monitoring measures will follow. The Operator Group strenuously objects to this mitigation measure because it is unconventional, overly broad, and burdensome. Because all but 54,203 acres of the entire 1.5 million acre Project Area are classified as PFYC ranks 3 through 5, see DEIS, pg. 3.8-2, tbl. 3.8-1, this mitigation measure effectively would require paleontological surveys throughout the entire Project Area.	The RMP ROD states in full: “Require an on-the-ground survey prior to approval of surface-disturbing activities or land-disposal actions for Class 4 and 5 formations. Monitor during surface-disturbing activities only as appropriate. Apply, as deemed necessary, for Class 3 formations (see Probable Fossil Yield Classification in the glossary)” (Casper RMP ROD, Table 1-1, p. 2-30, Decision 5018, Goal/Obj. HR 2.1.). The protection measure has been revised to be consistent with the RMP, and the text was modified to include the language from the RMP in Section 4.8.1 (Alternative A) and also included under Alts B (Section 4.8.2) and C (Section 4.8.3).
B11	121		Not only is this survey requirement excessive in scope, it is unnecessary. First, paleontological surveys generally are not required to comply with Section 106 of the NHPA.	See response to Comment B11-120. Paleontological resources are managed primarily under the Paleontological Resources Preservation Act.
B11	122		Second, most of the Project area (approximately 90 percent) is PFYC rank 3, see DEIS, pg. 4.8-1, line 37, which BLM characterizes as “moderate.” See Instruction Memorandum No. 2016-124, Attachment 1, unpaginated 3 (July 8, 2016). Specifically, BLM describes “[t]he potential for an authorized land use to impact a significant paleontological resource is known to be low-to-moderate.” Id. In contrast, BLM recommends surveys in PFYC rank 5, where paleontological resources can occur consistently. Id. Given the low potential for impacts to paleontological resources throughout most of the Project Area, the DEIS’s requirement for paleontological surveys throughout the Project Area is overly broad and unjustified. Accordingly, this mitigation measure must be deleted.	See response to Comment B11-120.
B11	123	4.8.2.2, 6.5.8	7. PALEO-2 (Sections 4.8.2.2, 6.5.8) The operator will suspend all activities in the vicinity of such discovery until notified to proceed by the BLM AO and will protect the discovery from damage or looting. However, the operator may not be required to suspend all operations if activities can be adjusted to be continued elsewhere or otherwise avoid further impacts to a discovered locality. We suggest revising the second sentence to: “However, the operator will not be required to suspend all operations if activities can be adjusted to be continued elsewhere or otherwise avoid further impacts to a discovered locality.” If further impacts to the discovery can be avoided, suspension of operations should not be required.	See response to Comment B11-120.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	124	4.2.2.2, 6.5.9	8. RANGE-4 (Sections 4.9.2.2, 6.5.9) Where deemed necessary, the oil and gas operator will install signage and gates to notify of trespass and secure privately owned wells. The Operator Group requests that BLM delete this requirement. First, BLM just revised Onshore Order No. 3, and the regulations that replace Onshore Order No. 3 contain specific signage requirements for federal wells and facilities. See 43 C.F.R. § 3162.6(b). Additional signage requirements are unnecessary and conceivably could present conflicts with BLM's regulations.	Text modified to remove RANGE-4 and associated language.
B11	125		Second, an Operator usually negotiates gates and fencing on private lands with the surface owner and memorializes these agreements in surface use agreements. See 72 Fed. Reg. 10,307, 10,336 (Mar. 7, 2007). BLM should not interfere with existing contractual arrangements with surface owners or attempt to dictate the terms of future surface use agreements, particularly given the amount of privately owned surface within the Project Area.	See response to comment B11-124.
B11	126	4.12.2.2, 6.5.12	9. SOIL-1 (Sections 4.12.2.2, 6.5.12) Soils will be analyzed by a qualified soil scientist prior to disturbance to determine soil characteristics, vegetation composition and ground cover, proposed seed mixtures and application rates, and the need for potential soil amendments. The Operator Group requests that BLM make several revisions to this mitigation measure. First, this requirement is inappropriately applied to privately owned surface because BLM lacks management authority over such lands. See Casper FEIS/Proposed RMP, pg. A-3 ("The private surface is not public land; thus, it is not subject to the planning and management requirements of the FLPMA. The BLM has no authority over use of the surface by the surface owner."). BLM should only impose any requirement to collect and analyze soil on federally owned surface.	Mitigation measure SOIL-1 has been revised in the Final EIS
B11	127		Second, the language stating that soils "will be analyzed by a qualified soil scientist" should be removed. Instead, BLM should require that, at a minimum, the ecological setting, such as soils, vegetation composition, and ground cover, would be evaluated as part of the reclamation planning process. This evaluation could be done onsite or by a remote desktop analysis.	Mitigation measure SOIL-1 has been revised in the Final EIS
B11	129	4.12.2.2, 6.5.12	10. SOIL-3 (Sections 4.12.2.2, 6.5.12) The upper 12 inches of the soil will be separated, salvaged and used when revegetating disturbed areas. The Operator Group requests that BLM revise this mitigation measure to read: "All available topsoil, not to exceed 12 inches of topsoil, will be separated, salvaged and used when revegetating disturbed areas. Operators should use care not to mix soils with limiting characteristics (subsoil) with topsoil." Often, 12 inches of topsoil is not available in the Project Area; frequently only four to six inches of topsoil are available, and some locations may even have less topsoil. Topsoil segregation and amount salvaged should be based on individual site characteristics, not arbitrary numbers. Furthermore, an arbitrary requirement to salvage 12 inches of topsoil renders Mitigation Measure SOIL-1 superfluous; an Operator need not undertake the effort of characterizing soil for reclamation potential when Mitigation Measures SOIL-3 imposes a uniform requirement to salvage 12 inches of topsoil.	Mitigation measure SOIL-3 has been revised in the Final EIS
B11	130	4.12.2.2, 6.5.13	11. TRANS-2 (Sections 4.13.2.2, 6.5.13) Pipelines will be buried at road crossings. The operator will bury all pipelines crossing county roads to a minimum depth of 5 feet. The Operator Group requests that BLM revise this Mitigation Measure to clarify that the requirement to bury pipelines only applies to permanent pipelines; BLM should not require temporary pipelines that cross county roads to be buried.	The text has been revised as suggested.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	131	4.14.2.4, 6.5.14	12. VEG-1 (Sections 4.14.2.4, 6.5.14) The OG will organize native seed collection efforts to increase native local seed stock. The Operator Group requests that BLM remove this Mitigation Measure because it is unreasonably onerous and unnecessary. This requirement raises questions about which entity or entities will be responsible for overseeing quality control, processing, and preservation of seed collection. Furthermore, the University of Wyoming is already engaged in this effort. The Operator Group supports the University of Wyoming's existing efforts to collect native seeds and other third-party efforts; however, the requirement that the Operator Group independently undertake a similar effort is unnecessary.	See response to B01-047.
B11	132	4.14.2.4, 6.5.14	13. VEG-2 (Sections 4.14.2.4, 6.5.14) Prior to surface disturbance, the oil and gas operator will arrange for infestations of noxious weeds and invasive plant species to be mapped and submitted to the land manager to develop a treatment plan. The Operator Group requests that BLM remove this Mitigation Measure because it is unreasonably onerous. Furthermore, this requirement is inappropriate given the amount of privately owned surface with the Project Area over which BLM lacks management authority. See Casper FEIS/Proposed RMP, pg. A-3 ("The private surface is not public land; thus, it is not subject to the planning and management requirements of the FLPMA. The BLM has no authority over use of the surface by the surface owner.").	Text has been revised to clarify but the mitigation measure has not been removed as it will minimize impacts related to noxious weeds.
B11	133	4.14.2.4, 6.5.14	14. SSPS-2 (Sections 4.14.2.4, 6.5.14) Known individuals and populations of Ute ladies'-tresses orchid and areas identified as suitable habitat through consultation with the USFWS will be avoided. If potential habitat cannot be avoided, two years of surveys in suitable habitat will be required and consultation with USFWS may be necessary. This Mitigation Measure uses the term "potential habitat" and "suitable habitat" interchangeably; to avoid confusion, the Mitigation Measure should be revised to use the term "suitable habitat" throughout.	The text has been revised for consistency.
B11	134	4.15.2.2, 6.5.15	15. VIS-1 (Sections 4.15.2.2, 6.5.15) Pinon-juniper and conifer woodlands will be removed only when necessary for construction and operation. If removal is necessary, edges of any openings will be feathered to mimic the natural characteristics of the landscape. The requirement to retain pinon juniper conflicts with a mitigation measure to benefit the greater sage-grouse identified later in Chapter 6 to "[r]emove pinon and juniper growth that is encroaching into sagebrush habitat." DEIS, pg. 6-30, line 11. BLM must revise either Mitigation Measure VIS-1 or the mitigation measure identified in Chapter 6 so that the two measures provide consistent management directives.	Text in Chapter 6 has been modified to state that compensatory mitigation for impacts to Sage-grouse habitat will be consistent with the 2015 ARMPA.
B11	135	4.18.1.3, 6.5.18	16. WLF-2 (Sections 4.18.1.3, 6.5.18) All stacks, trenches, and other open structures (including water tanks) will be covered with wildlife enclosure covers and/or wildlife escape ramps will be installed in pits, trenches, and tanks to prevent entrapment and/or drowning. Any existing or proposed open poles or fence posts will be covered or filled with sand, soil, or gravel to prevent entrapment. "Bird cones" will be installed on open-vent stacks. The requirement to net pits should be revised to exclude fresh water pits. Additionally, the requirement to install bird cones should be revised to include specific details such as the opening size (one inch or less).	Text has been revised to include BLM, USFS, and USFWS BMPs that reduce the risk of wildlife mortality as a result of fluid mineral practices.
B11	136	4.18.1.3, 6.5.18	17. WLF-3 (Sections 4.18.1.3, 6.5.18) If reserve pits or other open pits for storage of water or other fluids are used, they will fenced and covered with netting (properly installed, monitored, and maintained). The requirement to net pits is inappropriate because it is solely aimed at preventing incidental take of migratory birds. In light of the Solicitor's Opinion No. M-37050 (Dec. 22, 2017), in which the Solicitor determined that the MBTA does not prohibit incidental take of migratory birds, a mitigation measure that prevents such incidental take is unnecessary, arbitrary, and beyond BLM's authority. Accordingly, BLM should remove this requirement. At a minimum, this requirement should be modified to exclude fresh water pits, which do not require fencing or netting.	Text has been revised to include an exception for pits with fresh water. See comment response B11-061 regarding M-37050.
B11	138	4.18.1.3, 6.5.18	Furthermore, this general requirement may not benefit wildlife. Although activities generating noise may, under certain conditions, have the potential to disrupt normal behavior patterns of wildlife, correlating actual disruption of behavior patterns to noise is extremely uncertain. Further, wildlife may rapidly habituate to noises that they learn do not pose a threat. Temporary walls may also present a collision hazard. Accordingly, BLM should remove this mitigation measure from the FEIS.	Comment noted and noise habituation is considered in the analysis under Types of Impacts Common to All Species. Collision potential is not evident.

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B11	140	4.18.2.3, 6.5.18	Second, the DEIS does not define an “active” nest. Currently, the Casper Field Office will deny requests for exceptions to raptor timing stipulations even though a survey determines the nest is unoccupied.	Text has been revised to update the definition of nest activity in Section 3.18.2.5.
B11	141	4.18.2.3, 6.5.18	Third, to the extent this mitigation measure is intended to protect raptors, the procedures for and timing of surveys can be refined through the RMP amendment process proposed above. To the extent this mitigation measure is intended to protect migratory birds other than raptors, see DEIS, pg. 4.18-33, lines 34–35 (“the following additional mitigation measures would be applied to further minimize impacts to migratory birds and habitats”), this restriction is unnecessary. The Casper RMP does not afford migratory birds other than raptors any heightened management.	Please refer to the response to Comment B11-024 regarding amending the Casper RMP. In regards to protection of migratory birds note that management actions in the RMP for nongame neotropical migrants are encompassed in other wildlife and biological resources management actions. It is important to note that mitigation measures offered in the EIS are in addition to requirements set forth in the BLM management plans, USFS land use plans, and listed applicant-committed protection measures based on the analysis of potential impacts and additional measures needed to minimize those impacts. Exceptions related to nesting birds are specific to raptors and would not be requested for all migratory bird nests. As analyzed, this mitigation measure would be effective at minimizing impacts identified as those associated with take (individual mortality, crushing of nests/eggs, etc.) of migratory birds during construction activities as described in Section 4.18.1.1, Types of Impacts Common to All Species, should surface disturbance occur within the nesting period (February 1 – July 31) or until young birds have fledged as stated in the Casper RMP.
B11	142	4.18.2.3, 6.5.18	Furthermore, because the MBTA does not prohibit incidental take of migratory birds, see Solicitor Opinion No. M-37050 (Dec. 22, 2017), general mitigation measures to limit impacts to migratory birds are unnecessary.	See response to comment B11-061.
B11	143	4.18.2.3, 6.5.18	20. MIG-1 (Sections 4.18.2.3, 6.5.18) Disturbance within portions of the CCPA that are identified by federal or state wildlife management agency biologists as located in forest and woodland habitat areas will be avoided. Downed woody debris greater than 3 inches in diameter (not including merchantable timber) will be left in place. This mitigation measure should be removed. BLM has not justified this measure, which calls for avoidance in areas identified as forest and woodland habitat areas. Additionally, this measure is vague because BLM has not mapped these areas in the DEIS. This measure leaves BLM with significant discretion and may result in the arbitrary identification of areas to be avoided. Identifying avoidance areas after the ROD is signed could prevent an operator from exercising valid existing lease rights.	This comment pertains to MIG-2, not MIG-1. Within the BLM Casper RMP (2007), it is described that, “Fragmentation of forests and woodland communities within the planning area has occurred through localized development of roads”. And that, “The Casper Field Office has developed management treatments to maintain and enhance the multiple use of forests and woodlands.” According to the USFS Thunder Basin LRMP (2001), “Conservation measures on the national grasslands and forests primarily consist of managing for regeneration of woodlands” and guidelines exist to “Leave large woody debris on harvested or thinned sites to help retain moisture, prevent soil movement, provide micro-sites for establishment of forbs, grasses, shrubs, and trees and to provide habitat for wildlife.” The mitigation measure identified are in addition to regulations set forth in RMPs, LRMPs, permits etc. That would help with minimizing or eliminating negative impacts to the conifer woodlands and associated bird species within the analysis area. Vegetation types are mapped on Figure 3.14-1. In addition, site specific impacts and exclusion areas would be determined at the APD level under subsequent NEPA. No modification of text.
B11	144	4.18.3.3, 6.5.18	21. SSWS-1 (Sections 4.18.3.3, 6.5.18) A vehicle speed limit of 15 mph will be implemented on roads without posted speed limits in areas of occupied sage-grouse habitat. This mitigation measure should be modified to increase the speed limit to 25 miles per hour, which is the generally accepted speed limit in the oil field. Given that BLM spent years revising its RMPs to incorporate greater sage-grouse conservation measures and did not identify this measure, BLM should not now attempt to impose it in a project-specific NEPA document.	ARMPA design features require the operator to establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at lower speeds on BLM and USFS administered roads or design roads to reduce sage-grouse mortality. The text has been revised to include a speed of 25 mph.
B11	145	4.18.3.3, 6.5.18	22. SSWS-2 (Sections 4.18.3.3, 6.5.18) A Raven Management Plan will be developed that outlines active adaptive management strategies for controlling raven predation and nesting with the CCPA, including the post construction monitoring for ravens and removal of raven nests. The Operator Group requests that BLM remove this mitigation measure, for several reasons. First, ravens are not an issue in this part of Wyoming. Indeed, Chapter 3 of the DEIS does not address or even mention impacts of ravens on other wildlife.	See comment response to B01-43 and Section 4.18.1.1.
B11	146	4.18.3.3, 6.5.18	Second, ravens are protected under the MBTA and therefore cannot be purposefully killed or taken.	Raven Management Plans typically avoid the lethal removal of ravens and instead rely on deterrent methods. Further coordination between the applicant, BLM, and USFWS would be required in the case of lethal removal.

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B11	148	4.18.3.3, 6.5.18	Fourth, the removal of raven nests will be ineffective because raptors and ravens can use the same nests.	Comment noted. Raven Management Plans typically avoid the lethal removal of ravens and instead rely on deterrent methods. Further coordination between the applicant, BLM, and USFWS would be required in the case of lethal removal.
B11	149	4.18.3.3, 6.5.18	Fifth, BLM's RMP amendments for the greater sage-grouse did not identify the development of a raven management plan as a necessary mitigation measure for the greater sage-grouse. See generally Wyoming 9-Plan RMPA. Given that BLM spent years revising its RMPs to incorporate greater sage-grouse conservation measures and did not identify this measure, BLM should not now attempt to impose it in a project-specific NEPA document.	Agreed. Mitigation measure identified are in addition to regulations set forth in RMPs, LRMPs, permits etc. That would help with minimizing or eliminating negative impacts.
B11	151	4.18.3.3, 6.5.18	23. SSWS-3 (Sections 4.18.3.3, 6.5.18) Bird diverters/markers will be installed on fencing in PHMA. The Operator Group requests that BLM remove this mitigation measure. Given that BLM spent years revising its RMPs to incorporate greater sage-grouse conservation measures and did not identify this measure, BLM should not now attempt to impose it in a project-specific NEPA document. Furthermore, the mitigation measure does not specify whether markers must be installed on fencing around well pads and facilities or on any fencing in PHMA. Because 90 percent of the surface estate within the Project Area is privately owned, an Operator may lack the authority to mark fences.	Mitigation measure identified are in addition to regulations set forth in RMPs, LRMPs, permits etc. As stated, the diverters/markers would be installed on fencing in PHMA. Text has been added to clarify that it means "all" fencing within PHMA. Text has also been modified slightly to add specific language to private surface owner fencing agreements.
B11	152	4.18.3.3, 6.5.18	24. SSWS-5 & SSWS-6 (Sections 4.18.3.3, 6.5.18) A 0.25-mile no surface use buffer will be maintained in any areas identified as occupied special status bat roosts. Any areas where herbicides would be used for vegetation treatment will be searched for bat roosts prior to spraying and a 0.5 mile no-spray buffer will be established around roost sites. BLM should either clarify or remove these mitigation measures. Because BLM has not mapped the locations of known special status bat roosts, the Operator Group cannot assess the impacts of these mitigation measures on their operations or assess the feasibility of implementing them. BLM should either provide maps of bat roosts to the Operator Group or remove these requirements.	See response to B01-44, B01-45, and B01-46. Site specific impact analyses, including the location of special status species and habitats, will be conducted during subsequent NEPA analysis during the APD process.
B11	153		Additionally, the mitigation measure requiring searches prior to herbicide spraying is overly broad and vague. Because bat roosts are not widespread in the Project Area, BLM should limit the areas to be searched to areas that BLM defines as potential bat roosting habitat. Additionally, this measure should specify the size of the area to be searched.	Comment noted and site-specific impact analyses, including the location of special status species and habitats, will be conducted during subsequent NEPA analysis during the APD process.
B11	154		The FEIS should account for updated information regarding water usage. The DEIS assumes that approximately 6.5 to 16.0 acre feet of water per well would be required during drilling and completions. DEIS, pg. 2-27, lines 35–36. These figures are based on estimates of water usage the Operator Group provided BLM in 2014. Due to technological and operational changes in development, however, these figures may under-estimate future water usage. The Operator Group anticipates that water usage may be 50 percent to 100 percent more than originally estimated. The increased volumes are due to operators developing with longer lateral wells and using larger water volumes during well completions.	Based on this comment the BLM is assuming that the maximum yearly water consumption will be approximately 14,000 acre-feet. The water usage estimates provided in 2014 by the Operator Group (OG 2014) indicated there were sources of water up to 21,000 acre-feet, primarily groundwater, available to the OG. The text has been revised (primarily in Sections 2.4.3.4 and 4.16.2) to reflect the change in water consumption for the proposed project.
B11	155		Although the FEIS should account for the additional water volumes and analyze the impact of increased water usage, the Operator Group anticipates the increased volumes will not result in additional impacts that differ in nature or magnitude than the impacts already analyzed in the DEIS because the increased volumes will not materially change the amount of groundwater that will be withdrawn. The Operator Group anticipates relying on additional sources of water, namely through recycling of flowback water and leasing supplemental water from the North Platte River. Notably, disposal volumes are not expected to increase from the estimates currently within the DEIS as recycling of flowback water is expected to become prevalent in the play. It is also anticipated that recycling of produced water will become economic at some point in the execution of the project but the timing and volume of recycling cannot be predicted. See DEIS, pg. 2-27.	See response to Comment B11-154.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	156	4.16	Section 4.16 states: “Groundwater would be the primary source for the proposed development’s water needs.” DEIS, pg. 4.16-2, line 10. This statement should be changed to account for additional water sources.	See response to Comment B11-154.
B11	157	4.16	Sections 2.2.2.4 and 2.4.3.4, DEIS pgs. 2-12, 2-27, should state that recycling of flowback water and supplemental water from the North Platte River are additional sources for completion water.	See response to comment B11-154.
B11	158	2.2.2.4, 2.4.3.4	Sections 2.2.3.4 and 2.4.4.3, DEIS pgs. 2-13, 2-29, should state that recycling of flowback water is anticipated in the play.	See response to comment B11-154.
B11	159	Appendix E	Finally, the FEIS must recognize groundwater well permitting is the responsibility of the State Engineer. The DEIS states that “to prevent drawdown of 10 feet or greater reaching any existing water wells, any proposed new well would need to be located 2,000 feet or greater from existing wells.” DEIS, app. E, pg. E-78. Potential impacts to surrounding water wells falls under the jurisdiction of the State Engineer. Presenting modeling results is appropriate in an EIS. Assessing the impact of noted drawdown effects and potential permitting requirements or mitigations associated with potential drawdown effects are within the jurisdiction of the State Engineer, not BLM.	See response to comment B01-22.
B11	160		BLM must modify Alternative C or add to the alternatives excluded from detailed analysis because it is infeasible and unreasonable. With respect to the DEIS, numerous elements of Alternative C are unreasonable because they are infeasible or outside of BLM’s authority. If BLM elects to retain any elements of Alternative C that are outside of BLM’s authority, see Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981) (Question 2b), the FEIS must affirmatively recognize that BLM lacks the authority to adopt these elements.	The text has been revised to clarify the extent of BLM's authority.
B11	161		BLM lacks authority to limit approvals of exceptions to timing stipulations as proposed under Alternative C. Under Alternative C, BLM proposes to only allow exceptions to timing stipulations “for short-term uses for emergencies or to finish tasks.” DEIS, pg. ES-5, line 36; pg. 2-36 lines 11–12. This limitation is inconsistent with both BLM’s regulation governing modifications and waivers and the Casper RMP.	The BLM assumed that a limited number of exceptions to timing stipulations would be granted under Alternative C for purposes of analysis. This assumption is based on the current RMP which specifies that exceptions are granted for short-term uses for emergencies or to finish tasks.
B11	162		BLM’s limitation on the use of exceptions, modifications, and waivers is arbitrary and capricious because it is inconsistent with 43 C.F.R. § 3101.1-4, which allows waivers, which include exceptions, (1) “if [BLM] determines that the factors leading to [the stipulation’s] inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified, or (2) “if proposed operations would not cause unacceptable impacts.” The two allowable grounds for exceptions identified under Alternative C are far narrower than the grounds identified in 43 C.F.R. § 3101.1-4. BLM cannot read new requirements into its regulations without formally amending them. See Christensen v. Harris County, 529 U.S. 576, 6588 (2000) (“To defer to the agency’s position would be to permit the agency, under the guise of interpreting a regulation, to create de facto a new regulation.”). Accordingly, BLM’s limitation on exceptions under Alternative C is arbitrary and capricious. See Lewis v. Babbitt, 998 F.2d 880, 882 (10th Cir. 1993) (stating an agency’s interpretation of its regulations will be set aside as arbitrary and capricious if “inconsistent with the regulation’s plain meaning”) (quoting Bar MK Ranches v. Yuetter, 994 F.2d 735, 738 (10th Cir.1993)).	As noted in response to Comment B11-161 the BLM's assumption with regard to the number of TLS exceptions to be granted under Alternative C provides a basis for comparison of impacts between alternatives.
B11	163		The limitation on exceptions is inconsistent with the Casper RMP. The Casper RMP expressly allows exceptions to seasonal restrictions “if the BLM, in consultation with the WGFD, feels that granting an exception would not jeopardize the wildlife population being protected.” Casper RMP, pg. F-1. The Casper RMP then details at length the factors BLM should consider when determining whether to grant an exception request. See id. pgs. F-1 – F-2. The Casper RMP does not limit exceptions “for short-term uses for emergencies or to finish tasks.” BLM cannot impose new exception criteria within the Casper Field Office that do not conform to the Casper RMP. See 43 U.S.C. § 1732(a); 43 C.F.R. § 1610.5-3(a). Accordingly, BLM may not adopt the limitation on exceptions in Alternative C.	Please see the response to Comment B11-161.
B11	164		Because BLM may not adopt the limitation on exceptions outlined in Alternative C, it is not a reasonable alternative and therefore must be removed from Alternative C as analyzed in the FEIS. If BLM retains this limitation for the purpose of analysis in the FEIS, BLM must acknowledge and consider that it lacks the authority to implement this limitation. See Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981) (Question 2b).	As noted in the Draft EIS, Alternative B is the BLM's preferred alternative. The text has been revised to clarify the extent of BLM's authority.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	165		Page 2-40, lines 35–38, the DEIS states that on split estate lands, “interim and final reclamation would be required to comply with BLM or USFS policy and land use plan requirements for suitable wildlife habitat (i.e., pre-disturbance baseline conditions).” BLM cannot require reclamation beyond landowner preference and any relevant terms of a surface use agreement. BLM has recognized that “[t]he private surface is not public land; thus, it is not subject to the planning and management requirements of the FLPMA. The BLM has no authority over use of the surface by the surface owner.” Casper FEIS/Proposed RMP, pg. A-3. Indeed, the Gold Book recognizes that revegetation will occur at the direction of the surface owner. Gold Book 44 (2007) (“Native perennial species or other plant materials specified by the surface management agency or private surface owner will be used.”). Accordingly, this requirement must be removed from Alternative C.	The text has been revised to clarify the extent of BLM's authority.
B11	166		The design features identified in Alternative C are infeasible and must be revised. In particular, the requirements to install oil gathering pipelines, water pipelines, and water recycling for all completion and production activities by year five of the Project are not feasible. See DEIS, pg. ES-5, lines 42–45; pg. 2-39, lines 44–45; pg. 2-40, lines 1–4, 6–7, 20–21. Although the Operator Group anticipates that water recycling will be used more widely over the lifetime of the Project, use of recycled water for all completion and production activities by year five of the Project is not feasible. A myriad of factors beyond BLM’s and the Operator Group’s control, such as technological limitations, economic feasibility, commodity prices, and availability of equipment and crews, prevent the Operator Group from committing to these measures by year five of the Project. NEPA only requires BLM to analyze “reasonable” alternatives to a proposed action. 40 C.F.R. § 1502.14(a); 43 C.F.R. § 46.415(b). Reasonable alternatives “that are practical or feasible from the technical and economic standpoint.” Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 Fed. Reg. 18,026, 18,027 (Mar. 23, 1981) (Question 2a). Because the required design features in Alternative C are not feasible, BLM must eliminate them from further detailed study in the FEIS. See 40 C.F.R. § 1502.14(a).	Thank you for your comment. Note that the Final EIS has identified Alternative B, the Proposed Action and LUP amendment Option 6, as the agency's preferred alternative.
B11	167		Under Alternative C, BLM proposes to prohibit surface development along segments of the Child’s Cutoff of the Oregon-California National Historic Trail, the Bozeman Trail, and the Rock Creek to Fort Fetterman Stage Route within the Project Area. DEIS, pg. 2-38, lines 12–14. This management is inconsistent with the Casper RMP, which only prohibits surface disturbance on “selected parcels” of the Bozeman Trail; additional parts will be added as inventory and evaluation disclose suitable trail segments. Casper RMP, pg. 2-48. Similarly, the Casper RMP only prohibits surface disturbance on selected segments of the Oregon Trail. Id. BLM’s decision to authorize the Project must conform to the Casper RMP. 43 C.F.R. § 1610.5-3. Accordingly, BLM must remove the proposals to prohibit surface disturbance along segments of the historic trails within the Project Area that do not conform to the Casper RMP from Alternative C.	The BLM assumed no surface development along portions of historic trails in CCPA as a basis for impact analysis under Alternative C and to provide a basis for comparison of impacts between alternatives. This approach is consistent with BLM's NEPA Handbook (see H-1790-1, page 50).
B11	169		The Operator Group recommends that BLM add to the list of alternatives considered but eliminated from detailed analysis the proposal in Alternative C to limit exceptions to timing stipulations and the design features required under Alternative C, for the reasons described above.	See the BLM's response to your comments above.
B11	170		Page 1-6, lines 19–21, identifies BLM Greater Sage-grouse Land Use Plan Amendment ROD for the Rocky Mountain Region (BLM 2015b) and Approved Resource Management Plan Amendment for the Wyoming Greater Sage-grouse Sub-region (Attachment 4 to BLM 2015b) as a document containing land use decisions for federal lands and minerals within the Project Area. The FEIS must note that this plan is being reviewed in accordance with Secretarial Order No. 3353 (June 7, 2017) and Instruction Memorandum No. 2018-026 (Dec. 12, 2017). See 82 Fed. Reg. 47,248 (Oct. 11, 2017) (BLM Notice of Intent); 82 Fed. Reg. 50,666 (Nov. 1, 2017) (errata); 82 Fed. Reg. 55,346 (Nov. 21, 2017).	The text has been revised to reflect the current status of decisions related to sage grouse.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	171		The Operator Group encourages BLM to provide in Chapter 1 more explanation as to the programmatic nature of the EIS for the Project. As BLM is aware, programmatic NEPA documents will streamline site-specific reviews and approvals once proposed. "[W]hen a 'programmatic EIS is sufficiently detailed, and there is no change in circumstances or departure from the policy in the programmatic EIS, no useful purpose would be served by requiring a site-specific EIS.'" S. Utah Wilderness Alliance, 123 IBLA 302, 307 (1992) (quoting Ventling v. Bergland, 479 F. Supp. 174, 180 (D. S.D. 1979)). Indeed, the CEQ's NEPA regulations "encourage[ ]" tiering of site-specific reviews to broader EISs. See 40 C.F.R. § 1502.20.	Thank you for your comment. The text at the beginning of Section 1.4.1 notes that the development is conceptual and that subsequent site-specific NEPA review would be required.
B11	172		BLM should also note that the pace, timing, and amount of development will depend on economics, production success, engineering technology, pricing, rig availability, regulatory approvals, and corporate strategies.	Thank you for your comment. Note that the pace of development assumed for the impact analysis in the EIS is based on the Operator Group's Plan of Development for 5,000 wells over a 10-year period.
B11	173		Consistent with the programmatic nature of the Project, the FEIS and ROD also should afford flexibility for implementation of the Project. As a practical matter, the Project analyzed in the EIS will adapt over time. The EIS contemplates development over 10 years; during this time, technological changes may cause Operators to adjust how they develop the Project Area. Operators may be able to apply different technology or techniques to achieve the same results with fewer impacts. Similarly, site-specific conditions may require adjustments to how the Project is implemented for individual approvals.	Thank you for your comment. The BLM acknowledges that technological changes are likely to change the nature of development over the life of the project. These changes can be addressed through site-specific permitting.
B11	175	Table 2.2-1	Page 2-3, tbl. 2.2-1, lists the following Required Design Feature (RDF) for Reclamation Activities as identified in the Wyoming 9-Plan RMPA for the greater sage-grouse: "Address post-reclamation management in reclamation plan such that goals and objectives are to enhance or restore sage-grouse habitat." The RDF contained in the Wyoming 9-Plan RMPA contains inconsistent language with respect to reclamation. The excerpted language appears in the list of RDFs that apply in General Greater Sage-Grouse Habitat and requires a reclamation plan with goals and objectives to "enhance or restore" sage-grouse habitat. See Wyoming 9-Plan RMPA, at 134. The list of reclamation RDFs, however, contains a requirement to "[a]ddress post-reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat needs." Id. at 131 (emphasis added). BLM must clarify this discrepancy. Furthermore, reclamation plans may appropriately have goals and objectives designed to improve habitat but reclamation plans should not obligate Operators to "restore" habitat where no such habitat previously existed.	Protect and improve applies to general required design features within the 9Plan. Enhance and restore relates to General greater sage-grouse habitat BMPs. The direction in the ARMPA would be to make applicable BMPs mandatory as Conditions of Approval within general sage-grouse habitat. BMPs are continuously improving as new science and technology become available and therefore are subject to change.
B11	176		Page 2-12, lines 6–7, states that, under all alternatives, "[a]ll flaring would occur at a distance from the wellhead that protects equipment, structures, and personnel." The Operator Group recommends using an API standard to define the appropriate distance from the wellhead. Although the language of the DEIS allows flexibility, it also may lead to greater risk of fire/explosion or other incidents related to flare placement too close to wells and facilities. Using an API standard would encourage safe practices.	Thank you for your recommendation. Specific details such as flare distance from the wellhead would be addressed during site-specific APD approvals.
B11	177		Page 2-13, lines 18–19, states, "Some workover operations may be subject to timing restrictions." The Operator requests that BLM clarify which workover operations would be subject to timing restrictions and which timing restrictions would apply. The Operator Group maintains that timing restrictions should not apply to workover operations, particularly timing restrictions for migratory birds and particularly if operators submit requisite notice to BLM (Form 3160-5) and provide additional information if surface disturbance increases during workover operations.	The cited sentence has been deleted from Section 2.2.3.3.
B11	178		Page 2-36, lines 14 – 20, explains that approximately 15 to 20 percent of lands in the Project Area would be subject to timing limitations on federally managed lands. BLM based this figure on the percentage of federal APDs that were subject to timing limitation stipulations across the nation. The Operator Group disagrees with BLM's methodology. The Operator Group modeled hypothetical well pad locations within several drilling and spacing areas within the Project Area and analyzed their locations in relation to buffers around known raptor and greater sage-grouse leks. Based on this analysis, the Operator Group estimates that 45 percent of well pads within the Project Area will be within raptor nest and greater sage-grouse buffers. Of these well pads, however, many will be located on non-federal surface and located off the federal oil and gas lease (fee-fee-fed); therefore, BLM cannot impose timing limitations stipulations on all wells drilled from these pads. The Operator Group cannot, however, precisely determine the percentage of wells that will be drilled from the 45 percent of well pads within timing stipulation buffers. Nonetheless, to provide more accurate and site-specific information, the Operator Group requests that BLM revise its analysis of the amount of land within the Project Area that would be subject to timing limitation stipulations.	The BLM has revised the text to clarify the methodology used to estimate the portion of the CCPA that could involve requests for TLS exceptions. Note that the BLM cannot apply TLS on private lands for well pads that access Federal minerals ("fee-fee-fed" scenario; see new subsection in Section 1.4 regarding the extent of BLM authority).

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	179		Page 2-39, lines 33–35, states, “At the Notice of Staking/APD stage, the BLM would require all development over Federal mineral estate to be located outside of a 0.25 mile setback from occupied dwellings and structure.” This setback is not a term of the Casper RMP. Further, it conflicts with the setback required by the Wyoming Oil and Gas Conservation Commission, which currently is 500 feet from an occupied structure. Accordingly, the Operator Group requests this setback requirement be removed from the FEIS.	The cited text describes an element of Alternative C that was included by the BLM to address potential environmental effects, in this case noise from flaring, to enable the EIS to present a comparison with the effects of the Proposed Action. This approach is consistent with BLM guidance (see Section 6.6.1, page 50 of BLM's NEPA Handbook H-1790-1).
B11	180	3.2.1	Section 3.2.1 uses the term “resources of Native American concern.” The Operator Group requests that BLM clarify the resources that it considers “of Native American concern.” This term is not a term found in BLM regulations or guidance and is not a term of art associated with cultural resources laws or guidance. The DEIS Glossary also does not define this term. Section 3.2.1 vaguely defines “resources of Native American concern” as resources “identified through tribal consultation as being culturally sensitive.” DEIS, pg. 3.2-20, lines 21–22. Section 3.2.1 states that resources of Native American concern “include Indian Sacred Sites, properties of traditional religious and cultural importance, and [traditional cultural properties (TCPs)].” The DEIS is unclear, however, whether “resources of Native American concern” are limited to Indian Sacred Sites, properties of traditional religious and cultural importance, and TCPs, or whether “resource of Native American concern” include any resources identified through consultation as being “culturally sensitive.” This distinction is critical to understanding management within the Project Area. For example, Mitigation Measure CR-4 requires tribal monitoring of certain activities within areas most likely to contain “resources of Native American concern” that BLM proposes to include in Sections 4.2.2.4 and 6.5.2. Additionally, the DEIS states that resources of Native American concern will be avoided, minimized, and mitigated. See DEIS, pgs. 4.2-7, lines 10–17.	Text has been modified in Section 3.2.3 to provide a clearer definition of “resources of Native American concern.”
B11	181		BLM must define “resources of Native American concern” in the FEIS. Furthermore, BLM should limit the definition of “resources of Native American concern” only to Indian Sacred Sites, properties of traditional religious and cultural importance, and TCPs. The Operator Group understands the practical need for a single term to encompass resources that are concretely defined in existing law or policy. BLM should not, however, define “resources of Native American concern” to include any resources identified through consultation as being “culturally sensitive.” Such a definition is highly subjective and, therefore, inappropriate for inclusion in a NEPA document. Accordingly, the Operator Group requests that BLM (1) define “resources of Native American concern” and (2) limit this definition only to Indian Sacred Sites, properties of traditional religious and cultural importance, and TCPs.	Text has been modified in Section 3.2.3 to provide a clearer definition of “resources of Native American concern.”
B11	182		The discussions of the MBTA on page 3.18-18, lines 9–25, and Executive Order No. 13,186, 66 Fed. Reg. 3,853 (Jan. 17, 2001), on page 3.18-18, lines 26–36, must acknowledge Solicitor Opinion No. M-73050 (Dec. 22, 2017), in which the Solicitor of the Interior determined that the MBTA does not prohibit incidental take of migratory birds. In particular, the discussion of the definition of “take” as defined by regulation at lines 18–20 must acknowledge the recent Solicitor Opinion. It is worthwhile to note that Chapter 3 includes an extensive discussion of migratory birds. See DEIS, pgs. 3.18-17 – 3.18-36. The Casper RMP, however, only imposes heightened management of raptors and other specific migratory birds, not migratory birds generally.	Comment noted. See response to comment B11-061.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	183		Page 3.18-24, lines 30–33, defines an “occupied” raptor nest as a nest “that is repaired or tended in the current year by a pair of raptors (Romin and Muck 2002). The presence of raptors (adults, eggs, or young), evidence of nest repair or marking, freshly molted feathers or plucked down, or current year whitewash all are considered signs suggesting nest site occupancy.” BLM’s use of the term “occupied” in Chapter 3 is inconsistent with the BLM’s characterization of raptor nests in Chapter 4 of the DEIS. Throughout Section 4.18 in Chapter 4 of the DEIS, BLM refers to “active” raptor nests rather than “occupied” nests: - Page 4.18-11, line 10: “Additionally, not all raptor nests and greater sage-grouse leks are active every year.” - Page 4.18-15, lines 11–13: “This alternative includes the potential for year-round development with regard to timing stipulations for active raptor nests and greater sagegrouse breeding habitat that otherwise provide protection to other seasonal wildlife habitats.” - Page 4.18-33, lines 38–39: “Active nests will be identified and protected in accordance with the applicable BLM, USFS, USFWS, and/or the WGFD guidance.” - Page 4.18-34, lines 4–5: “Natural areas would be maintained between human activity and around the active nest (landscape buffer).” - Page 4.18-35, lines 18–19: “Alternative B includes the potential for year-round development if exceptions are granted for timing limit stipulations in the vicinity of active raptor nests.” - Page 4.18-60, lines 36–37: “Additionally, not all raptor nests and greater sage-grouse leks are active every year.” Additionally, the TBNG LRMP refers to “active” nets. See DEIS, pg. 4.18-35, tbl. 4.18- 16. The Operator Group requests that BLM revise the reference to “occupied” nests in Chapter 3 to “active” nests. Additionally, the Operator Group requests that BLM modify the definition set forth in Chapter 3. The Casper RMP does not define “occupied” or “active” raptor nests for the purpose of administering raptor timing stipulations and, therefore, BLM has flexibility to reasonably define “active.” Through discussions with the United States Fish and Wildlife Service (USFWS) related to the Umbrella Migratory Bird Conservation Plan, the Operator Group understands that the following definitions of “active” and “inactive nests” are acceptable: “a nest that contains viable eggs or chicks is Active, while a nest that does not contain viable eggs or chicks is Inactive.” Given that both the Operator Group and the USFWS have identified an acceptable definition, the Operator Group requests that BLM replace the definition of “occupied” in Chapter 3 of the DEIS with the definitions of “active” and “inactive.	Text has been revised to clarify the terminology used to define nest activity.
B11	184		Page 3.18-35, lines 35–40, states: Many migratory bird species are sensitive to disturbance during the breeding season. During the breeding season, the integrity of the nest and foraging habitat used by adult birds is crucial to survival of young. In addition, young birds are at greater risk of predation during the nestling period and immediately post-fledging, when their motor skills and foraging behaviors are developing. Consequently, the majority of measures to protect birds involve avoidance of construction activities in the immediate vicinity of nests to reduce potential impacts during the breeding season. This language does not delineate whether construction and other activities would impact active versus inactive nests. Impacts would only be felt on active nests and language should be amended as such.	Under the Casper RMP, inactive nests are protected as well as active nests. Also, as stated in Section 3.18.2.5, “Raptor species are known to use nests for multiple years. The species using a particular nest may vary annually. For example, most owls do not construct their own nests; they use previously constructed nests or burrows.” No change to text.
B11	185		On page 3.18-51, lines 9–13, the DEIS explains that applicants for activities in PHMA must demonstrate the activities will not exceed density and disturbance calculations. Both Wyoming Executive Order No. 2015-7 and the BLM 9-Plan RMPA, however, recognize valid existing rights within core areas and PHMA and provide processes for accommodating Operators’ valid existing rights. See Wyoming Exec. Order No. 2015-7 (July 29, 2015), attachment B, pg. 4; see, e.g., Wyoming 9-Plan RMPA, pg. 28. The DEIS should make clear that, in some instances, Operators have valid, existing rights that predate core designations under Wyoming Executive Orders or the designation of PHMA that will be honored.	Please refer to Section 6.3.3.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	186		Regarding the reference to exposure analysis on page 4.1-5, exposure analysis adjustment factors for maximum exposed individual and maximum likely exposure are based on older Environmental Protection Agency (EPA) methodology (1993).9 Current exposure analyses are generally done with more advanced exposure assessment models, such as the Hazardous Air Pollutant Exposure Model (HAPEM) and the Air Pollutants Exposure Model (APEX). While the Operator Group does not believe additional modeling is required for this analysis, we recommend noting that more advanced exposure assessment models would likely show lower risks, particularly for sparsely populated areas like the Converse County study area. 9 U.S. Environmental Protection Agency (USEPA). 1993. USEPA, Superfund Standard Default Exposure Factors for Central Tendency and Reasonable Maximum Exposure, Report, Research Triangle Park, North Carolina. Published in Federal Register, U-007-307.18, March 5, 1993.	The approach used was reviewed and approved by the BLM and cooperating agencies. It is the same approach used in similar NEPA documents.
B11	187		On page 4.1-5, lines 10–15, the Operator Group disagrees with the use of an overly conservative one in a million cancer risk increment in the BLM's Near Field Modeling. Unlike criteria pollutants, air toxics have no pre-defined risk levels that clearly represent acceptable or unacceptable thresholds. However, EPA has made case-specific determinations for particular regulatory programs. EPA's 1989 National Emission Standard for Hazardous Air Pollutants (NESHAP) rule set up a two-step, risk-based decision framework for the NESHAP program. This rule and framework are described in EPA's 1999 Residual Risk Report to Congress.10 The rule sets an upper limit of risk acceptability at 100 in a million lifetime cancer risk for the most exposed individual. EPA's criteria also consider other health and risk factors (e.g., chronic hazard index) to complete an overall judgement on air toxics acceptability. EPA typically uses a chronic hazard index (maximum concentration/chronic reference exposure level) value of 1 as its impact threshold. Chronic hazard index values for the Converse County project are well below 1 for all air toxics (formaldehyde is the highest at 0.21). EPA would generally find a chronic hazard index of less than 1 in conjunction with less than 100 in a million lifetime cancer risk to be an acceptable level of risk. We thus recommend the use of a 10 in a million benchmark, which is typically used as a benchmark level to warrant considering additional mitigation measures. 10 U.S. Environmental Protection Agency (USEPA). 1999. USEPA, Residual Risk Report to Congress. EPA-453/R-99-001, March 1999. Available online at: https://www.epa.gov/sites/production/files/2013-08/documents/risk_rep.pdf.	As mentioned in the Section 4.1.3.4 and Appendix A, Section 3.4, the one-in-one million threshold is based on the 2011 Superfund National Oil and Hazardous Substances Pollution Contingency Plan document. While the 1999 Residual Risk Report to Congress document does reference a less stringent threshold for benzene in some circumstances, it recommends a one-in-one million threshold when additional guidance is not available, or uncertainty exists. In addition, the report mentions that this risk threshold is typically used to protect the overall population. The one-in-one million risk thresholds also were approved by the IART. Given that USEPA has not established ambient standards for air toxics, it is important to utilize the more stringent threshold.
B11	188		Use of a one in a million cancer risk increment appears to the driving factor in BLM's application of a two-kilometer (km) setback distance for the gas plants and compressor stations from residences. The Operator Group recommends use of a still-conservative ten in a million increment and subsequent reduction in this setback distance. Please also note that Wyoming Department of Environmental Quality (DEQ) can require changes to stack heights for gas plants and compressor stations during permitting; addressing the issue of cancer risk at the DEQ permitting stage is current standard practice, and is more appropriate then application of a blanket two-km setback distance. The Operator Group also notes that gas processing plants and compressor stations are not typically located within one mile of each other. If such a necessity arose during development, site specific permitting and near field modeling would be performed as part of DEQ's New Source Review Program. This analysis is required prior to start of construction and would include the risk assessment.	Regarding the use of a less conservative ten-in-one million cancer risk, please see responses to comments B11-186 and B11-187. Note that the gas plant and the compressor station were never modeled together as this was not an expected operational scenario. An assessment was performed with a gas plant alone and another assessment was performed with a compressor station alone. Both assessments showed one-in-one million cancer risk extending approximately 2 km from the facility. The EIS and related AQTSD have been reviewed and modified as appropriate to clarify that the gas plant and compressor station were not modeled together.
B11	189		EPA fuel standards require the use of ULSD fuel construction and reclamation heavy equipment. Please note in Table 4.1-1, Emissions Control Measures, on page 4.1-2 that use of ULSD fuel is a control measure. The BLM does not appear to have included use of ULSD in project emissions inventory or modeling, and the Operator Group requests the document clearly state that use of this fuel during construction and reclamation would reduce Project emissions compared to the scenarios BLM presents in the Draft EIS.	Table 4.1-1 has been updated for the use of ULSD fuel for construction and reclamation equipment heavy equipment. It was confirmed that this fuel was used in the emission calculations.
B11	190	Table 4.1-1	Additionally, BLM must revise Table 4.1-1 on pages 4.1-2 – 4.1-3 to clarify the 98 percent control requirement applies only to pneumatic pumps. Although pneumatic pumps are subject to the 98 percent control requirements, pneumatic controllers are required to be low-bleed or intermittent vent; high-bleed pneumatic controllers are not authorized. The Operators comply with all current DEQ and federal (40 CFR Part 60, Subpart 0000/0000a) requirements, and if regulations are revised for pneumatic controllers in the future, the Operator Group would comply with any new applicable control requirements.	This control was for venting of pneumatic devices that are natural gas-driven as outlined in Appendix A, Attachment A section A4.5. Table 4.1-1 has been modified for clarification.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	191		With respect to the discussion on page 4.1-4, air quality background data used in the near field modeling for evaluating National Ambient Air Quality Standard (NAAQS) compliance should be reviewed for possible exceptional events (e.g., a fire in 2015 affecting the Blizzard Heights monitor, see http://wildfiretoday.com/2015/07/page/15/), as well as any other known events with high PM10 and PM2.5 measurements (e.g., high wind events). This review is needed to ensure that the PM10 and PM2.5 background concentrations used in the NAAQS compliance evaluation were accurately characterized and evaluated in the Draft EIS.	All background data was reviewed and approved by the BLM and cooperating agencies. Additionally, the Blizzard Heights monitor was not used for regulatory purposes and its data do not count toward an official exceedance of the PM2.5 or PM10 NAAQS.
B11	192	Tables 4.1-7 and 4.1-8	With respect to Tables 4.1-7 and 4.1-8 on pages 4.1-19 through 4.1-21, the BLM's analysis considered four, 16 well pads in a one square-mile area. As noted by the Operator Group in our memo entitled "AECOM Question for Operator Groups on Near-field Modeling (OG Response Final)," this is not the typical practice for the operators in Converse County, and represents a highly conservative worst-case scenario for emissions. Such a scenario is especially conservative for construction due to the resources needed to drill this number of wells at the same time. Modeling this unlikely scenario drives the most problematic analysis of the 24-hr PM10 exceedance at three times the standard. There is a similar issue with the 24-hr PM2.5 emissions, but this is reduced to three percent over the standard when modeled for two simultaneous 16 well pads. The Operator Group is not requesting a revision to the model protocol, but requests clarification in the Final EIS that this scenario is unlikely to occur and therefore represents a worst case.	The text has been modified to discuss differences between the maximum and representative development scenarios and that the maximum development cases represent an expected worst-case operation.
B11	193		Page 4.1-23, lines 22–24, explains that the CMAQ (regional) cumulative modeling predicts exceedance of the 24-hour PM10 NAAQS due to using "large fires in the vicinity of the assessment area." The language "large fires in the vicinity" implies emissions from these events were included every day in the CMAQ modeling. The Operators Group maintains that the inclusion of wildfire emissions represents a highly conservative assumption. BLM must include additional explanation in the FEIS of its rationale for including wildfire in the regional cumulative emission inventory.	Please see response to comment B2-28.
B11	194		Page 4.1-35, lines 7–9, states that "[m]itigation measure AQ-1 would reduce the potential health risks associated with activities at gas plants, compressor stations, and well pads." BLM should revise this statement to reflect that AQ-1 does not apply to well pads. The Operator Group also notes that a 500-foot setback is already required by WOGCC rules.	Text has been revised as suggested.
B11	195		The Operator Group requests that BLM include the following documents in the administrative record that address climate change trends and impacts, which are also attached to these comments. - The Climate Change Supplementary Information Report for Montana, North Dakota, and South Dakota; - Wyoming Greenhouse Gas Inventory and Reference Case Projections 1990–2020, prepared by the Center for Climate Strategies in 2007 for the Wyoming Department of Environmental Quality; - The Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013 prepared by EPA in 2015; - Energy Information Administration's (EIA) Annual Energy Outlook 2006 With Projections to 2030 (Annual Energy Outlook); and - Wyoming 9-Plan RMPA FEIS, tbl. 4-4.	Cited documents have been included in the administrative record and have been referenced from the EIS if appropriate.
B11	196		Page 4.2-7, lines 10 – 13, states that "resources of Native American concern" should be avoided and, if avoidance is not possible, impacts should be mitigated. "Resources of Native American concern" is not properly defined in the DEIS. To the extent "resources of Native American concern" generally refers to cultural resources identified through tribal consultation as of concern, no federal law or policy requires avoidance of or mitigation of impacts to such resources.	Text has been modified in Section 3.2.3 to provide a clearer definition of "resources of Native American concern."

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	197		Page 4.2-10, lines 38–40, states that visual impacts to historic trails warrant compensatory mitigation "because historic trails are single resources, and impacts to specific segments would affect the integrity and NRHP eligibility of the trail as a whole." This requirement is inconsistent with the Casper RMP and the VRM management of the resource area. The Casper RMP does not require mitigation to offset impacts to trails. See Casper RMP, pgs. 2-47 – 2-48. Furthermore, the Casper RMP directs that the viewshed along segments that do not contribute to NRHP eligibility would be managed as VRM Class III. See id. at 2-48. BLM may allow "moderate" changes to the characteristics landscape in areas managed as VRM Class III; activities in VRM Class III-managed areas may attract attention and should repeat the basic elements found in the predominant natural features of the characteristic landscape. BLM Manual 8431 – Visual Contrast Rating, appx. 2 (Rel. 8-30 Jan. 17, 1986). The Final EIS must eliminate the reference to compensatory mitigation.	Text concerning compensatory mitigation has been removed from Sections 4.2.2.5 and 4.2.3.5. Compensatory mitigation is addressed in Chapter 6.
B11	198	4.18.2.2	Section 4.18.2.2 repeatedly assumes that exceptions to raptor timing stipulations would adversely impact raptors and raptor populations. Page 4.18-28, lines 17–23, states: Similarly, page 4.18-60, lines 22–28, states: The DEIS overstates the impacts to raptors. First, to approve an exception, BLM must only demonstrate it will not result it "unacceptable impacts." 43 C.F.R. § 3101.1-4; Instruction Memorandum No. 2008-032 (Nov. 19, 2007), Attachment 1-1.	Text has been revised to include analysis from the SDEIS in regards to potential land use plan amendment options to address relief from non-eagle raptor timing stipulations. The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for reference in the Final EIS.
B11	199		Second, this analysis ignores that Operators would implement avoidance and minimization measures to mitigate impacts to raptors. At a minimum, the DEIS must mention that exceptions are only granted if risks are minimized and impacts are "unacceptable."	Please see the response to Comment B11-198
B11	200		Third, BLM's analysis overstates the impacts associated with granted exceptions because that activity would likely occur in proximity to unoccupied (inactive) nests.	Comment noted. Please see the response to Comment B11-198.
B11	201		Finally, BLM's analysis ignores that impacts to raptors vary. The USFWS Wyoming Ecological Services Field office website11 notes: Buffer recommendations may be modified on a site-specific or project-specific basis based on field observations and local conditions. The sensitivity of raptors to disturbance may depend on local topography, density of vegetation, and intensity of activities. Additionally, individual birds may be habituated to varying levels of disturbance and human-induced impacts. Modification of protective buffer recommendations may be considered where biologically supported and developed in coordination with the Service's Wyoming Ecological Services Field Office. Given that the Project Area is a landscape where raptors are already accustomed to a certain level of disturbance, BLM cannot assume that any activities within buffer distances will necessarily adversely impact raptors. Given the significant development within the Powder River Basin, raptors as well as many other species have acclimated to the infrastructure and machinery utilized in an oil and gas development program. In a 1993 helicopter overflight study involving red-tailed hawks (Buteo jamaicensis), Anderson et al.12 found that nine out of 12 birds flushed at a site with no previous experience with helicopter overflights, versus one out of 12 at a site with a history of exposure. Habituation is inferred, and presumed to reduce, the impact of disturbance. Based on this study and other studies such as Knight and Temple, 1986,13 it can be assumed that effects resultant from infrastructure presence have likely been mitigated through past exposure and acclimation through the region encompassing oil and gas activity in the Powder River Basin. It is important to note that additional disturbances within already altered environments may be less disruptive than disturbances associated with isolated breeding pairs of raptors in unaltered habitats. 11 https://www.fws.gov/wyominges/Species/Raptors.php 12 Andersen D. E., O. J. Rongstad, and W. R. Mytton 1993. Response of nesting red-tailed hawks to helicopter overflights. Condor 91(2): 296–299. 13 Knight. R. L. And S.A. Temple. 1995. Wildlife and Recreationists: Coexistence Through Management. In Wildlife and Recreationists: Coexistence Through Research and Management. R.L. Knight and K.J. Gutzwiller, Eds. Island Press. California. 372 pp.	The idea of acclimation to disturbance has been identified in Types of Impacts Common to All Species and additional studies specific to raptors was included. However, the two studies cited in the comment are not relevant to disturbances from oil and gas development. Instead, they are based on disturbance related to temporary helicopter overflights and recreational activities.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	202		For these reasons, the Operator Group requests that BLM revise the discussions of potential impacts to raptors on pages 4.18-28 and 4.18-60 to recognize that (1) exceptions, by definition, will not cause unacceptable impacts; (2) Operators will implement avoidance and minimization measures; (3) exceptions will be granted near unoccupied or inactive nests; and (4) raptors within the Project Area likely have acclimated to human activity.	Please see the response to Comment B11-198.
B11	203		BLM must also revise the discussion on page 4.18-28 listed above to remove the suggestions that raptor exceptions will increase the likelihood of "take." In Solicitor Opinion No. M-37050 (Dec. 22, 2017), the Solicitor of the Interior determined that incidental take is notprohibited "take" under the MBTA.	See response to comment B11-061.
B11	204		Page 4.18-30, lines 1–13, explains: The OG is working with the USFWS to develop and Umbrella Migratory Bird Conservation Plan to serve as a programmatic guide for the development of sitespecific migratory bird conservation plans within the CCPA. The Umbrella Migrations Bird Conservation Plan will address impact identification, avoidance, or minimization for other migratory bird avian species and habitats. The Umbrella Migratory Bird Conservation Plan would be developed as to achieve three primary goals: • Promote migratory gird conservation throughout the CCPA; • Allow for greater flexibility for oil and gas activities to occur during the year; and • Facilitate a collaborative process among Project proponents and regulatory agencies. The DEIS, however, ignores the purpose of any Umbrella Migratory Bird Conservation Plan, if finalized: to streamline the process of obtaining exceptions from raptor stipulations and allow programmatic year-round development. The DEIS does not explain when site-specific plans may be used or whether they may be used to obtain an exception to a raptor timing stipulation. Finally, BLM's description does not explain that any site-specific migratory bird conservation plans could be used to offset impacts to raptors when exceptions are granted.	Text has been revised to remove reference to the Migratory Bird Conservation Plan as this plan has been placed on hold and is not available for reference in the Final EIS.
B11	205		The DEIS improperly suggests that approval of the Project under either Alternative B or Alternative C will lead to lek abandonment. The discussion of "residual impacts" under Alternative B on page 4.18-72, lines 6–7, states that "all sage-grouse leks in the [Project Area] would be at risk of being abandoned as development would continue to increase in surrounding areas." Similarly, the discussion of impacts from Alternative C on page 4.18-78, lines 5–6, states that "all sage-grouse leks in the [Project Area] would be at risk of being abandoned as development would continue to increase in surrounding areas." These statements, however, are not supported by the record. There is no evidence that the well pad density contemplated by the Project will cause lek abandonment. BLM's failure to base its conclusions on adequate support in the administrative record renders environmental analysis deficient. See Backcountry Against Dumps, 179 IBLA 148, 161–62 (2010) ("Where, in assessing significant impacts, BLM properly relies on the professional opinion of its technical experts concerning matters within the realm of their expertise, which is reasonable and supported by record evidence, an appellant challenging such reliance must demonstrate, by a preponderance of the evidence, error in the data, methodology, analysis, or conclusion of the experts.") (citing Fred E. Payne, 159 IBLA 69, 77–78 (2003)).	These statements are supported by the impact analysis methodology and associated research identified in 4.18.3.1 and 4.18.3.2 and included in the record.
B11	206		BLM points to the combination of peak male attendance patterns and increased oil and gas activity as justification for its conclusions that leks in the Project Area would be at risk of abandonment. See DEIS, pgs. 4.18-72, lines 5–14; pg. 4.18-78, lines 4–6. BLM entirely ignores, however, that development in the Project Area would proceed in accordance with the Wyoming Core Area Strategy. USFWS has determined that the Core Area Strategy "would provide adequate protection for sage-grouse and their habitats" in Wyoming if implemented by all land users. State of Wyoming Exec. Order No. 2015-4, pg. 3. Furthermore, when USFWS determined that the greater sage-grouse did not warrant protections under the Endangered Species Act, USFWS stated the Core Area Strategy "has demonstrated its conservation value" and provides "an effective regulatory mechanism for conservation." 80 Fed. Reg. 59,858, 59,882, 59,883 (Oct. 2, 2015). In the DEIS, BLM dismisses the stringent management measures imposed by the Core Area Strategy.	Text has been added incorporating WY EO 2019-3 regulations along with ESA protections to be followed despite landownership within the CCPA. This impact analysis is specific to the leks within the CCPA and is based on the downward trend of peak male attendance on leks, an indicator for the entire population trend. Also, the conclusion is a result of further development, not just oil and gas as mentioned within the comment. Therefore, compensatory mitigation would come into play related to the requirements of WY EO 2019-3 as described further in the discussion of those impacts.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	207		Furthermore, BLM dismisses the beneficial elements of the Proposed Action itself that minimize impacts on greater sage-grouse, including use of horizontal wells and multi-well pads. See id. At 59,890 (noting that increases in "applications for directional and horizontal drilling permits, which congregate disturbance from multiple wells into one area" represent "a decrease in sage-grouse habitat lost to nonrenewable energy development"). Because BLM offers no support for its conclusion that the Project may cause lek abandonment, and because this conclusion ignores the conservation benefits of the Core Area Strategy, BLM must remove these statements from the FEIS.	See response to comment B11-206. The conclusion is based on the current downward trend of peak male attendance on leks.
B11	208		Notably, BLM's discussion of Alternative B suggests that exceptions to timing stipulations "within sensitive sage-grouse habitat" could impact lek attendance. See DEIS, pg. 4.18-72, lines 10–11. This statement is incorrect because Operators would only seek exceptions to timing stipulations in the two-mile buffer around leks outside of core areas. These areas do not constitute "sensitive sage-grouse habitat." The reference to "sensitive sage-grouse habitat," however, implies that Operators will seek exceptions to greater sage-grouse timing stipulations within core areas when, in fact, the Operator Group has only proposed exceptions outside of core areas. See DEIS, pg. 2-25, lines 9–10 ("the operators would request exceptions to timing limitations for raptor nests and greater sage-grouse leks in non-core areas"). Further, any exceptions to greater sagegrouse timing stipulations would occur in accordance with the Core Area Strategy. In the FEIS, BLM must clarify that the Operator Group's Proposed Action only contemplates requests to exceptions to greater sage-grouse timing stipulations outside of core areas.	Text has been revised to remove "sensitive" and leave sage-grouse habitat and to include "leks in non-core areas" on Page 4.18-65, line 10 within the DEIS.
B11	209		Page 4.18-62, lines 26–28, states that the five percent surface disturbance threshold imposed in PHMA is currently exceeded in four out of the five PHMAs in the Project Area. Similarly, page 4.18-66, lines 6–7, assumes that new surface disturbance will only occur in one PHMA because disturbance thresholds have been exceeded in the other four PHMAs in the Project Area. These statements conflict with the analysis under Alternative A, which states that thresholds are currently exceeded in three of the five PHMAs. See DEIS, pg. 4.18-46. BLM must review the DEIS's analysis of surface disturbance thresholds in PHMA and ensure it is consistent throughout the document.	The acres of new disturbance would increase under the Proposed Action, pushing the Bill PHMA over the 5% disturbance cap compared to Alternative A.
B11	210		Page 4.18-66, lines 6–7, states that BLM will only consider new surface disturbance within the M Creek PHMA. This statement suggests that the Operators will not propose new surface disturbance in other PHMAs. BLM, however, must recognize that Operators may hold valid, existing lease rights in other PHMAs that can only be exercised through new surface disturbance in the other PHMAs. For this reason, both Wyoming Executive Order No. 2015-4, the Wyoming 9-Plan RMPA, and the USFS Greater Sage-Grouse Plan Amendment all allow new development within PHMA or core areas, subject to certain requirements, in order to recognize valid existing rights. BLM must revise the statement at page 4.18-66, lines 6–7, to recognize that new surface disturbance will be allowed in the other PHMAs, subject to additional requirements.	Text has been deleted to clarify. Note, this concept was described on page 4.18-63, lines 1-4 of the DEIS.
B11	211		The Operator Group objects to the DEIS's discussions of "residual impacts" and proposals to mitigate residual impacts to certain resources. The DEIS defines a "residual impact" as an "[u]navoidable adverse impact to a resource that remain (sic) after implementation of mitigation has been applied." DEIS, pg. 9-4. BLM's consideration of residual impacts and proposal to mitigate residual impacts for certain resources, see DEIS, pgs. 6-28 – 6-30, is inconsistent with NEPA and FLPMA.	The text has been revised to be consistent with the most recent BLM guidance on mitigation (IM 2019-018).
B11	212		Similarly, FLPMA does not require mitigation of residual impacts. FLPMA only requires BLM to prevent unnecessary or undue degradation to the public lands; FLPMA's language contemplates that some degradation may occur that is necessary and due. See 43 U.S.C. § 1732(b). Certainly, FLPMA does not limit BLM from approving actions that merely have residual impacts. Furthermore, the Casper RMP developed in accordance with FLPMA contains no requirement that BLM mitigate residual impacts.	The text has been revised to be consistent with the most recent BLM guidance on mitigation (IM 2019-018).
B11	214		Because residual impacts are consistent with NEPA and FLPMA, the DEIS unnecessarily discusses them. The Operator Group requests that BLM revise the discussions of residual impacts to expressly recognize that BLM may approve the Project with residual impacts and has no obligation to mitigate them.	Per the BLM NEPA Handbook mitigation measures that could improve the project are to be identified. Also note that per recently issued BLM guidance (Instruction Memorandum IM 2019-018) the agency cannot require compensatory mitigation for the use of public lands. The mitigation sections of Chapter 4 and Chapter 6 have been revised to reflect this new guidance.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	215		The DEIS wildly overstates potential impacts to range resources from the Project. The DEIS incorrectly estimates that 5,760 Animal Unit Months (AUMs) would be lost on BLM-administered surface and 1,162 AUMs would be lost on USFS-administered surface. See DEIS, pg. 4.9-3, tbl. 4.9-2. The Operator Group attributes the overstatement of impacts to at least two errors. Most significant, the DEIS assumes that the Project will result in 28,801 acres of surface disturbance on BLM-administered administered and 4,646 acres of surface disturbance on USFS-administered surface. See DEIS, pg. 4.9-3, tbl. 4.9-2. The DEIS explains that BLM reached these estimates "based on the total BLM/USFS allotment acreage multiplied by the total proposed disturbance as a percentage of the CCPA." Id. These assumptions do not comport with the limited amount of federally administered surface in the Project Area. Only six percent of the Project Area is BLM-administered surface and four percent of the Project Area is USFS-administered surface. Id. pg. 1-1. Presumably, surface disturbance will occur in proportion to surface ownership in the Project Area. If so, then of the 52,667 acres of surface disturbance that BLM anticipates will occur under the Proposed Action,14 see id. pg. 4.9-3, tbl. 4.9-2, only 3,160 acres would be on BLM-administered surface and 2,107 acres would be on USFS-administered surface. Accordingly, the DEIS's determination that the Proposed Action will result in approximately 35,000 of surface disturbance on federally owned surface is grossly inaccurate. 14 Notably, the 52,667-acre figure used in section 4.9.2 is surface disturbance that will occur from construction activities. The DEIS notes that an additional 23,928 acres of surface disturbance will occur from operational activities. See DEIS, pg. 2-25, tbl. 2.4-1.	Calculations of impacts to federally permitted AUMs have been revisited and revised. Clarification on how these values were calculated also has been added to these tables.
B11	216		Further, using BLM's assumption that the average public acres per permitted AUM is five for BLM-administered surface, see id. pg. 3.9-6, tbl. 3.9-1, then 632 AUMs would be lost annually on BLM-administered surface, rather than 5,760 AUMs. This reduction is less than three percent of all AUMs on BLM-administered surface, not 33 percent as the DEIS estimates.15 15 The Operator Group has not performed a similar comparison for AUMs on USFS-administered surface because Tables 4.9-1, 4.9-2, and 4.9-3 all appear to use a different average acre per AUM for USFS-administered surface, which creates confusion as to the appropriate value.	Please see response to comment B11-215.
B11	217		Additionally, the Operator Group disagrees with BLM's inclusion of lands outside the Project Area to assess impacts to range resources. The DEIS examined grazing allotments that "intersect" the Project Area. See DEIS, pg. 3.9-5, tbl. 3.9-1. A spot-check of certain allotments reveals, however, that some of the allotments that BLM characterized as "intersecting" the Project Area, in fact, are mostly outside of the Project Area. BLM should only evaluate lands within the Project Area to assess impacts to range resources.	Please see response to comment S01-01.
B11	218		Page 5-65, lines 14–17, states that "reclamation under Alternative C would occur as recommended by the BLM and USFS on federal surface as well as on private surface underlain by federal mineral estate (i.e., approximately 64 percent of the CCPA), increasing the opportunity for migratory bird habitats to return to suitable wildlife habitat." BLM cannot require reclamation beyond landowner preference and any relevant terms of a surface use agreement. BLM has recognized that "[t]he private surface is not public land; thus, it is not subject to the planning and management requirements of the FLPMA. The BLM has no authority over use of the surface by the surface owner." Casper FEIS/Proposed RMP, pg. A-3. Indeed, the Gold Book recognizes that revegetation will occur at the direction of the surface owner. Gold Book 44 (2007) ("Native perennial species or other plant materials specified by the surface management agency or private surface owner will be used."). Accordingly, this requirement must be removed from Alternative C.	Comment noted. This strategy was presented as a way to compare types of reclamation under different alternatives. Reclamation plans will be site specific and determined under subsequent NEPA at the APD level.
B11	219		Page 5-65, lines 4–5, states, "Based on the MBTA, additional surveys typically are required in potential or known habitats of migratory birds prior to disturbance during the nesting period." Although a valuable tool used in the pursuit of exception requests and year-round development, surveys are not required under MBTA. Furthermore, because the Solicitor of the Interior has interpreted the MBTA as not prohibiting incidental take of migratory birds, see Solicitor Opinion No. M-37050 (Dec. 22, 2017), surveys are not necessary to a violation of the MBTA does not occur. This sentence should be revised.	See response to B11-061.

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Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	220		Page 6-1, lines 16–18, states, “Any compensatory mitigation enacted on the site-specific proposals must be commensurate to the expected impacts, and demonstrate timeliness and additionality when compared to the action alternatives.” This requirement should be removed for several reasons. First, the requirements that mitigation be commensurate to impacts, timely, and additional are elements of BLM policies that have been rescinded by Secretarial Order No. 3360 (Dec. 22, 2017). See BLM MS-1794 – Mitigation (Rel. 1-1782 Dec. 22, 2016); BLM H-1794-1 – Mitigation (Dec. 1-1783 Dec. 22, 2016).	The cited text has been deleted from the EIS.
B11	221		Second, BLM has recognized it may not require mitigation of off-lease impacts to privately owned surface. See Instruction Memorandum No. 2009-078 (Feb. 20, 2009).	The text has been revised to clarify the extent of BLM's authority within the CCPA (see the response to Comment B11-059).
B11	222		Page 6-1, lines 32–34, references Mitigation Handbook H-1794-1, and page 6-2, lines 8–12, reference Mitigation Policy (600 DM 6). Both these documents were rescinded by Secretarial Order No. 3360 (Dec. 22, 2017) and therefore must be removed.	The text has been revised to reflect current BLM policy.
B11	224		The Casper RMP identifies management actions that are anticipated to achieve the RMP’s goals and objectives. See Casper RMP at 2-1 (stating the purpose of the Casper RMP revision is to “[i]dentify management actions and allowable uses anticipated to achieve the established goals and objectives and reach desired outcomes”). BLM’s land use authorizations, including approval of the Project, then must conform to these management actions. 43 C.F.R. § 1610.5-3. Given that BLM has identified the management actions necessary to achieve goals of the Casper RMP, BLM should not impose additional compensatory mitigation requirements to achieve the RMP goals.	The BLM is proposing mitigation in this EIS to achieve implementation of the management actions in the RMP. The text has been revised to be consistent with updated BLM guidance on mitigation.
B11	225		The DEIS proposes to require avoidance of raptor nests within the buffers and times listed on page 6-4, lines 39–40, and page 6-5, lines 1–6. These buffer distances and seasonal restrictions are required on USFS lands under the TBNG LRMP. BLM’s Casper RMP, however, imposes different buffer distances and timing limitations. See DEIS, pg. 4.18-34, tbl. 4.18-16. BLM should revise the DEIS to impose buffer distances and timing limitations consistent with the Casper RMP.	The referenced text is a combination of BLM and USFS requirements. No change to text.
B11	226	Table 4-44	The total emissions for Gas Plant fugitives (Table 4-44 HAP Fugitive Emissions at a Gas Plant) do not match what was included in Version 7 of the Emissions Inventory (EI V7), Tab 45b. Although the individual component emissions match those provided in EI V7, the total provided in Table 4-44 does not equal the sum of those component emissions. The reference for the emission factors of the individual components (“Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance” [WDEQ 2013]) matches the values used in the Emissions Inventory (values given in reference are per day, values in Emissions Inventory are divided by 24). The Operator Group requests that BLM confirm that emissions were entered into Table 4-44 correctly and that the correct emissions total was used in the modeling.	The numbers on Table 4-44 of Appendix A, Attachment A are incorrect and have been corrected. However, the correct numbers were used in modeling.
B11	227		Additionally, the fugitive estimates did not include a control efficiency for a leak detection and repair program that will be required for all new facilities under the Federal Regulations (OOOOa). EPA guidance allows for 96 percent control on gas valves, 95 percent light liquid valve, 88 percent light liquid pump, and 81 percent connectors.16 Additionally, BLM must acknowledge the application of the control efficiency means the uncontrolled fugitives represented in the Emissions Inventory are conservative. 16 Protocol for Equipment Leak Emission Estimates, EPA-453/R-95/017, Nov 1995.	Text has been modified to include clarification that the emissions are conservative.
B11	228	Tables 4-10, 4-11, 4-43, 4-44, 4-52, and 4-53	This comment relates to fugitive emission factors in Tables 4-10, 4-11, 4-43, 4-44, 4-52, and 4-53. For production fugitive emissions, Leak Detection and Repair programs are required under state and federal regulations (40 CFR Part 60, Subpart 0000a). While the Operator Group does not believe additional modeling is required for this analysis, we recommend noting the application of Leak Detection and Repair programs by Operators. Application of these programs means the uncontrolled fugitives represented in the Emissions Inventory are conservative.	Text has been modified to include clarification that the emissions are conservative and noting the leak detection and repair program.
B11	230		Page ES-5, lines 34–40: This section discusses limitations BLM would impose under Alternative C, including limitations on Operators’ ability to obtain exceptions to timing stipulations and certain required design features. Section VIII of these comments objects to these requirements and requests they be removed from the FEIS. The Executive Summary should be updated in accordance with these changes.	The ES text has been revised to be consistent with other revisions to the EIS. Also please refer to the responses to comments B11-160 through B11-169.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Operator Group: Anadarko Petroleum Corporation, Chesapeake Energy Corporation, Devon Energy Corporation, EOG Resources, Inc., and SM Energy (Continued)				
B11	231		Page 4.2-2, lines 40–42, states, “The qualities that make a cultural resource eligible for the NRHP or important under NEPA dictate the types of impacts and the avoidance, minimization, and mitigation strategies appropriate to address effects to historic properties” (emphasis added). Because both the NHPA and NEPA impose procedural, rather than substantive, directives, BLM should use the term “guide” rather than “dictate.”	Text modified as suggested.
B11	232		Page 4.2-5, line 26, references “Rural Historic Landscapes” but no such landscapes have been identified in the Project Area.	Test has been modified in Sections 4.2.1.1, 4.2.2.1, and 4.2.3.1 to clarify that no Rural Historic Landscapes have yet been identified within the CCPA but, if any are identified in the future, they could potentially be affected in specific ways.
B11	233		Page 4.7-6, lines 28–30: There appears to be a typo in the second bullet of this section where it states that impacts would be less under Alternative B. Although the Operator Group does not necessarily agree with this conclusion, we believe BLM intended the language to state: “Potential noise impacts to tourists at historic trails and to recreationists such as hunters and dispersed campers would be less under Alternative C because the construction footprint would be 29 percent less than under Alternative B . . . .”	Text modified as suggested.
B11	234		Page 4.18-84, lines 22–23, states, “Compensatory mitigation would not be warranted for greater sage-grouse under Alternative C because disturbance would be prohibited within PHMA.” Alternative C, however, would not prohibit disturbance in PHMA; rather, Alternative C expressly contemplates that some disturbance may occur. See DEIS, pg. 2-39, lines 21–23 (“The Bill and M Creek PHMA are calculated at less than 1 percent disturbance within their respective DDCT areas; therefore, development could occur in those areas.”); pg. 2-54, tbl. 2.7-2 (estimating 7,279 acres of disturbance within PHMA under Alternative C).	Section 2.5.2.3 and Table 2.7-2 to be revised to portray no development in PHMA.
B11	235		Page 6-6, lines 34–35, states, “Compensatory mitigation likely would be required if residual impacts were to result in any of the conditions discussed below.” No conditions are listed below, however. Furthermore, BLM should not require compensatory mitigation for residual impacts.	Per recently issued BLM guidance (Instruction Memorandum IM 2019-018) the agency cannot require compensatory mitigation for the use of public lands. The mitigation sections of Chapter 4 and Chapter 6 have been revised to reflect this new guidance.
Pathfinder Ranches				
B12	02	6.6.2.2	Section 6.6.2.2 should be modified to remove any reference to any compensatory mitigation for sage-grouse that does not include restoration or conservation credits, consistent with the Framework.	Text has been revised to reference standards consistent with the BLM and USFS LUPs and the WY EO 2019-3.
B12	03	6.2.3 and 6.2.4	BLM should also ensure that the provisions for rectification (Section 6.2.3) and reduction (Section 6.2.4) of impacts not be made applicable to mitigation for impacts to the Greater sage-grouse.	As stated in Section 6.1, potential mitigation opportunities would be evaluated and selected during site-specific analysis of development proposals. Also, the text has been revised in Section 6.6.2.2 to update the text reference to the BLM and USFS LUPs and the WY EO 2019-3. The text already notes that the BLM will follow the 2017 MOU in regards to cooperation with the State of Wyoming in regards to the application of compensatory mitigation for Sage-grouse.
B12	04	Table 2.5-2 in Section 2.5.2.1	Table 2.5-2 in Section 2.5.2.1 should be revised to allow exceptions from Greater sage-grouse timing and location-based (i.e. within .6 of an occupied lek within Priority Habitat Management Areas) where the operator proffers compensatory mitigation pursuant to the Executive Order and Framework.	Thank you for your comment. Compensatory mitigation is only an option if other mitigation measures of avoidance and minimization are not adequate for preventing impacts. The BLM will follow the requirements of the sage-grouse specific land use plan amendment in force at the time.
B12	05		With specific regard to the use of compensatory mitigation to receive timing stipulation relief, the existing exception criteria in the Resource Management Plans are currently being used as justification to limit conservation bank credits from being used to grant exceptions to seasonal stipulations. As a result, consistent with the allowance in the Notice of Intent To Prepare an Environmental Impact Statement and Amendments to the Casper Resource Management Plan and Thunder Basin National Grasslands Land and Resource Management Plan, Converse County, WY (Federal Register / Vol. 79, No. 95 / Friday, May 16, 2014), the Resource Management Plans should be amended through the DEIS to permit BLM to grant relief pursuant to and consistent with the Framework without the need for additional NEPA analysis. As the Resource Management Plan allocation currently stands, exceptions from seasonal timing stipulations are only allowed as follows: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable Greater Sage-Grouse habitat may be exempted from this timing limitation. The BLM can and does grant exceptions to seasonal restrictions if the BLM, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected.	Thank you for your comment. Exceptions to timing stipulations are currently determined on a case-by-case basis by the BLM according to criteria set forth in Appendix F of the Casper RMP, and not all require application of conservation bank credits. If deemed appropriate by the BLM, the use of conservation bank credits/compensatory mitigation would be determined at the site-specific level in consultation with WGFD and in accordance with the approved land use plan amendments in force at the time. Also see the response to Comment B11-024 which explains that BLM analyzed potential land use plan amendment options to address relief from non-eagle raptor timing stipulations in the Final EIS. Also please note that the proposed action and alternatives as described in the Draft EIS did not include any request for timing stipulation relief relative to affected land areas of the Thunder Basin National Grassland. Therefore, amendment to the Land and Resource Management Plan for the Thunder Basin National Grassland has not been under consideration by USFS officials during the planning of this project.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Pathfinder Ranches (Continued)				
B12	06		A simple statement should be inserted that indicates that if the operator complies with the Framework and Executive Order, an exception may be granted.	Please see response to Comment B12-05.
B12	07		Finally, BLM should also modify the “Required Design Features” to only “require” such features when the agency can show that the action benefits the sage-grouse consistent with the state core area strategy and stipulations. Most Required Design Features have no tie to sage-grouse management/conservation. Where there is a connection to sage-grouse, these measures should actually be framed as best management practices, to be deployed by industry at its discretion as avoidance and minimization efforts. In no event should Required Design Features be labeled as compensatory mitigation.	All project alternatives require compliance with the Required Design Features provided in Appendix C of the ARMPA as stated in Section 2.2 and Table 2.2-1.
Rasmussen Electric, Inc.				
B13	03		Much of the DEIS language does not seem to comport with DOI Secretarial Orders 3349 and 3360.	The text has been updated to reflect the current agency and department guidance and policy.
B13	04		There also appears to be some discrepancy between much of the DEIS tone and Presidential Executive Order 13783, concerning the Promotion of Energy Independence and Economic Growth. We would urge that the document and the follow up ROD be reviewed prior to .finalization to ensure that there is no confusion, and that the documents accurately reflect current and reasonably foreseeable policy directives issued from Washington D.C. Failure to do so could create confusion on the ground and possibly legal issues as the project moves forward.	See response to Comment B13-03
B13	05		We believe that the ROD needs to better reflect the importance of year-round drilling. While this is referenced in the proposed alternative, there remains some ambiguity over the process/or requesting an exception from timing stipulations, and the granting of those exceptions. Such exceptions, of course are critical lo ensuring year-round drilling is permitted.	Thank you for your comment. Please see the response to Comment B11-024.
B13	06		Year-round drilling not only cuts costs and keeps the project on a reasonable timeline, but presents unmistakable environmental benefits. Eliminating the need to rig down, move off the project site, and then return all the equipment weeks later means far fewer truck trips, which in turn means reduced emissions, and reduced impact to the road surfaces.	Thank you for your comment. Please see the response to Comment B01-03.
B13	07		The ROD needs to more clearly reflect BLM policy with regards to the management of off-lease wells on private lands that are accessing federal minerals within the project area. Fully 64% of the minerals being recovered in the project are federally owned, but only 10% of the surfuce is, the remainder being state- or privately- owned. BLM policy needs to be clearly and more easily understood, so as to reduce the possibility of confusion or conflict.	Please see the response to Comment B11-059.
SM Energy Company				
B14	03		The DEIS does not reflect Recent DOI Policy Changes such as recently-released - Presidential Executive Orders, Department of Interior (DOI) Secretarial Orders, and other policy documents, including Presidential Executive Order 13783 - Promoting Energy Independence and Economic Growth and DOI Secretarial Orders 3349 and 3360. Before issuing a ROD, BLM must ensure the EIS comports with these and future policy changes that would alter the implementation of the project.	The text has been updated to reflect current agency and department guidance and policy.
B14	04		While the Proposed Action references the potential for year-round drilling and development, BLM has not clearly outlined an exception request process that would provide meaningful relief from timing stipulations for raptors and other species, but has instead imposed overly-prescriptive constraints for these requests, including the preparation of an Environmental Assessment. The DEIS makes only passing reference to the potential utilization of a migratory bird conservation plan (MBCP) currently being developed by the OG, BLM, and the U.S. Fish & Wildlife Service. The MBCP would facilitate year-round drilling through the systematic relief of raptor timing stipulations based on operational avoidance, historic data, and monitoring. In general, the OG strongly seeks a ROD that allows for year-round drilling within the CCPA, as nearly 50% of pads in the development area are within raptor nest or Greater Sage-Grouse (OSG) lek buffers.	Please see the response to Comment B11-024.
B14	05		Without timing stipulation relief, operators will likely require multiple drill rig mobilizations to these pads, resulting in increased heavy truck traffic, dust, and other impacts.	Please see the response to Comment B01-03.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
SM Energy Company (Continued)				
B14	06		BLM has included onerous mitigation requirements that limit operational certainty before project initiation or while activities are being conducted. The DEIS features compensatory mitigation, particularly the concepts of 'additionality" and "no net loss or measurable net gain," despite DOI's and the President's review and withdrawal of policies and directives that promote compensatory mitigation.	Per recently issued BLM guidance (Instruction Memorandum IM 2019-018) the agency cannot require compensatory mitigation for the use of public lands. The mitigation sections of Chapter 4 and Chapter 6 have been revised to reflect this new guidance.
B14	07		It also includes language from a BLM mitigation manual and handbooks that were recently rescinded via DOI Secretarial Order.	The text has been updated to reflect current agency and department guidance and policy.
B14	08		The DEIS references the BLM GSG Land Use Plan Amendment ROD for the Rocky Mountain Region and Approved Resource Management Plan (RMP) Amendment for the Wyoming GSG Sub-region, but fails to recognize these plaiis are under review by DOI and that new Instructional Memoranda released by BLM may alter management of GSG habitat areas before the finalization of the EIS.	As stated in Section 2.4.1, the OG will comply with all applicable federal, state, county, BLM, and USFS regulations and land use plans (including any applicable interagency memorandums of understanding) for all operations associated with the Project.
B14	09		The DEIS would also impose operational restrictions in BLM priority habitat management areas (PHMA) in the Douglas GSG area, even though the PHMA boundary reflects the State of Wyoming's version 3 GSO boundary and not the most recent version 4 boundary.	The programmatic nature of this document details that the current 5 percent disturbance cap is exceeded in Douglas PHMA. However, under Alternative B, development could be approved on a site-specific basis consistent with the DDCT process if found to be under the 5 percent cap. The current BLM ARMPA analyzes PHMA based on Version 3 of the Core Area Map.
B14	10		Given the limited amount of federal surface (just 10%) but preponderance of federal minerals (64%) in the CCPA, BLM needs to make clearer its approach to the management of wells located off-lease on private surface but will penetrate and produce federal minerals (i. e., fee-fee-fed scenario).	Please see the response to Comment B11-059.
B14	11		While this ownership scenario yields implementation challenges as it relates to National Historic Preservation Act (NHPA) and NEPA compliance and BLM permitting processes, the DEIS does not clearly discuss how BLM will permit development on fee-fee-fed lands.	Please see the response to Comment B11-059.
B14	12		As operators in Wyoming are facing more and more impediments due to the ambiguous nature and inconsistent application of NHPA Section 106 process for tribal consultation, BLM should clarify the necessary level of identification and monitoring for tribal and cultural resources, particularly when such resources occur on private lands.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface and would develop a Programmatic Agreement to address alternative procedures for meeting its obligations under Section 106 on federal and non-federal lands.
Wave Petroleum Operating, LLC				
B15	03		Consistency with Recent DOI Policy Changes: The DEIS does not account for recently-released Presidential Executive Orders, Department of Interior (DOI) Secretarial Orders, and other policy documents, including Presidential Executive Order 13783 - Promoting Energy Independence and Economic Growth and DOI Secretarial Orders 3349 and 3360, to name a few. Before issuing a ROD, BLM must ensure the EIS is consistent with these and future policy changes that would alter the implementation of the project.	The text has been updated to reflect current agency and department guidance and policy.
B15	04		Exceptions to Timing Stipulations for Raptors and other Species: While the Proposed Action references the potential for year-round drilling and development, BLM has not clearly outlined an exception request process that would provide meaningful relief from timing stipulations for raptors and other species, but has instead imposed overly-prescriptive constraints for these requests, including the preparation of an Environmental Assessment. The DEIS makes only passing reference to the potential utilization of a migratory bird conservation plan (MBCP) currently being developed by the OG, BLM, and the U.S. Fish & Wildlife Service. The MBCP would facilitate year-round drilling through the systematic relief of raptor timing stipulations based on operational avoidance, historic data, and monitoring. BLM needs to develop a "punch-list" of operator committed mitigation measures, that are consistent with DOI policy, in which the applicable operator will have certainty in obtaining year-round drilling and development approval.	Please see the response to Comment B11-024. The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wave Petroleum Operating, LLC				
B15	05		BLM should also analyze and advise the public of the environmental and economic impacts associated with mobilization and de-mobilization attributed to seasonal stipulations.	New text added to 4.11.3. The text acknowledges that seasonal stipulations could increase development costs, and hence alter the economics of some operators affected by seasonal stipulations due to added mobilization and de-mobilization. However, the extent, timing and magnitude of such effects are unknown. Section 4.11.3 qualitatively describes employment, personal income, population, housing, community infrastructure and services, schools, fiscal conditions, and social conditions associated with Alternative C and states that these effects cannot be quantified at this programmatic stage of analysis.
B15	06		Mitigation: BLM has included onerous mitigation requirements that limit operational certainty before project initiation or while activities are being conducted. The DEIS features compensatory mitigation, particularly the concepts of "additionality" and "no net loss or measurable net gain," despite DOI's and the President's review and withdrawal of policies and directives that promote compensatory mitigation.	Per recently issued BLM guidance (Instruction Memorandum IM 2019-018) the agency cannot require compensatory mitigation for the use of public lands. The mitigation sections of Chapter 4 and Chapter 6 have been revised to reflect this new guidance.
B15	07		It also includes language from a BLM mitigation manual and handbooks that were recently rescinded via DOI Secretarial Order 3360. Moreover, BLM must demonstrate to the public the statutory authority it has to require such onerous mitigation requirements.	The text has been updated to reflect recent policy guidance issued for compensatory mitigation. Also see the response to Comment B11-059.
B15	09		Alternative C severely restricts the instances in which BLM would grant exceptions to timing stipulations, which is contrary to the Casper Resource Management Plan (RMP), and does not describe or analyze the increased traffic and associated impacts associated with limiting the granting of those exceptions.	Thank you for your comment. The text has been revised to reflect the changes in truck trips associated with rig moves between Alternative B and Alternative C (see Section 2.4.8, new Section 2.5.2.10, and Section 4.13).
B15	10		Greater Sage-Grouse: The DEIS references the BLM GSG Land Use Plan Amendment ROD for the Rocky Mountain Region and Approved RMP Amendment for the Wyoming GSG Sub-region, but fails to recognize these plans are under review by DOI and that new Instructional Memoranda released by BLM may alter management of GSG habitat areas before the finalization of the EIS.	See response to comment B14-08.
B15	11		While this ownership scenario yields implementation challenges as it relates to National Historic Preservation Act (NHPA) and NEPA compliance and BLM permitting processes, the DEIS does not clearly discuss how BLM will permit fee-fee-fed development. BLM should acknowledge that the private surface owner is only obligated to allow the severed mineral estate to be drilled and developed; however, the United States' mineral reservation does not impose a surface owner legal obligation to provide access for NHPA and NEPA compliance.	The text has been updated to clarify the extent of BLM's authority. See the response to Comment B11-059.
B15	12		Private Surface Considerations: Given the limited amount of federal surface (just 1096) but preponderance of federal minerals (64%) in the CCPA, BLM needs to make clearer its approach to the management of wells located off-lease on private surface that will penetrate and produce federal minerals (e.g. fee-fee-fed scenario).	Please see the response to Comment B11-059.
B15	13		While this ownership scenario yields implementation challenges as it relates to National Historic Preservation Act (NHPA) and NEPA compliance and BLM permitting processes, the DEIS does not clearly discuss how BLM will permit fee-fee-fed development. BLM should acknowledge that the private surface owner is only obligated to allow the severed mineral estate to be drilled and developed; however, the United States' mineral reservation does not impose a surface owner legal obligation to provide access for NHPA and NEPA compliance.	Please see the response to Comment B11-059.
B15	14		Further, BLM should not penalize an operator, by denying or delaying an APD if the surface owner does not allow access for NHPA or NEPA related issues.	Please see the response to Comment B11-059.
B15	15		Tribal and Cultural Resource Management: As operators in Wyoming are facing more and more impediments due to the ambiguous nature and inconsistent application of NHPA Section 106 process for tribal consultation, BLM should clarify the necessary level of identification and monitoring for tribal and cultural resources, particularly when such resources occur on private surface.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface. Text has been added to Section 4.2 to state that the BLM would develop a Programmatic Agreement to address alternative procedures for complying with NHPA on federal and non-federal lands.

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U.S. Congress, Wyoming Delegation				
F01	01		We encourage the agency to issue a Final EIS that is consistent with the most recent executive and secretarial orders providing guidance on domestic energy production. In particular, the Final EIS should fully account for Presidential Executive Order 13 783 and the Department of the Interior Secretarial Orders 3349 and 3360.	The text has been revised to reflect current agency guidance and policy.
F01	02		The final EIS should also recognize the ongoing work by the State of Wyoming to implement State management principles including recent guidance regarding Greater Sage-Grouse Core Area Protection.	The text explicitly notes in Section 6.6.2.2 that the BLM will follow the 2017 MOU in regards to cooperation with the State of Wyoming in regards to the application of compensatory mitigation for Sage-grouse and the processes set forth in EO 2019-3.
F01	03		In addition, we believe the final EIS should issue clear guidance for year-round development to maximize the economic benefits of the CCOGP while minimizing disturbance to wildlife habitats.	The Final EIS includes the analysis of several land use plan amendment options that were presented and analyzed in the BLM's Supplemental Draft EIS for the Converse County project. The text of the Final EIS has been updated to reflect public comment on the Supplemental Draft EIS including additions to one of the options (Option 3) provided by the Governor's Office.
U.S. Environmental Protection Agency				
F02	03		We noted that the maximum groundwater extraction rate (2.6 billion gallons per year) listed in the Draft EIS is greater than the 7000 acre-ft. (2.3 billion gallons) per year maximum that was used in the groundwater model. The model predicted that the maximum drawdown 1,000 feet away from a well could be 10 feet. At the higher Draft EIS withdrawal rate, the well drawdown could extend farther and deeper than as modeled.	The BLM used the initial estimated annual water use of 7,000 acre-feet for the Proposed Action to model the withdrawal of groundwater from the proposed 50 new water supply wells. This volume was felt to be more appropriate than the 8,050 acre-feet of water that could be appropriated from an additional 50 water supply wells, if needed. Note that since the Draft EIS was issued the Operator Group has confirmed an approximate doubling of water use but that this would not increase the use of groundwater as the additional water would be expected to come from water recycling and leasing of existing surface water uses.
F02	04		We noted that the maximum groundwater extraction rate (2.6 billion gallons per year) listed in the Draft EIS is greater than the 7000 acre-ft. (2.3 billion gallons) per year maximum that was used in the groundwater model. The model predicted that the maximum drawdown 1,000 feet away from a well could be 10 feet. At the higher Draft EIS withdrawal rate, the well drawdown could extend farther and deeper than as modeled. The model also uses what appears to be an unrepresentatively high specific storage value (by at least an order of magnitude) for a bedrock aquifer and may result in a substantial underestimation of both the magnitude and extent of drawdown caused by pumping.	Please see the response to Comment F02-03 regarding the volume of water consumption per year. The specific storage value was derived from previous Powder River Basin groundwater modeling for the Powder River Basin Coal Review (AECOM 2014a).
F02	04		As such, the current avoidance measures listed on Draft EIS page 6-4 may not protect existing groundwater wells, surface waters, or groundwater dependent ecosystems such as springs and seeps.	Thank you for your comment. Please not that water, and ground water, is the purview of the State of Wyoming. The BLM is disclosing the impacts associated with this development in this section.
F02	06		We recommend either updating the groundwater data per the information above or adding a mitigation condition requiring a drawdown analysis for each potential groundwater supply well based on site-specific well construction, pumping, and aquifer conditions. The drawdown analysis will more accurately estimate the magnitude and extent of drawdown associated with each potential well to assure there is no impacts to existing groundwater wells, surface waters, or groundwater dependent ecosystems.	Thank you for your comment. The conduct of such testing and analysis would be up to the WSEO and is beyond the BLM's authority to require.
F02	07		Additionally, based on the drawdown model, BLM proposed mitigation that no new water supply wells will be placed within 2,000 feet of existing water wells, springs, wetland areas, and riparian areas to protect those valuable resources (DEIS p.6-26). We recommend the setback distance for new wells also be reassessed and revised based on either an updated groundwater model or tied to an individual well drawdown analysis as suggested above.	Thank you for your recommendation. Note that the authority to require setbacks from water wells resides with the Wyoming State Engineer. Also see the response to Comment B01-22.
F02	08		Also, since the mitigation only applies to actions associated with federal lands, we encourage BLM to work with the OG and WDEQ to develop a plan for appropriate water supply well placement across the CCPA to protect existing water wells and groundwater dependent ecosystems.	The location of wells is under the authority of the WSEO. Also see the response to Comment B01-22.
F02	09		Draft EIS Chapter 4 states that Alternative C water consumption would be 4,200 acre-feet (1.4 billion gallons) per year which is 40 percent less than the modeled 7,000 acre-feet (2.3 billion gallons) per year under Alternative B. The reduction is due to recycling of 40 percent water over the life of the project. Given the large volumes of water required, we recommend some percent of water recycling be included in the alternative selected, such as included in Alternative C to reduce the potential for impacts to existing wells, springs, wetlands and riparian areas.	Thank you for your suggestion. The BLM has considered your suggestion in further refining the preferred alternative in the Final EIS.
F02	10		Water recycling also reduces the volume of wastewater disposal and thus, reduce the need for additional disposal wells and may also reduce the probability of spills from trucking wastewater to disposal wells or leaks from evaporation ponds. We also suggest adding additional text to Chapter 2 clarifying the water supply and disposal aspects of Alternative C.	The text has been revised to reflect updated estimates of water use for the project.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
U.S. Environmental Protection Agency (Continued)				
F02	11		We recommend adding information in the Final FEIS about the availability, location, capacity, and waste management for the third-party evaporation ponds and whether any wastewater discharge permits will be sought.	The text has been revised to indicate that waste water discharge permits would not be sought. All disposal would take place by subsurface injection, evaporation ponds, or recycling. Table 3.16-10 lists the locations of evaporation facilities in the general vicinity of the CCPA and has been updated to include annual estimates of throughput obtained from WDEQ permit waivers. General operating requirements for evaporation ponds are provided in Section 3.16.2.6.
F02	12		We also recommend adding information about how the wastewater will be managed (stored, transported if needed, and disposed) and the associated environmental impacts if the disposal wells and third-party evaporation ponds do not provide for the estimated maximum wastewater disposal needs.	The evaporation facilities and locations are listed on Table 3.16-10, page 3.16-30 which has been updated to include estimates of annual throughput obtained from WDEQ permit waivers. The text was revised in Section 3.16.2.6 concerning management of waste water.
F02	13		To minimize the duration of impacts, we recommend BLM obtain operators' commitment to restore wetlands, streams and riparian areas as soon as the disturbance activity is completed, even if the associated "project" is on-going.	The mitigation measures prevent disturbance to riparian/wetlands. Operators have to abide by the CWA and protection of wetlands executive order.
F02	14		Also, we suggest providing mitigation for wetland impacts on BLM lands (consistent with Wetlands Executive Order 11990) including for functional loses due to vegetation clearing.	As currently emphasized on Page 4.17-3 to 4.17-4, the BLM Casper Office RMP (BLM 2007b) and the TBNG LRMP (USFS 2001) have several standards, guidelines, objectives, and management decisions that would reduce impacts to wetland and riparian communities. Additionally, the operator group has committed to design features that would mitigate impacts to wetlands under Alternative B as further discussed in Section 2.4 and Chapter 6.0. Through these requirements and mitigation measures, the project would be consistent with the objectives of EO 11990 as identified in Section 3.17.3.2.
F02	15		Draft EIS pages 6-8 and 6-12 lists Resource Management Plan (RMP) resource goals and objectives for surface and groundwater. These goals and objectives include maintaining watershed, wetland, and riparian functions to support surface-flow regimes and water quality, minimizing or controlling contributions of nonpoint source pollution and other specific improvements for waters within the Thunder Basin National Grasslands (TBNG). We recommend that the current status of these goals and objectives are assessed and discussed in the FEIS.	Thank you for your recommendation. Assessing the current status of the cited goals and objectives is beyond the scope of this EIS. Note that Chapter 6 has been revised to reflect current BLM guidance regarding mitigation.
F02	16		We also recommend considering mitigation measures that would prevent harm to the improvements gained, or progress towards meeting the goals/objectives since the RMP was issued.	Please see the response to Comment F02-15.
F02	17		We recommend that the Final EIS consider ways, such as fewer but larger well pads, to help reduce volume of water needed as well as to manage potential air quality impacts.	Thank you for your comment. The BLM has already considered various means for reducing water use through analysis of Alternative C.
F02	18		We recommend that the Final EIS consider ways, such as fewer but larger well pads, to help reduce volume of water needed as well as to manage potential air quality impacts. We are concerned that the source of dust suppression water is not specified in the Draft EIS. We recommend BLM stipulate that produced water cannot be used for dust suppression. The specific chemistry of produced water is often unknown although both maintenance and stimulation chemicals as well as hydrocarbons are typical components. Products used for maintenance and stimulation often have carcinogens and endocrine disrupting chemicals that become part of the produced water. Naturally occurring radioactive materials (NORM) are also a potential in produced water. Thus, without knowing the chemistry of the produced water, use of produced water on roads has the potential to impact nearby surface water, adjacent fields or land, and groundwater.	Spreading of produced water on roads is a regulated activity. The Wyoming DEQ and the Wyoming Oil and Gas Conservation Commission (WOGCC) have joint authority for road spreading exempt oil field waste, including produced water. The permitting process would determine if deleterious constituents are present in the water that would be used for road spreading. The text has been revised in Section 2.2.2.4 to indicate that the application of produced water to roads is a regulated activity.
F02	19		The Town of Douglas's drinking water intake along the North Platte River is within the potential area of impact for CCPA activities. To protect this water supply from potential impacts from oil and gas activities, we recommend a 1000-foot NSO setback on both sides of the river or stream, for 10 miles upstream of the intake.	The North Platte River is considered to be a Class 1 water; therefore, it would fall under the RMP decision of 500-foot no surface occupancy (NSO) and 0.25-mile Conditional Surface Use (CSU) stipulations. The text was revised to provide this information in Sections 4.16.1.1, 4.16.2.1, and 4.16.3.1.
F02	20		We also recommend NSO within local Source Water Protection Planning Areas where delineated by the state or community such as for the Town of Rolling Hills.	The state has "primacy" according to Safe Drinking Water Act Sec. 1453 and 1428(b). No changes to text.
F02	21		The EPA continues to have concerns that the selected scenarios for the analyses do not include certain oil and gas activities that would contribute to air quality impacts for short-term air quality standards. In particular, well completion and stimulation are not included in the near-field model simulations to capture recurring activities that produce the highest emission profile for pollutants associated with combustion.	In regard to estimating impacts from drilling operations, the equipment was selected based on the information provided by the Operator Group (OG) during the air emissions inventory development process. The air quality modeling assessment was modified to include completion activities. The completion activities include the hydraulic fracturing engines and other support. Modeling methodology, results, and other modeling details for the completion modeling scenario are presented in Section 3.3.3 of the AQTSD (Appendix A).

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
U.S. Environmental Protection Agency (Continued)				
F02	22		We also previously recommended that the EIS address the IART recommendations to: (1) base predicted impacts on EPA's guidance for statistically matching the model results to the NAAQS, and (2) disclose predicted annual exceedances and identify mitigation that could address any exceedances in the EIS. Our previous comments provide detailed explanation of why these methodologies are recommended and our concerns with the method used for the project.	With regard to recommendation (1), the approach used to analyze impacts for comparison to probabilistic standards was designed to assess the maximum duration of planned activities. The approach takes into account that many of the emission sources such as drill rigs, completion engines, and fracking pumps are temporary sources that emit pollutants from a given location for days or weeks at a time. EPA guidance is designed to estimate the impacts for stationary sources that remain in a given location for multiple years. It is consistent with the method used to assess compliance with the standards based on monitoring data and is consistent in concept with similar EISs in Wyoming. The approach provides conservatively high impacts for a majority of the scenarios and activities analyzed, while taking care to not vastly overestimate the duration of activities beyond what could reasonably be expected. Furthermore, the model methodology results in concentrations that are representative of potential future monitoring values. This is important for two reasons: 1) models are developed in part to predict potential future concentrations that would be monitored, so in this sense the application of the model is in keeping with its purpose, and 2) monitored concentrations are the basis for determining compliance with the standards. This approach is more representative of planned activities and potential future ambient air concentrations that would be used to assess compliance with probabilistic standards than the approach recommended by EPA. With regard to recommendation (2) to assist with disclosure of model-predicted impacts, supplemental information about the modeled impacts are provided in Appendix A, Chapter 3. The scenario and case modeled, the modeled concentrations for each meteorological year in the form of the standard, and the design value over the full meteorological period are listed.
F02	23		Although issues exist that make it difficult to rely directly on the analysis as represented in the Draft EIS, there are impacts identified that warrant further consideration and that may be more easily identified if IART recommendations are followed. The project-level and cumulative analyses included in the Draft EIS indicate a potential for near-field exceedances of the National Ambient Air Quality Standards (NAAQS) for PM, 1-hour nitrogen dioxide (NO2) impacts that when considering deficiencies of the analysis may approach or exceed the NAAQS, and contributions to ozone increases that may be greater than reported.	Additional annual impacts are disclosed in Appendix A, Attachment D. For a response to the past IART recommendations, please see response to comment F02-22. For a response to the possible mitigation please see response to comment F02-26.
F02	24		The analyses also show potential impacts to visibility and nitrogen deposition at downwind Class I and Sensitive Class II areas.	The potential impacts to visibility and nitrogen deposition are discussed in Sections 4.1.3.5 and 4.1.3.6, respectively. A more detailed discussion of the analysis methodologies and impacts are found Appendix A, Chapter 6 (visibility) and Chapter 7 (deposition).
F02	25		The Draft EIS discusses the model's potential to underpredict the concentrations of gaseous air pollutants and air-quality related values (AQRVs) based on the model's performance evaluation, but does not qualify conclusions on the magnitude of the potential impact based on that information. Because of this issue and those mentioned above, without more information it is difficult for us to interpret the air quality assessment to determine the impact on human health and the environment.	The potential impacts to air quality are quantified in the DEIS using the most appropriate assessment metrics and thresholds. In Appendix A, Chapters 5 through 7, project-only impacts and cumulative modeling concentrations are related to the model biases (e.g., last paragraph in Sections 5.4.1.1 and 5.4.1.2, third paragraph in Section 6.3, and first paragraph in Section 7.4.2).
F02	26		The project's air quality analysis indicates the potential for near-field and regional impacts resulting from nitrogen oxide (NOx) and particulate matter (PM) emissions. The impacts to visibility and nitrogen deposition, as well as to NO2 and ozone levels, would be expected to be the result of project NOx emissions. We recommend exploring opportunities to reduce NOx emissions.	The controls outlined and agreed upon by the Operator Group were incorporated into the air quality analysis and are presented in Table 4.1-1 and Section 6.4.1. Mitigation measures based on the air quality impacts are presented in Section 6.5.1. Furthermore, the BLM will work with the WDEQ-AQD and the Operator Group (OG) to ensure appropriate protective measures are in place and required in the Converse County ROD to address air quality impacts.
F02	27		Based on the project's emissions inventory, the largest sources of NOx emissions are from compressor stations and compressors at gas plants (totaling over 5,000 tons per year of NOx). We recommend exploring opportunities to electrify these compressors.	Electrifying the compressor stations would require infrastructure and power capacity within the CCPA that may not be feasible to do in the CCPA. The controls agreed upon with the Operator Group and incorporated into the air quality analysis are outlined in Table 4.1-1 and Section 6.4.1. Mitigation measures based on the air quality impacts are presented in Section 6.5.1.

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U.S. Environmental Protection Agency (Continued)				
F02	28		Based on the project's emissions inventory, the largest sources of NOx emissions are from compressor stations and compressors at gas plants (totaling over 5,000 tons per year of NOx). We recommend exploring opportunities to electrify these compressors. Heater treaters, drill rigs, and hydraulic fracturing pumps are also primary sources of NOx emissions. Drill rig and well completion and stimulation emissions can be greatly reduced through the use of Tier 4 (retrofit or otherwise) technology for diesel engines (currently these emission account for approximately 2815 tons per year of NOx). Tier 4 emission rates would be expected to achieve a 90% reduction in NOx emissions from generator set driven drill rigs and a 47% reduction in NOx for direct drive hydraulic fracturing pump engines. The mitigation of NOx emissions will also reduce the project's contributions to ozone because NOx emissions are precursors to ozone formation.	The text has been updated to include additional air quality mitigation commitments from the Operator Group.
F02	29		We also recommend that the BLM identify the largest sources contributing to the modeled exceedances of the PM standard during construction and assure that appropriate measures are taken to minimize or avoid these impacts. It is likely that the PM exceedances were due to fugitive dust, making aggressive dust control of particular importance. The mitigation of PM emissions, in combination with the NOx mitigation, would have the added benefit of reducing impacts to visibility.	The Operator Group has stated that dust suppression controls would be used for all traffic, which would diminish the fugitive dust impacts. The controls outlined and agreed upon by the Operator Group were incorporated into the air quality analysis and are presented in Table 4.1-1 and Section 6.4.1. Mitigation measures based on the air quality impacts are presented in Section 6.5.1.
F02	33		We recommend the Final EIS clarify at relevant points throughout the document that the RMP mitigation and BLM mitigation (if required) will only apply to the actions associated with federal lands, and possibly minerals. It is our understanding that operator committed measures will apply to the entire CCPA and suggest the Final EIS clarify this.	Please see the response to Comment B11-059.
U.S. Fish and Wildlife Service				
F03	01	Ch. 2, Sec. 2.0	A site-specific Migratory Bird Conservation Plan (MBCP) could lift some of the timing stipulations described under Alt C. The EIS could consider a hybrid alternative that would reduce surface disturbance (as described under Alternative C) and allow some year-round drilling (as described under Alternative B) by replacing certain raptor timing stipulations with a comprehensive MBCP. This hybrid alternative might further reduce the acres of wildlife habitat impacts beyond that described in Alternative C.	Thank you for your comment. The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.
F03	02	5.2.3	The FWS is aware of at least one recently proposed wind project within the planning area and could provide that information to BLM.	Due to the ever-changing nature of industrial activity in the CCPA and complexity of conducting a cumulative analysis for the area, a cut-off date for known projects was established in order to avoid continual re-analysis. As stated throughout Chapter 5, this date was December 31, 2015. Therefore, any new projects identified or cancellation of foreseeable projects that occurred after that date may not be included in the cumulative analysis.
F03	03	4.18, Table 4.18-14	While golden eagles regularly nest on cliffs, cliffs are not required, because golden eagles will nest in trees. In fact, there are multiple golden eagle nests in trees within the CCPA. We recommend changing the text to "Cliff habitat and trees used for nesting."	Text has been modified based on this comment.
F03	04	4.18, Table 4.18-18	While golden eagles regularly nest on cliffs, cliffs are not required, because golden eagles will nest in trees. In fact, there are multiple golden eagle nests in trees within the CCPA. We recommend changing the text to "Cliff habitat and trees used for nesting."	Text has been modified based on this comment.
F03	05	4.18	Please clarify what is meant by "temporary disturbance" in the first part of this sentence. Disturbance (e.g., noise, human activity) can expected to be of greater magnitude during construction of the project (e.g., constructing roads, pads, and wells), and construction will last just a few years. However, while noise and human activities may decline slightly after construction, disturbance will continue over the 30 to 40-year life of the project during operations and reclamation. Please clarify what is meant by "the temporary nature of disturbance" and whether the 30 to 40 years is considered temporary.	Text has been modified to remove the description of "temporary disturbance". The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.
F03	06	4.18	The referenced biological opinion does not identify the survey protocol to use. To ensure surveys are adequate to address any site-specific section 7 consultation for Preble's meadow jumping mouse, we recommend BLM use the one found on the Region 6 Species Protocols page, https://www.fws.gov/mountain-prairie/es/protocols.php.	Text has been modified to include the protocol included in the comment.
F03	07	3.14	Please replace with the following: Under Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federal agencies in consultation with the Service, must ensure that any action they authorize, fund or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat.	Text has been revised as suggested in the comment.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
U.S. Fish and Wildlife Service (Continued)				
F03	08	Section 4.14.1	The predictive model may or may not include all potential locations of Ute ladies'-tresses. While the predictive model may be useful to quantify impacts in the NEPA analysis, it is important to recognize for section 7 purposes that suitable habitat may occur in areas outside of the predictive model. To avoid possible confusion in the future related to section 7 consultation, the EIS could affirm BLM will implement the appropriate conservation measures wherever suitable habitat occurs, not just within areas identified by the predictive model.	The BLM agrees with this comment. As stated in SSPS - 1: Known individuals and populations of Ute ladies'-tresses orchid and areas identified as suitable habitat through consultation with the USFWS will be avoided. If potential habitat cannot be avoided, two years of surveys in suitable habitat will be required and consultation with USFWS may be necessary.
F03	09	Section 4.14.1	The first part of this statement suggests the conservation measures listed in this section for Ute ladies'-tresses will only occur on BLM surface estate. Please clarify whether the conservation measures will be applied to both surface estate and split estate. If the provided measures will not be applied to split estate, please describe the reasons as well as any measures that will be applied to avoid adverse effects to listed species.	This is specific to BLM surface. It is possible that these measures would apply to split estate, however, it would be contingent on site-specific NEPA and further consultation with the USFWS regarding impacts and mitigation to listed species.
F03	10	Section 4.14.1	In addition to the protections afforded class I and 2 waterbodies, this section of the EIS should reference all applicable conservation measures contained in the May 7, 2007, "Final Biological Assessment for the Casper Field Office Proposed Resource Management Plan" and the Fish and Wildlife Service "Biological Opinion for the Casper Resource Plan" dated November 2007.	The text already contains references to the existing land use plans for the BLM and USFS. Hence the BLM sees no need to add the requested reference.
F03	11	Section 2.4.1	The DEIS does not include a detailed analysis of how impacts to threatened and endangered species, and migratory birds would be avoided or minimized by allowing year-round drilling, but rather defers to an undisclosed process to be implemented at a future date. We recommend the EIS fully disclose the BLM's analysis and all measures that will be implemented at the EIS level to avoid and minimize effects to threatened and endangered species, and migratory birds.	Due to the programmatic nature of the analysis, the exact locations of oil and gas-related activities cannot be predicted with certainty within the CCPA. Therefore, the level of impact cannot be determined. The mitigation measures, including BMPs and Required Design Features, disclosed in the analysis would be utilized to avoid and minimize effects to wildlife species.
F03	12	Section 4.14.2.4	In addition to the existing measures, this section, Sec 6.2.1 and Section 6.5.14, should include all applicable conservation measures contained in the BLM's May 7, 2007, "Final Statewide Biological Assessment for the Casper Field Office Proposed Resource Management Plan" and the Fish and Wildlife Service "Biological Opinion for the Casper Resource Management Plan" dated November 2, 2007.	Text has been revised to identify that the conservation measures within these documents are incorporated by reference.
F03	13	Table 4.18-16, Ch. 6	The buffer for golden eagles is ineffective in protecting nesting golden eagles from human disturbance, which could lead to take during the nesting season and violations of the Bald and Golden Eagle Protection Act. For golden eagles, we recommend the avoidance measure be a 0.5-mile NSO January 15 to July 31 For bald eagles, we recommend avoiding activities within 0.5 mile of nests from January I to August 15.	These buffer distances and timing restrictions are accepted as determined by the BLM RMP/USFS LRMP. Text was added to include consultation with the USFWS under the MBTA.
F03	14	Table 4.18-16, Chapter 6	Removal, destruction, or causing abandonment of an eagle nest without a permit is a violation of the Eagìe Act. The Eagle Act includes limited exceptions to its prohibitions through a permitting process. If activities must occur within 0.5 mile of a bald or golden eagle nest, we recommend the BLM and operator discuss the need for a disturbance take permit with the FWS. Similarly, if infrastructure (e.g., roads, pads, wells, etc.) cannot be avoided within 0.5 mile of an eagle nest, we recommend BLM and the operator discuss options with the FWS, including the possible need for a disturbance take permit.	Text revised to include consultation with the USFWS under the MBTA and BGEPA at the APD level.
F03	15	6.5.14	In addition to the identified measures, SSPS-1 and SSPS-2, this section should include all conservation measures the BLM committed to in the BLM's May 7, 2007, "Final Statewide Biological Assessment for the Casper Field Office Proposed Resource Management Plan" and the Fish and Wildlife Service "Biological Opinion for the Casper Resource Management Plan" dated November 2, 2007.	These mitigation measures are provided in addition to existing stipulations, requirements, and applicant committed measures. However, reference to these mitigation measures have been included in Alternative B.
F03	16	Section 3.18.2	In addition to the 2010 MOU, we recommend including the 2008 MOU between USFS and USFWS that promotes the conservation of migratory birds, as directed through EO 13186 (FR V. 66, No. 11).	Text has been revised to address this comment.
F03	17	3.18.2	The 2014 IPaC report is 4 years old. Please consider obtaining a current species list from IPaC to ensure the EIS continues to evaluate the appropriate species.	Text has been revised to include the 2017 IPaC list as well.

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National Park Service				
F04	01		As described in the Attachment, the emissions from these projects could impact park air resources and related values individually and collectively in the following seven units of the National Park System: Wind Cave and Badlands National Parks, both Class I areas under the Clean Air Act and located in South Dakota; Devil's Tower (WY), Jewel Cave (SD), and Agate Fossil Beds National Monuments (NE); Fort Laramie National Historic Site (WY); and Mount Rushmore National Memorial (SD). An eighth park, Scott's Bluff National Monument (NE) is also located within the region, but was omitted from the air modeling analysis. Given the park's location, any impacts to Scotts Bluff would likely be similar to those modeled for Agate Fossil Beds or Fort Laramie. Specifically, we examined nitrogen deposition impacts to park ecosystem resources and impacts to the clarity of the air (i.e., visibility) in these park units. The NPS would like the opportunity to collaborate with the BLM Casper Field Office on ways to reduce emissions and minimize impacts to these park units.	The National Park Service (NPS) is now a cooperating agency for the project. The BLM appreciates the collaboration provided by the NPS regarding this project.
F04	02		due to limitations inherent in the model as described in the BLM analysis Model Performance Evaluation. the results have likely under-predicted nitrogen deposition and hence under-predicted adverse effects.	A detailed discussion of the potential deposition impacts and model biases is found in Appendix A, Chapter 6. It explains that the model has a tendency to under-predict deposition. If this bias is consistent for future year simulations, deposition in 2028 could be higher than what is predicted by the model.
F04	03		Based on the modeling results and available information, the NPS is concerned that the Converse County Project alone would result in adverse effects in the aforementioned park units due to nitrogen deposition and visibility impacts. The magnitude of the impacts are considerably higher when accounting for the additive contributions of the Crossbow OU and Gas Project. Given these impacts, we want to explore possible mitigation with the BLM as discussed in the next section and in the Attachment.	Mitigation measures based on the air quality impacts are presented in Section 4.1 as they apply to each alternative and are consolidated into one location and repeated in Section 6.5.1. Please see response to comment F02-26.
F04	04		Reasonable measures exist for reducing NOx emissions from oil and gas development that have been implemented elsewhere in Wyoming and other regions of the U.S. Such measures are presented for consideration and discussion in the Attachment. The NPS recognizes that many project-specific factors must be considered when determining which mitigation measures may currently be feasible and which may be phased in over time; we encourage the BLM to implement those that are currently feasible and build in the ability to consider additional measures in the future as the field develops.	Please see response to comment F02-26.
F04	05		To enhance collaboration between our agencies, the NPS would like to meet with BLM managers and staff to explore ways to reduce NOx emissions from the Converse County and Crossbow Oil and Gas Projects. We will be reaching out to you shortly to arrange such a meeting.	Thank you for your interest in collaborating with the BLM regarding the impacts of this project.
F04	06		Potential Under-prediction of NOx/N Deposition Impacts • The Model Performance Evaluation demonstrated a bias toward under-prediction of nitrogen deposition and NOx throughout the modeling domain, which could lead to an under-prediction of nitrogen deposition and visibility impairment impacts in the affected parks. • Assumptions for total horsepower for hydraulic fracturing events may be undersized, which may under-predict NOx emissions. • Not all NOx mitigation assumed in the modeling analysis is included in the applicant mitigation measures (Chapter 6.0, Mitigation). The NPS believes that the above factors increase the likelihood that the modeling under-predicts potential impacts from the Converse County Projec1, and therefore underscores the need for NOx emissions mitigation in approving APDs.	The model bias toward under-predicting nitrogen could lead to higher than modeled impacts. The horsepower for the hydraulic fracturing events were based on feedback provided by the Operator Group (OG). The controls listed in Table 4.1-1 were added to OG-Committed Design Features, Section 6.4.
F04	07		The NPS also requests that in the Final EIS, the BLM: • Clarify whether the maximum NOx emission year (project year I 0) was used in the analysis.	The maximum NOx emissions year was project year 10. Text in Section 4.1.3.1 has modified for clarification.
F04	08		The NPS also requests that in the Final EIS, the BLM: Include and require NOx emission mitigation options assumed in the analysis in Chapter 6.0, Mitigation and implement additional mitigation where feasible, as recommended below.	Please see response to comment F02-26.
F04	09		The NPS also requests that in the Final EIS, the BLM: Consider future mitigation options and build the capacity to implement these as the field develops and infrastructure improves.	Please see response to comment F02-26.
F04	10		The NPS has identified two main issues of concern with respect 10 air impacts in the affected park units: nitrogen deposition in park ecosystems and reductions in visibility. Implementing measures to reduce NOx emissions from the proposed projects would mitigate both of these impacts.	Please see response to comment F02-26.

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National Park Service (Continued)				
F04	11		We are evaluating the Converse County Project impacts both independently and in conjunction with the potential additive impact of the Crossbow Project. The Crossbow Project area is located adjacent to and overlapping the project area for the Converse County oil and gas development, and may be implemented within a similar timeframe. Both projects are also within the immediate decision space of the BLM; we therefore recommend evaluating impacts and potential mitigation in the context of their additive impacts. As the BLM may be making a similar decision for the Crossbow Project in the near future, we suggest that the recommended mitigation measures be also be considered for that project.	The BLM has considered the additive impacts of the Crossbow Project along with the impacts of the Converse County project through the regional modeling process and in the cumulative impacts analysis (see Sections 5.2.1 and 5.3.1). Consideration of mitigation measures for the Crossbow Project will be disclosed in NEPA documents for that specific project.
F04	12		These modeled exceedances of the DAT are amplified whe111 the impacts of the Converse County and Crossbow Projects are considered together. Because the impacts of these projects are likely additive and the project decisions may occur within a similar timeframe, we recommend that BLM sum the nitrogen deposition results for the Converse County and Crossbow Projects and disclose this information in the DEIS for both Projects. As outlined later in these comments, we recommend that additional NOx reductions from both the Crossbow and Converse County projects are necessary to alleviate these deposition impacts.	The Crossbow project and other nearby emission sources are analyzed together in the cumulative impacts Section 5.3.1. The mitigation requirements are based on the Converse County project-only impacts. Additionally, the Crossbow project was placed on-hold in 2018. It is unknown if that project will proceed in the future.
F04	13		Even if the visibility impacts are under-predicted, the NOx emission reduction recommendations would also mitigate any outstanding visibility concerns in addition to addressing deposition concerns.	Agree that NOx emissions reductions also would mitigate visibility and deposition concerns.
F04	14		our NOx mitigation recommendations focus on these sources and processes accordingly. The mitigation measures presented here have been implemented elsewhere in Wyoming and throughout the U.S., however the NPS recognizes that many project-specific factors must be considered when determining which measures may currently be feasible and which may be phased in over time. Although some measures presented here may not currently be feasible for the Converse County Project, they may become feasible over time, and we therefore request that they be considered for implementation in an adaptive management framework. Such measures should also be considered in the near future for the Crossbow project.	Please see response to comment F02-26.
F04	15		The NPS respectfully requests that the BLM consider the following potential NOx mitigation measures, in addition to any equivalent measures as proposed by the operators: in NOx Reduction Options for Drilling and Completion Engines, including but 1101 limited to: a. Use of new Tier IV compliant engines. This option would require newer engines manufactured after 20 l 5, the full phase-in year for Tier IV standards. This option would reduce NOx emissions from drilling and completion engines by roughly 90% for the large generator sets and roughly 43% for mechanical engines (e.g., hydraulic fracturing engines) relative to Tier II engines.9 It should be noted that the emission inventory assumed Tier IV engines for large generator sets, bu1 Chapter 6.0, Mitigation does not require the use of Tier IV compliant generator sets. Furthermore, Chapter 6.0, Mitigation requires the use of Tier II-complainant drill rig engines, but other engines including water rigs and workover rigs are exempt. However, the emission inventory assumes that such engines will be at least Tier II-compliant. At a minimum, NOx emissions assumed in the inventory should be required in the EIS. Although Tier IV-compliant engines are newer engines and may currently be less available than older engines, they will become more available over time, making them a feasible mitigation option as field equipment is replaced throughout the life of the project.	Please see response to comment F02-26.
F04	16		The NPS respectfully requests that the BLM consider the following potential NOx mitigation measures, in addition to any equivalent measures as proposed by the operators: in NOx Reduction Options for Drilling and Completion Engines, including but 1101 limited to: b. Tier IV equivalent engines for drilling and completion operations. This option can be achieved through retrofit of Tier II engines with Selective Catalytic Reduction (SCR). These controls can achieve from 80% to upwards of 90+% reductions in NOx emissions from these engines.1u This option is currently being implemented elsewhere in Wyoming.	Please see response to comment F02-26.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
National Park Service (Continued)				
F04	17		The NPS respectfully requests that the BLM consider the following potential NOx mitigation measures, in addition to any equivalent measures as proposed by the operators: in NOx Reduction Options for Drilling and Completion Engines, including but 1101 limited to: c. Use of natural gas-fired or dual-fuel engines. Both natural gas-fired and dual-fuel engines have proven to be feasible, cost-effective options for drilling operations in various basins throughout the United States and Canada. We note that publicly available data shows that EQT, Apache Corporation, Chesapeake Energy, Statoil, Encana Corporation, Cabot Oil and Gas, Antero Resources, CONSOL Energy and Seneca Resources have all successfully employed natural gas-fired or dual-fuel engines for drilling operations. Liquefied Natural Gas (LNG) and dual-fuel engines have also been successfully employed in completion (hydraulic fracturing) operations. 11,1: The use of natural gas-fired and dual-fuel engines can achieve upwards of an 85% reduction in NOx emissions relative to Tier 1 engines.13 The NPS recognizes that natural gas-fired and dual-fuel engines may not be suitable for all operational circumstances, however given that they have been successfully implemented by numerous operators in a variety of areas and operations, we request that their use be considered. This option works well in more developed fields where additional wells are being drilled near existing natural gas producing wells or where natural gas pipelines are nearby. These will likely become more available as the field develops.	Please see response to comment F02-26.
F04	18		The NPS respectfully requests that the BLM consider the following potential NOx mitigation measures, in addition to any equivalent measures as proposed by the operators: in NOx Reduction Options for Drilling and Completion Engines, including but 1101 limited to: d. Electrification of drilling operations. This option would virtually eliminate NOx emissions from the drilling phase and has been used successfully in the Marcellus shale by CONSOL Energy. The NPS recognizes that this option depends on the availability of electric power in the project area and that some rural areas may not currently have sufficient electric power to support this option. However, even if sufficient electric power is not currently available, there may be opportunities to improve availability in the region as the field develops to the point where this option becomes feasible.	Please see response to comment F02-26.
F04	19		The NPS respectfully requests that the BLM consider the following potential Nox mitigation measures, in addition lo any equivalent measures as proposed by the operators: in NOx Reduction Options for Drilling and Completion Engines, including but 1101 limited to: e. Innovative options for "clean fleet" completion engines. Mobile turbine engine generator units have been successfully used with fleets that can be run completely on electric power, replacing numerous diesel engines traditionally required for hydraulic fracturing operations. This technology was first deployed in 2014 in the Marcellus Shale formation in West Virginia. The "clean fleets" may achieve up to 99% NOx reductions relative to traditional diesel engines. In addition, the fleets reduce fuel truck traffic and potentially provide economic benefits from reduced diesel fuel use replaced with onsite or pipeline gas where feasible. The NPS recognizes that electricity in rural areas may not be available in sufficient amounts to support this option, however there may be opportunities to improve electrical availabiliy as the field develops to the point where this option becomes feasible.	Please see response to comment F02-26.
F04	20		2. NOx Reduction Options jar Compressor Engines: Compressor engine emissions are relatively well controlled as proposed at 0.7 g NOx/bhp-hr, however there are numerous examples of lower NOx limits. For instance, the States of New Mexico and Texas routinely require new compressor engines to meet a NOx limit of 0.5 g/bhp-hr, as has the State of Wyoming. The NPS recently completed review of a NEPA proposal for a federal project in New Mexico that proposed NOx emission limits of0.S g/bhp-hr for small compressors (1,380 bhp/unit) and 0.3 g/bhp-hr for large compressors (5,000 bhp/unit). We recommend that the BLM work with the Wyoming Department of Environmental Quality, Oil and Gas Conservation Commission, Public Service Commission, and other relevant organizations to determine if similar limits are feasible for the Crossbow and Converse County Projects.	Please see response to comment F02-26.

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National Park Service (Continued)				
F04	21		3. NOx Reduction Options for Production Flares: The emissions inventory for the Converse County Project estimates there would be approximately SO wildcat wells per year that flare natural gas due to lack of infrastructure. ,s The NPS requests that the BLM and the OG consider options to limit flaring of associated gas. This could include, for example, utilizing natural gas pipelines to reduce flaring operations and capture additional natural gas for sale as the field develops.	Please see response to comment F02-26.
F04	22		NOx Reduction Options for Separator Heaters: The NPS recommends using the minimum temperature necessary and insulating separator heaters (heater treaters), which can minimize NOx emissions through reduced fuel usage for this equipment. We recognize that quantification of NOx emission reductions from this recommendation may be difficult. however this recommendation would be relatively straightforward to implement and likely cost-effective as a result of reduced fuel usage.	Please see response to comment F02-26.
Campbell County Board of Commissioners				
L01	04		Despite the benefits of year-round development, the DEIS does not provide a clear path for BLM to programmatically grant exceptions to raptor timing stipulations. The DEIS does not clearly outline when BLM will grant exceptions or the process that BLM will utilize to consider exception requests. In order to streamline year-round development, BLM and USFS should consider amending their land management plans to allow programmatic relief from raptor timing stipulations within the Project Area.	Please see the response to Comment B11-024.
L01	05	4.2.2.4	4.2.2.4, Mitigation for Cultural Resource Components of Possible Concern to Tribes: "Additionally, where adverse effects are identified on private surface, the BLM would work with willing landowners, to avoid, minimize, and/or mitigate (e.g. conduct data recovery) these adverse effects." While Campbell County appreciates the added language by BLM to recognize private surface ownership, there are additional concerns that remain. A. The Campbell County Commission strongly supports and recognizes existing law wherein cultural resources are the property of the private surface owner. The National Historic Preservation Act (NHPA) is a procedural statute that does not dictate substantive outcomes; accordingly, NHPA does not authorize BLM to delay permits in an attempt to force substantive outcomes. The landowner is not required by law to grant access to private surface for cultural resource survey information or for consultation with tribes and should access be denied, the agency should obtain information by other means to process the federal application and to conduct whatever needed consultation with the tribes is necessitated. NHPA does not require tribal access to private property in order to fulfill requirements for tribal consultation. To be clear, denial of access to private surface should not be a reason for BLM to delay or deny the federal undertaking, it being understood that any known or unknown cultural resources are the property of the private surface owner and not subject to oversight by BLM or the tribes.	Thank you for your comment. BLM follows existing law when processing an approval for an undertaking on federal lands or mineral estate. Also please see the response to Comment B11-059.
L01	06	4.2.2.4	4.2.2.4, Mitigation for Cultural Resource Components of Possible Concern to Tribes: "Additionally, where adverse effects are identified on private surface, the BLM would work with willing landowners, to avoid, minimize, and/or mitigate (e.g. conduct data recovery) these adverse effects." While Campbell County appreciates the added language by BLM to recognize private surface ownership, there are additional concerns that remain. B. BLM must provide clear guidance for the following situations: a. Upon denial by landowners to access private surface to conduct cultural resource surveys or tribal consultation, outline next steps to obtain best available information by other means to process the federal application in a timely manner.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.

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Campbell County Board of Commissioners (Continued)				
L01	07	4.2.2.4	4.2.2.4, Mitigation for Cultural Resource Components of Possible Concern to Tribes: "Additionally, where adverse effects are identified on private surface, the BLM would work with willing landowners, to avoid, minimize, and/or mitigate (e.g. conduct data recovery) these adverse effects." While Campbell County appreciates the added language by BLM to recognize private surface ownership, there are additional concerns that remain. B. BLM must provide clear guidance for the following situations: b. Should access be granted by the private landowner, clearly outline next steps. Specifically, landowners should be apprised of the process, timeframes for conducting consultations between BLM and tribes, and reasonable expectations for landowners should cultural resources or tribal areas of significance be found. Landowners should be notified prior to any site visit by BLM or the tribes and allowed to attend any site visit. Visits to sites on private property should be limited out of respect to the private landowners.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface
L01	08	4.2.2.4	4.2.2.4, Mitigation for Cultural Resource Components of Possible Concern to Tribes: "Additionally, where adverse effects are identified on private surface, the BLM would work with willing landowners, to avoid, minimize, and/or mitigate (e.g. conduct data recovery) these adverse effects." While Campbell County appreciates the added language by BLM to recognize private surface ownership, there are additional concerns that remain. B. BLM must provide clear guidance for the following situations: c. Finally, BLM should clearly outline the process regarding next steps for tribal consultation on federal surface. For energy companies working through the permitting process on federal lands, certainty needs to be provided as to timeframes and expectations for tribal consultation. Consultation should be as expeditious as possible. BLM must provide a path forward to gather necessary information and move toward timely processing of federal permits.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface
L01	09	4.2.2.4	4.2.2.4, Mitigation for Cultural Resource Components of Possible Concern to Tribes: "Additionally, where adverse effects are identified on private surface, the BLM would work with willing landowners, to avoid, minimize, and/or mitigate (e.g. conduct data recovery) these adverse effects." While Campbell County appreciates the added language by BLM to recognize private surface ownership, there are additional concerns that remain. C. BLM's NHPA jurisdiction on private surface is limited to an analysis of the potential effects of a federal undertaking on National Register of Historic Places (NRHP) eligible historic properties within the area of potential effect (APE). a. The APE mitigation requirement is creating a significant amount of confusion and contention among landowners and energy operators. It is important to draw a distinction between APE management applied to private surface versus a federal action. APE restrictions for the protection of viewshed should not be applied to private surface and BLM does not have the management authority to enforce on private landowner actions. However, federal undertakings are still subject to the requirements of APE restrictions even if on split estate lands. Clarification needs to be provided as to how management prescriptions are applied to private lands within an APE viewshed area.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface

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Campbell County Board of Commissioners (Continued)				
L01	10	4.2.2.4	4.2.2.4, Mitigation for Cultural Resource Components of Possible Concern to Tribes: "Additionally, where adverse effects are identified on private surface, the BLM would work with willing landowners, to avoid, minimize, and/or mitigate (e.g. conduct data recovery) these adverse effects." While Campbell County appreciates the added language by BLM to recognize private surface ownership, there are additional concerns that remain. D. NHPA does not authorize BLM to mandate private surface owner compliance with mitigation measures designed to protect privately owned historic property. a. BLM can make recommendations to the operator and the landowner for protection of cultural resources (avoidance) or the viewshed, but if the landowner denies implementation of the mitigation, which is their right, BLM should move forward with processing and approving the application for permit to drill (APO) if it meets all other requirements.	Please see the response to Comment L01-05.
L01	11	4.2.2.5	Historic trails are the property of the surface owner. BLM does not have the management authority to enforce mitigation for the protection of historic trails and its viewshed on private landowners. In addition, BLM can make recommendations to the operator and the landowner for protection of historic trails or the viewshed, but if the landowner denies implementation of the mitigation, which is their right, BLM should move forward with processing and approving the federal application if it meets all other requirements. Moreover, the BLM Mitigation Handbook H-1794-1 (BLM December 22, 2016) was rescinded by Executive Order 13783 and Secretarial Orders 3349 and 3360. Therefore, without a basis for this requirement in the DEIS, the directive to implement compensatory mitigation for historic trails no longer exists and this language should be removed from the document. This response also applies to 6.6.2 Implementation of Compensatory Mitigation for Cultural Resources and Trails.	The BLM follows existing law when processing an approval for an undertaking on federal lands or mineral estate. Also note that the directives rescinding previous mitigation guidance do not apply to the NHPA. Under Section 106 of the NHPA compensatory mitigation can be required.
L01	12	4.7.2	We recommend removing any and all statements suggesting "typical" background noise levels are 24 dBA "in Wyoming." This background noise level is based on one study. Suggesting that a sound pressure level of 24 dBA is the ambient noise level associated with sagebrush ecosystems in Wyoming based on one study is not scientifically defendable, especially since this low ambient background level fails to recognize the significant impact that wind has in Wyoming on ambient noise levels.	The text has been modified as suggested. Note that the BLM's Approved Resource Management Plan Amendments for sage grouse reference 20-24 dBA as ambient in undeveloped sage habitats.
L01	14	4.11, Table 4.11-4	Assuming 500 total wells drilled per year, the project would require approximately 200 drill rigs. Even if this estimate is wildly conservative, and it only takes 75 days per drilling cycle, that still results in the need for 100 drill rigs.	Although not reported in the DEIS, the analysis is based on an average of about 10 wells/rig/year. Alternative A assumes deployment of 10 to 12 rigs, Alternatives B and C assume deployment of about 50 rigs. The text in 4.11.1, 4.11.2, 4.11.3 and Appendix C has been revised to report the rig counts.
L01	16		The location of roadways in northeast Wyoming necessitates that Campbell County roads will be potentially heavily impacted by development of the Project within Converse County because of shortened travel distances and the workforce and service company base out of Gillette. Roads like the Cosner Road will likely see increased traffic as a cut-across between Highway 387 and Highway 59.	Comment noted. The BLM's analysis area for transportation impacts includes the CCPA plus the regional transportation network (see first paragraph of Section 3.13). Assessing impacts beyond this analysis area would be speculative and beyond the scope of analysis in the EIS.
L01	17		This increased traffic further supports our desire to see exceptions granted for year-round drilling. Year-round drilling will decrease total traffic, especially traffic associated with moving in and out rigs and other equipment, and also decrease traffic upon and damage to county roads and highways from heavy loads, while also helping to keep airborne dust particulates low, which is critical to the continued operation of the coal mines within the Powder River Basin.	Thank you for your comment. Also see the response to Comment B11-024.
L01	18		Offsite dust particulates from gravel roads can limit mining activities on nearby Campbell County mines and Campbell County works hard to limit dust upon its roads.	The Operator Group has stated dust suppression controls would be used for all traffic, which would diminish the fugitive dust impacts.

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Campbell County Board of Commissioners (Continued)				
L01	21	4.15.2	Regarding historic trails and protection of the actual trail, most private landowners and federal permittees respect the protection of cultural resources and want to protect Wyoming's history. If trail segments are discovered, BLM abides by the process of avoidance, minimization, or mitigation. Avoidance is the primary objective and can be achieved the majority of the time. Under any circumstance, if the trail or trail segment is located on private surface, it is the property of the surface owner and should be managed the same as cultural resources, which means if the landowner denies access to obtain cultural information or denies implementation of mitigation that should not be a reason that BLM defers or denies the federal action.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface and would develop a Programmatic Agreement to address alternative strategies for complying with NHPA on federal and non-federal lands.
L01	22	4.15.2	It is important to draw a clear distinction between Visual Resource Management (VRM) application to private surface and a federal action. VRM stipulations and management restrictions do not apply to private land or actions conducted by the landowner on their property. However, federal actions are still subject to the requirements of VRM stipulations even if on split estate lands. In all instances, the language in the applicable RMP is the driving force for the federal agencies when determining the management flexibility when applying VRM mitigation to federal actions.	The text in Chapter 1 has been revised to clarify the extent of BLM's authority. See the response to Comment B11-059.
L01	24	4.18.3.2	Again, year-round development is a key component of the Project. The land use plans directing management of the Project Area contemplate that activities near raptor nests will stop for six months of the year. This directive, however, will increase the overall environmental impacts from the Project. Operators will take a longer time to drill all wells on a well pad, well pads will go un-reclaimed for longer periods, traffic will increase because of the need to move rigs on and off well pads each year, and dust and vehicle emissions will increase because of the increased traffic. Year-round development reduces these impacts.	The impacts of the proposed development with and without year-round drilling are disclosed in the impact analysis (see Chapter 4) for Alternative B and Alternative C. Also see the response to Comment B11-024.
L01	25	4.18.3.2	Year-round development also promotes continuous economic activity in local communities by reducing seasonal swings in the work force during the stipulation season. The fact that the Forest Service is not open to even considering wildlife exceptions under any circumstances, could create a more disruptive environment for wildlife over the long term.	Thank you for your comment. Also see the response to Comment L01-24.
L01	26	4.18.3.2	The Forest Service must reconsider its position on wildlife exceptions to promote a more reasonable balance between wildlife protection and energy development and to be in line with Presidential Executive Order 13783 ("Promoting Energy Independence and Economic Growth"). In order to streamline year-round development, BLM and Forest Service should consider amending their land management plans to allow programmatic relief from raptor timing stipulations within the Project Area.	Thank you for your comment. Also see the response to Comment B11-024.
L01	29	4.18.2	Campbell County strongly supports the Wyoming Sage Grouse Executive Order 2015-4 (EO) and the BLM and Forest Service Land Use Plans (LUP) must be consistent with that planning document to the greatest extent possible. Additionally, the agencies must incorporate a process that aligns with the management mechanisms in the EO. For example, the most recent version of the map to utilize for management purposes (version 3 versus version 4) should be adopted.	The BLM will follow the land use plan decisions and amendments in force at the time of future permitting approvals.
L01	30	4.18.2	Net Conservation Gain -- Campbell County maintains that the net conservation gain mitigation standard established in the LUPs is unreasonable and needs to be eliminated. Not only do we believe the net conservation gain standard is inconsistent with Federal Land Policy and Management Act (FLPMA), we also maintain that this benchmark was nullified by the revocation of the November 3, 2015 Presidential Memorandum, along with the repeal of multiple Presidential and Secretarial directives that established the net benefit mitigation criterion. It must be noted that FLPMA does not authorize BLM to require land users to offset their impacts to achieve a net conservation gain, rather, BLM may only condition land uses to avoid "unnecessary or undue degradation". FLPMA clearly recognizes that, as part of the multiple-use mandate, some degradation to the public lands may occur. As such, the net conservation gain standard needs to be eliminated throughout the LUPs.	Your comment is noted. The requested changes in land use plan wording is beyond the scope of this EIS. The phrase “net conservation gain” has been removed from the EIS and replaced with reference to the land use plan currently in force.
L01	31	4.18.3	Compensatory Mitigation -- With regard to compensatory mitigation requirements, Campbell County supports the Wyoming EO wherein compensatory mitigation is only required in core areas (identified by BLM as Priority Habitat Management Areas (PHMAs) and only if specific core area (PHMA) thresholds are exceeded. We further support the idea of consistent application of compensatory mitigation ratios as outlined in the EO's Compensatory Mitigation Framework.	The text has been revised to reflect recent updates to BLM policy with regard to compensatory mitigation.

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Campbell County Board of Commissioners (Continued)				
L01	32	5.3.18	BLM has not provided sufficient information to support this statement. Either more information needs to be provided to support this assumption or it needs to be deleted from the document.	Detailed analysis and supporting information is provided in Sections 4.18.1 through 4.18.3 as referenced.
L01	33	6.0	The premise that the BLM uses to justify their mitigation policy is based on Executive Orders, Secretarial Directives, Handbooks and Manual that were implemented under the Obama Administration and have since been rescinded. Therefore, Campbell County believes that the most logical approach for the BLM is to rescind any references to mitigation directives that are no longer relevant and adopt new directives that have since been implemented including but not limited to: Executive Order 13783 ("Promoting Energy Independence and Economic Growth") and Department of the Interior Secretarial Orders 3349 and 3360. Before issuing a Record of Decision, BLM must ensure that the EIS is consistent with these policies.	The text has been revised to reflect current BLM policy.
L01	34	6.3.2	The goals and objectives discussed under this section are extremely prescriptive, unrealistic and unattainable for the Forest Service to achieve. While they are mostly consistent with the Land Use Plan, the Forest Service does not have the staffing or financial resources to complete these objectives. Additionally, Forest Service is already failing to manage the TBNG lands consistently with its own existing Land Use Plan due to lack of funding. It is unclear from reading this section how the Forest Service plans to accomplish their goals with this management approach.	The adequacy of staffing and funding resources and the ability of the Forest Service to manage TBNG lands in accordance with its land use plan is beyond the scope of this EIS.
L01	35	6.6	Campbell County supports mitigation hierarchy of avoid, minimize and mitigate. Compensatory mitigation should only be required when thresholds are exceeded. The premise that the BLM uses to justify their compensatory mitigation policy is based on Executive Orders, Secretarial Directives, Handbooks and Manuals that were implemented under the Obama Administration and have since been rescinded. The most logical approach for the BLM is to rescind any references to compensatory mitigation that are no longer relevant and adopt the Wyoming's Compensatory Mitigation Framework.	The text has been updated in Chapter 6 to reflect current agency policy and guidance in regards to compensatory mitigation.
Campbell County Chamber of Commerce				
L02	02		General: Year-round development is a key component of the Converse County Oil and Gas Project ("Project"). The land use plans directing management of the Project Area contemplate that activities near raptor nests will stop for six months of the year. This directive, however, will increase the overall environmental impacts from the Project. Operators will take a longer time to drill all wells on a well pad, well pads will go un-reclaimed for longer periods, traffic will increase because of the need to move rigs on and off well pads each year, and dust and vehicle emissions will increase because of the increased traffic. Year-round development reduces these impacts.	Thank you for your comment. Also please see the response to Comment B01-03 regarding the impacts from year-round drilling.
Converse County Conservation District				
L04	01		Rangeland used by livestock and agricultural producers is a dominant land use in Converse County. There are anticipated irretrievable resources to rangeland productivity. Site specific Reclamation Plans (including seed mix composition and timing of reclamation planting) that are created to minimize impacts on the predominantly privately owned rangeland within the CCPA should be developed with full coordination and consultation with the landowner.	Text modified to add a mitigation measure.
L04	02		Impacts to livestock grazing operations including but not limited to the loss of AUM's, fugitive dust emissions, damage to rangeland improvements and the potential for livestock stress and loss could result in financial loss for livestock operators. CCCD suggests that compensatory mitigation be included.	Thank you for your comment. Per recently issued BLM guidance (Instruction Memorandum IM 2019-018) the agency cannot require compensatory mitigation for the use of public lands. The document has been revised to reflect this new guidance.
L04	03		Natural resource impacts on disturbed soils can be extreme especially on fragile, sandy soils. Thorough site-specific reviews of affected ground for reclamation potential is encouraged prior to the commencement of soil disturbing activities. Sites that are identified as being particularly sensitive to potential adverse impacts from oil and gas development and operations or with difficult reclamation potential should be avoided. Successful reclamation is paramount in reducing adverse effects on livestock, wildlife, and soil quality.	SOIL-2 states that soils with limiting characteristics will be avoided to the extent possible. SOIL-1 includes the review of soil characteristics and amendments for reclamation purposes.

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Converse County Conservation District (Continued)				
L04	04		CCCD is concerned with potential impacts to groundwater aquifers due to dewatering and re-injection of produced water into aquifers as well as the impacts to wildlife, livestock, vegetation and related habitats due to groundwater draw·down and depletion potential. Further detailed examination of the probability of groundwater drawdown and depletion should be made using existing hard data as landowners located within the CCPA have experienced dewatering issues in the past that they have attributed to oil and gas activity.	There is no consistent “hard data” regarding drawdown, therefore the model was constructed in order to estimate the extent severity of effects.
L04	05		CCCD maintains that the water quantity and quality related environmental impacts or water supply wells for oil and gas development and operation as stated in the Draft EIS are contradictory. CCCD does not consider groundwater impacts to be "negligible" when the withdrawal of groundwater will be both an irretrievable and an irreversible commitment of the resource. Specific identification and location of water supply wells should be analyzed in the Final EIS to the extent practicable. While it is stated in the Draft EIS that cones of depression associated with pumping water wells would be isolated and localized, the effects of groundwater drawdown and/or depletion are potentially significant to the private landowners and producers in those areas. CCCD recommends mitigation required of the Operating Group to provide replacement water supplies should private domestic and livestock water wells experience drawdown or dewatering.	As noted in the response to Comment S06-01, the State Engineer's Office may ultimately have to regulate the amount of pumping that would occur.
L04	06		Analysis under Alternative A assumes no recycling of wastewater (either produced or flowback). Will recycling or beneficial uses of produced water be considered in the Final EIS?	Recycling is integral to Alternate C considered in the Draft EIS. Under Alternate A (No Action), recycling may occur and may be occurring at this time, but information on volumes is available.
L04	07		CCCD understands that exact locations of environmental impacts have not been identified and therefore the information in the majority of the Draft EIS is based on estimates and assumptions. CCCD appreciates that the BLM plans to provide detailed site-specific effects during the APD phase of the permitting process. However, as a majority or the CCPA is on private surface, imposition of extensive surveying, monitoring requirements and impact analysis of well pad construction should not infringe on the rights of private surface owners, federal intrusion on private surface ownership must be avoided.	Comment noted. Sections 4.5.2 and 4.5.3 disclose possible impacts to private landowners.
Converse County Board of Commissioners				
L05	001		The Board of Converse County Commissioners is very interested in participating in the development of socioeconomic mitigation strategies that would minimize the uncertainty as it relates to the resources and services that we are charged with providing and protecting on behalf of our constituents. Along with our comments on the Draft EIS, we have developed Mitigation Opportunities (Attachment 1) that we would like the Operators Group (OG) and the Bureau of Land Management (BLM) to commit to developing in conjunction with the Board of Commissioners. We recognize there are details regarding this mitigation proposal that need to be worked out, but with the level of uncertainty and the great potential for the proposed level of development to significantly impact and substantially change our community, we feel strongly that the proposed Mitigation Opportunity be seriously considered and incorporated into the Final EIS.	The text has been modified to expand the description of the socioeconomic mitigation strategy, incorporating elements of Converse County's proposed strategy while acknowledging BLM's limited jurisdiction in this area.
L05	002		The socioeconomic impact analysis touches on many concerns, but the actual impacts deserve more delineation and attention, given their magnitude. There also appear to be some impact calculation errors and the need for more substantiated assumptions, including the experience Converse County has already had with petroleum industry boom and bust over the past decade. However, a robust approach to the proposed mitigation program will somewhat allay these concerns, since the foundation of all of the analyses is highly uncertain, anyway.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. See the response to LO-5, comment 001 above re: a cooperative monitoring and mitigation effort.
L05	003		Additionally, we believe year-round development would reduce the potential impacts on our socioeconomic resources as well as other resources such as transportation, air quality, and vegetation. We recognize this is an element of Alternative B, the Preferred Alternative, however the analysis in the DEIS is not consistent on this point under each resource. We request that the analysis, both negative and positive, of year-round development be discussed for every resource. Furthermore, the criteria to grant an exception to allow year-round development in an area that would otherwise be subjected to raptor or grouse timing stipulations is unclear.	Thank you for your comment. Also see the response to Comment B11-024 and Comment L01-24.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Board of Commissioners (Continued)				
L05	004		As the Board of Commissioners, we also have a responsibility to consider impacts to resources that affect private landowners in the County. BLM should revise the cultural resource management measures proposed in the DEIS. Any cultural resource management measures must respect the rights of private surface owners in the Project Area. The United States owns only 10 percent of surface lands within the Project Area, and the Project involves a proposal to develop horizontal wells on these lands. Therefore, many of the wells developed by the Project will be located on off-lease, nonfederal surface estate (the "fee-fee-fed" scenario).	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface and would develop a Programmatic Agreement to address alternative strategies for complying with NHPA on federal and non-federal lands.
L05	005		When the pad will be on private surface, the BLM should analyze only the impacts of drilling a well, rather than also analyzing the impacts of building the well pad under NEPA, National Historic Preservation Act (NHPA) and Endangered Species Act. Accordingly, the scope of BLM's analysis under these statutes will be narrow and should rarely consider the impacts of constructing well pads when the location is on private surface.	Please see the response to Comment B11-059.
L05	006		Again, when on private surface, the BLM should eliminate the extensive surveying and monitoring requirements proposed in the DEIS including DEIS at 6-23 (CR-1), DEIS at 6-23 (CR-4), DEIS at 6-23 (PALEO-1). Neither the NHPA nor any other statute or regulation requires these surveying and monitoring measures before BLM may authorize development. Furthermore, the imposition of these extensive surveying and monitoring requirements throughout nearly all of the Project Area encroaches on the rights of private surface owners. Consistent with the surface ownership patterns in the Project Area, BLM must eliminate these requirements to minimize federal intrusion in privately owned surface.	Please see the response to comments B11-103 through 111, B11-113 through 119, and B11-120 through 122 regarding revisions to the referenced mitigation measures. Also see the text in new Section 1.4.3 which provides detail on the extent of BLM's authority to impose mitigation measures within the CCPA. The BLM recognizes the limits of its authority within the CCPA.
L05	007		Additionally, BLM must ensure it manages historic trails in accordance with the Casper Resource Management Plan (RMP). However, the RMP was developed before this large development was contemplated. It would seem wise to explore an amendment to the RMP to deal with the new technology. The view shed requirements in the RMP are detrimental to full development of the natural resources contain underneath.	Thank you for your comment. Also please see the response to Comment B11-024.
L05	008		Consistent with our concerns for private landowners, we are concerned with the amount of water that would be extracted from aquifers and the potential impacts on private domestic and livestock wells. While there will be evaluations during the site-specific NEPA evaluations we are concerned that these evaluations may not capture a cumulative or long-term impact on these private wells. We would like a commitment that if the water supply for a domestic or livestock well is significantly reduced that the OG will mitigate the impact by providing replacement water supply (e.g., a pipeline, maintaining a storage tank, or providing an alternative water source).	As noted in Comment S06-01, the State Engineer's Office may ultimately have to regulate the amount of pumping that would occur.
L05	009		Converse County respectfully requests that the BLM and the OG consider the mitigation plan we have submitted. We believe these mitigation steps should be made part of the EIS and the BLM approval process. We have participated in this NEPA process from its inception, providing input and suggestions along the way. After carefully reviewing the DEIS, Converse County has concluded that the level, nature and uncertainty associated with the Preferred Alternative creates an urgent need for these mitigation measures. Whereas we support the Preferred Alternative with year around drilling where reasonable, we need these mitigations to provide the opportunity to manage these impacts for the best interest of our constituents.	The BLM recognizes and appreciates the effort put forth by the Converse County Commissioners in developing these proposed mitigation measures. While BLM does not have the authority to require these mitigations the mitigation text has been revised to include the County's proposed mitigation approach. Also note that the Operator Group has committed to annual meetings with county commissioners.

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Converse County Board of Commissioners (Continued)				
L05	010		The level of uncertainty, in terms of the scale of actual employment, population, and housing demands in any individual year, is extremely high. The DEIS assumes an average of 500 wells drilled per year for 10 years. However, depending on economic and other conditions, actual development (and employment, population and housing demands) could be very different, resulting in either higher than average or lower than average impacts in any one year. High/low scenarios should be developed for employment, population and housing demands, as well as for estimated revenue produced from various sources. The highest risk rests with local government.	The uncertainty associated with energy resource development is acknowledged in the introductory section of 4.11, as are some of the factors that affect the timing and pace of such development. Considering the myriad of factors that drive the pace of development, no empirical basis exists for determine a reasonable range of development that would be more accurate than the average of 500 wells/year assumption used in the assessment. Theoretically, the low would be essentially no new drilling in any given year, whereas a high scenario would be basis on the comparative returns available from development in this area as compared to other opportunities. Such an assessment is beyond the scope of this EIS. Furthermore, even if a range were developed, the results would not provide local communities with better information in terms of the level of development in a specific year, or that expected the following year, etc. In lieu of developing arbitrary high and low scenarios, the socioeconomic mitigation sections for each action alternative have been amended to support semi-annual monitoring with industry-based forecasts of yearly and five-year rolling revenue forecasts of drilling and development activity. These forecasts would be more useful for local government planning efforts than the suggested high and low scenarios. To address this concern, see the response to L05-01 above regarding a cooperative monitoring effort proposed by Converse County.
L05	011		We are unable to confirm the employment estimates in the DEIS with the provided information on employment for specific facilities. The assumed breakdown of wells per pad is needed in Appendix C. i.e. x% of pads with 10 wells, y°/o of pads with 15 wells, etc. Also missing is a detailed schedule of timing assumptions behind facility construction estimates, i.e. what are the assumptions of when specific ancillary facilities would be built?	Appendix C has been revised to provide additional information regarding the timing assumptions for facility construction. The assessment is based on development profiles for a typical single well pad scenario and a typical multi-well pad scenario with 4 wells. No specific assumptions were defined regarding the number of well pads with 10, 15 or other specific numbers of well bores.
L05	012	4.11	The text and tables discussing direct and total employment numbers in Chapter 4.11 are inconsistent with the data presented in Appendix C. There is no way to reconcile those differences - it appears that there are several errors throughout those pieces of the DEIS. There appear to be inconsistencies between the text and tables throughout the employment portion of Chapter 4.11 and there appears to be several errors in the data presented.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated.
L05	013	Figures 4.11-16 and 4.11-17	There appears to be an error in the calculation of the total incremental employment. Direct ancillary facility employment was added in to Figure 4.11-16 in the DEIS; however, the presentation of total employment in Figure 4.11-17, as well as the text discussion of employment, remains the same as in the PDEIS. Estimated population changes and housing demands are also the same in DEIS as in the PDEIS, even with the additional ancillary facility employment, which looks to be about as much as 500 people in Year 1. If this is a true error, then population and housing demand estimates are understated in the DEIS.	Several corrections have been made to the cited numbers and other portions of this section in response to this and multiple other comments.
L05	014		The discussion of housing impacts is incomplete. Although an estimate of the demand for new units is provided, there is no comparison back to current availability of units (as presented in Chapter 3), which would give the reader a picture of the difference between existing supply and future demands and the housing market situation that would face Converse County. A more comprehensive discussion would also more fully address changes in housing prices, changes in the future burden of cost of housing as a portion of income and the social effects of housing shortages.	Additional discussion of housing costs as a component of the overall cost of living has been added in Section 3.11. Section 4.11.2. discusses housing demand by community by housing type. As noted, rental housing was almost fully absorbed during the period when the housing inventory was conducted for the EIS and that new rental housing would be required to satisfy project related demand. Similarly, mobile home parks were reported to be at or near capacity consequently new mobile home resources would be required to satisfy demand. The text has been modified to reflect these circumstances. Section 4.11.2 also discusses anticipated housing cost effects both during and following development, and describes social effects of housing shortages, such as effects on wages, the ability to recruit and retain workers in direct, indirect and induced industries, and use of unconventional housing resources.
L05	015		Changes in the overall total cost of living are not sufficiently addressed in the DEIS. A brief qualitative discussion of that issue is included, but this does not capture what is likely to happen at peak development. A more detailed look at the cost of living in the counties (Wyoming Cost of Living Index), by component parts would be informative.	The discussion of overall changes in the cost of living that can accompany rapid energy resource development has been included in Chapter. 3 and text describing the potential for such changes, particularly in Converse County have been added in the FEIS.

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Converse County Board of Commissioners (Continued)				
L05	016		The discussion and evaluation of impacts to public services and facilities is inadequate for the purposes of the EIS and local planning efforts. Other than for additional law enforcement needs, there is no quantification of impacts or costs to these services and no indication of magnitude of effects. Details of how roads, health services, education, fire protection, water, sewer, library, etc. will be impacted are missing. How much greater will demand be and how quickly can it come on? Will there be warning? Will the money be there to pay for facility expansion and services? These are only examples of the analyses that are missing for all the public facilities and services. Impacts to public services (water, roads, etc.) are issues that Converse County and other jurisdictions must deal with on a daily basis.	The Community Infrastructure and Services subsection of Section 4.11 describes impacts from each alternative. For Alternative B, effects on key community infrastructure (water, wastewater, solid waste disposal, and detention facilities) are discussed in terms of system capacity vs peak demand. Effects on community services are discussed qualitatively, as each county and community would respond to forecast demand based on a variety of different factors, including willingness to invest in additional staff, equipment, and facilities given the uncertainty and volatility associated with the actual pace of development (see https://opengov.com/customers/converse-county-wy-navigates-boom-and-bust-cycles-with-fiscal-transparency-through-opengov). Text has been added to summarize this information by county and community. Additionally, the proposed socioeconomic monitoring and mitigation measures (see response to Comment # 735), which include annual and near-term forecasts of development, would provide counties and communities a more effective basis for infrastructure and service planning decisions.
L05	017		The DEIS provides information about various revenue streams associated with the development, but for the most part does not indicate what jurisdictions would receive how much of each revenue source and when. As we have pointed out in previous comments on the PDEIS, Converse County needs a much better indication of costs to them from development impacts as well as the revenues that would come to them. The big revenue numbers are meaningless to local government unless we know who gets what, when.	Due to the programmatic nature of this EIS and the level of detail available regarding the location of OG and service company offices and yards, and the points of delivery for purchases, the requested level of specificity is outside the scope of the analysis. However, additional information regarding the basic basis and formulas for revenue distribution to local governments has been included in Section 3.11 of the FEIS. The fiscal conditions discussion in Section 4.11.2 describes the distribution of ad valorem tax revenues, the only development-related revenues that would accrue directly to local governments. Other revenues, including federal mineral royalties, Wyoming severance taxes, and sales and use taxes associated with development are estimated and the distribution formulas to the state and statewide local governments are described. A general estimate of the percentage of sales and use tax revenues that would accrue to Converse County is provided. Allocating state-distributed revenues to affected entities over time would be speculative, given the complex nature of state distribution formulas and the uncertainty and volatility associated with the pace of development. This level of detail would also be beyond the scope of a Programmatic EIS.
L05	018		Oftentimes the counties are lumped together in terms of baseline data and impacts. A more detailed focus on the impacts to individual jurisdictions, including larger communities, is warranted and necessary. Since each local government jurisdiction is responsible for its own services and facilities, the impact analyses ought to be at that level.	Please see responses to comment numbers L07-03 and L05-40.
L05	019		The impacts of the loss of more than 6,000 employees over a 2-year period at the end of the 10-year development period requires much more examination and discussion than is evident in the DEIS.	Some discussion of the loss of employment at the end of the development phase of the proposed Action and alternatives is presented in the discussion of cyclical expansion and contraction in the oil and gas industry in Section 4.11.
L05	020		The discussion of impacts for Alternative C inadequately addresses the socioeconomic implications of the variability of activities over the year, i.e. pressures on public services, housing, etc.	As stated in Section 4.11.3, even with timing limitations in place, development activities would occur on the estimated 80 to 85 percent of sites on federal mineral ownership not affected by timing limit stipulations and on the 35 percent of the CCPA in fee ownership or under state management. Strategic planning with respect to the siting and sizing of well pads could allow larger operators with more extensive land positions to conduct year-round development. Section 4.11.3, qualitatively describes the anticipated relatively minor differences in employment, population, housing and public infrastructure and services demand, fiscal and social conditions. Given the potential that major operators could conduct year-round development even with timing stipulations, quantifying employment and other socioeconomic effects of timing stipulations would not be useful.
L05	021		The DEIS presents the impacts of Alternatives A, B and C separately. However, if Alternative B or C was chosen, then the total and complete impacts to Converse County and others would be those stemming from Alternative A PLUS the other alternative. The DEIS does not present a quantifiable data set of total impacts to population, housing, traffic, public services, etc. should Alternative B or C be chosen. This point should also be emphasized.	Cumulative effects of the proposed alternatives are discussed in Section 5.3.11. Detailed information regarding the potential social and economic effects of the individual projects includes in Alternative A projects are not available. Consequently, quantifiable estimates of the total effects to population, housing, etc. are outside the scope of this programmatic assessment.

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Converse County Board of Commissioners (Continued)				
L05	022		The supposition that hiring out the local workforce will not create socioeconomic impact is probably false. In low unemployment circumstances and in less populated areas, local hires will be more scarce and more importantly, they will need to be replaced anyway. For instance, the convenience store clerk who goes to work on a rig will need to be replaced by someone. The minimal benefit of local hires was borne out in the last boom.	Comment noted. Local hires would come from among the unemployed, including displaced workers from the coal industry. Upgrading existing part-time jobs to full-time jobs would also provide the equivalent of local hires to meet the expanded workforce needs. Additional labor force immigration to replace workers who change jobs in pursuit of higher earnings, retirement and/or other fringe benefits, or other factors is acknowledged. Furthermore, the local labor supply would likely expand over time as more high school graduates enter the labor force, older workers remain active, and spouses and other adults others are drawn into the labor force by high demand, higher wages and opportunity. Past experience with rapid energy resource development in Wyoming has demonstrated declines in local unemployment and labor force expansion, resulting in an increased availability of local labor. The largest numbers of local hires was assumed in conjunction with Alternative A. The assumptions regarding local hiring were based on local market conditions at the time of the assessment. Changes in economic conditions since the assessment contained in the DEIS indicate some local population declines, even larger reductions in the labor force, and higher unemployment. Consequently, the assumptions regarding local labor availability remain reasonable. At the same time, the population decline may also mean additional available capacity in some public facilities and services. The text has been updated to discuss these changes.
L05	023		Appendix C provides information on the assumptions behind the calculations of direct and total employment, population and residency patterns, but there is no support or basis provided for each. For example, what is the basis for assuming that 2100 people can be hired from the existing labor force? Where do the residency assumptions for new residents come from? Do they assume no additional housing in Converse County? There are no citations or derivation of these critical assumptions.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated.
L05	024		Appendix C or in fact the DEIS did not explicitly state whether it was based at least in part on the historical experience Converse County has already had with a petroleum industry boom and bust, given that this has occurred over the last six years, the experience should be noteworthy as an empirical test. It is noted that socioeconomic impact might reach a peak approximately four times greater, however.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has been revised.
L05	025		The DEIS presents a Cumulative Impacts analysis for Socioeconomics that is a qualitative discussion of potential impacts. There is no quantification of impacts to any resource. Additionally, Converse County is concerned that the Cumulative Impacts analysis may be too conservative, in that it may be missing other developments that could occur in the future, given the economic conditions that would support Alternative B or C.	CEQ guidance for Programmatic NEPA documents provide for qualitative assessment in instances when insufficient information is available to support a quantitative assessment. Quantification of impacts from reasonably foreseeable development would be highly speculative given the lack of detailed information available, including the location, timing, and magnitude of the projects, and their associated employment and investment. With regard to future development used in the analysis, the BLM has identified future development for which there is adequate information available (e.g., submission of a Notice of Intent), which is the key factor used to identify it as reasonably foreseeable. However, the majority of the available information is insufficient to support quantitative analysis.
L05	027		The DEIS presents a qualitative discussion of recreational impacts. However, that discussion does not include any indication of the degree or magnitude of effects, which is necessary in evaluating impacts.	Given the programmatic nature of the analysis, as well as the dispersed nature of recreation in the analysis area, a quantitative analysis describing the degree of effects is not possible. The analysis for Alternative C does describe differences in level of effects when compared to Alternative B.
L05	028		Converse County is concerned about property values, especially decreases in property values from changes in adjacent land uses, i.e. properties adjacent to newly installed oil and gas infrastructure. The DEIS only briefly touches on this issue in several places.	Additional discussion regarding potential effects on property values will be provided in Section 4.11.
L05	029	4.13	Chapter 4.13 of the DEIS presents a lot of traffic data for different types of actions, i.e. separate traffic data tables are presented for well development; construction of facilities; production and operation activities for Alternatives B and C. However, nowhere in the DEIS is the traffic data presented as combined total traffic volume for any particular point in time, i.e. Individual or specific years. It is unclear how to use the data as presented to estimate how much traffic would actually occur in each year. Total annual average traffic volume and peak traffic volumes are necessary to estimate road maintenance costs, congestion, traffic delays and the potential for other vehicle related impacts. These are critical responsibilities for Converse County, and more complete information is needed.	The data presented in the analysis is not available in a form that can be manipulated to show the traffic volumes and other information requested in the comment.

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Converse County Board of Commissioners (Continued)				
L05	030		No traffic data is offered in the DEIS for Alternative A. Increases in traffic volumes associated with that alternative would also be applicable under Alternatives B or C. It would be the total traffic associated with Alternative A plus Alternative B or C that Converse County and local jurisdictions would have to respond to and that local drivers would be subject to.	Cumulative impacts to traffic are discussed in Section 5.3.13.
L05	031		The traffic data included in the DEIS does not include commuting workers. That additional traffic volume will place additional pressures on roadways and results in additional traffic related impacts. This traffic volume should also be considered.	The text in Section 4.13.2.1 has been revised to include information on impacts associated with commuter traffic.
L05	032	2.3.2	As described in this section of the DEIS, the 361 new well pads described as new development under the No Action alternative account for the following: 1. Well pads included in six recent BLM EAs (ranging in date from 2012 through 2014); 2. wells and pads from the Powder River Basin EIS (BLM 2003); and 3. additional well development estimates for non-Federal properties (based on a percentage of the proposed development in the identified EAs and EIS). Therefore, it appears that the estimates of new development under Alternative A are limited only to these historical proposals and that there is no accounting for any other potential future development that may occur in addition to those proposals. What about private lands? Is this truly an accurate representation of the development activity that would occur under the No Action scenario? Converse County realizes that the EIS must be based on the information available at the time or writing; however, the limited assumption of future development will minimize the potential effects of both Alternative A AND the evaluation of cumulative impacts.	The number of new wells under the No Action Alternative is based on the best available information and does include estimates of development of non-federal mineral leases. As explained in Section 2.3.2 an additional 1,064 new wells are anticipated to be drilled on federal minerals based finalized NEPA documents. An additional 599 wells are estimated to be drilled on non-federal minerals (estimated total of 1,663 new wells). This estimate provides a reasonable projection of potential new development throughout the CCPA under the No Action Alternative.
L05	032	2.3	The description of Alternative A does not include any estimates of traffic volumes or potentially affected roadways for any phase of well development or for construction/ operation of support facilities. Information on average daily vehicle trips is provided for Alternatives B and C. Traffic information for Alternatives A and C is necessary for evaluation of cumulative impacts.	Cumulative impacts to traffic are discussed in Section 5.3.13.
L05	034	2.3.2.4	The numbers do not appear to properly compute. Suggest the calculations be re-visited.	Section 2.3.2.4 on page 2-23 is concerned with production, distribution, and maintenance activities under Alternative A. Section 2.3.2.3 provides a summary of water use for this alternative.
L05	035	Table 2.4-2	While helpful, this information is insufficient to show how total employment for a given year or at peak can be calculated. Additional employment information is provided in Chapter 4 and in Appendix C, but the socioeconomic impacts are driven in part off employment, so full disclosure of exactly how employment is calculated is warranted.	Comment noted. Appendix C has been updated.
L05	036	2.5.2.1	One of the outcomes of the timing stipulations would be that employment, housing demands, public service demands and other socioeconomic impacts would become "bunched up" at certain times of the year, placing additional pressures on those resources during periods of peak activity. Year-round drilling activity would spread out those impacts to a certain degree.	Thank you for your comment. Also please see the response to Comment B11-024.
L05	037	2.5.2	Would Alternative C require the same amount of freshwater as described for Alternative B in Section 2.4.3.4 for drilling operations?	Alternative C would require less freshwater if the assumptions concerning recycling hold. The demand for water would be the same. Recycled water may not be “fresh.”
L05	038		The phenomenon of the mini-drilling boom in 2014 compared with the bust of 2015 and 2016 deserves more discussion. The change in the number of drilling rigs and supporting activity cause a substantial change in the socioeconomic conditions of Converse County. On a small scale, this is instructive of what uncertain fluctuations and the major drop in exploration activity might be like under Alternatives B and C.	Comment noted. The EIS acknowledges the potential for variations in the actual pace of development from those assumed for purposes of analysis. Some of the subsequent effects on local communities are described. Text has been added noting that the magnitudes and types of effects would be influenced by the relative magnitude and duration of the changes, as well as when within the overall development horizon such changes occurred. Timing would play an important role due to the increasing role of production employment and tax base over time. Additional discussion has been added about the effects of the slowdown and resumption of drilling.
L05	039		The definition and treatment of the socioeconomic study area is problematic and of critical importance to the later socioeconomic impact analyses. A large area, including three counties and numerous communities are included without fully explaining or substantiating that study area. For instance, historical information would be helpful in supporting that definition.	Additional discussion has been added to support the study area delineation.

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Converse County Board of Commissioners (Continued)				
L05	040		The structure of the socioeconomic section of Chapter 3 generally lumps the total three county area together which is not helpful in understanding the particular socioeconomic conditions of each jurisdiction. Since each jurisdiction is responsible for its own conditions and experiences its own eventual impacts, the information should be presented by jurisdiction where applicable.	A section has been added describing effects by county and community. Text has been added describing effects by county and community where relevant.
L05	041	3.11.5.2	How large is the under-reporting problem? Should the reader worry about it or not?	Although the extent of the under-reporting is unclear and likely varies over time, the magnitude of the issue is thought to be small in comparison to the total reported employment in the three-county region and being able to account for these workers is unlikely to alter the impact assessment. Furthermore, as noted, the effects associated with such workers, e.g., occupying local hotel rooms, expenditures in local eating and drinking establishments, and other consumer purchases, and generating sales taxes to support local government services, would be similar to those associated with tourists, hunters, or attendees to the state fair. However, one area of differentiation between these workers and most tourists, hunter, or attendees to the state fair would be that many of these workers may spend a week or more in the community, with extended stays in local hotels/motels. These workers also contribute to increased traffic, more congestion and higher prices. Text has been revised as appropriate. Although the extent of the under-reporting is unclear and likely varies over time, the magnitude of the issue is thought to be small in comparison to the total reported employment in the three-county region and being able to account for these workers is unlikely to alter the impact assessment. Furthermore, as noted, the effects associated with such workers, e.g., occupying local hotel rooms, expenditures in local eating and drinking establishments, and other consumer purchases, and generating sales taxes to support local government services, would be similar to those associated with tourists, hunters, or attendees to the state fair. However, one area of differentiation between these workers and most tourists, hunter, or attendees to the state fair would be that many of these workers may spend a week or more in the community, with extended stays in local hotels/motels. These workers also contribute to increased traffic, more congestion and higher prices.
L05	042	3.11.5.2	The Natrona County differential should be 293%, not 1,293%.	Thank you for pointing out the error. The text has been revised to reflect the correct differential.
L05	043	3.11	Table 3.11-20 shows the cost of housing in each of the counties, as compared to the statewide average, which is an indication of the local cost of living (a portion of the Wyoming Cost of Living Index). However, there are other components of the cost of living that should be presented somewhere in this section as well, in order to provide a complete picture of expenses in the area, as compared to the state. That provides a richer set of information on the local cost of living.	The discussion of overall changes in the cost of living that can accompany rapid energy resource development has been included in Chapter 3 and text describing the potential for such changes, particularly in Converse County have been added in the FEIS.
L05	044	Section 3.11.10.1, Tables 3.11-33 and 3.11-34	The revenue generation discussion does not make clear the disposition of each revenue source in terms of and specific jurisdictions. For instance, it is unclear which jurisdictions ultimately benefit from the severance taxes and the FMR. What is needed is an identification of each revenue source flowing to each jurisdiction.	Due to the programmatic nature of this EIS and the level of detail available regarding the location of OG and service company offices and yards, and the points of delivery for purchases, the requested level of specificity is outside the scope of the analysis. However, additional information regarding the basic basis and formulas for revenue distribution to local governments has been included in Section 3.11 of the FEIS.
L05	045	3.11.10.1	The text of this paragraph appears to be somewhat incomplete as compared to Table 3.11-30 and is awkwardly worded at the end.	The paragraph has been reformatted for clarity. However, that basis for the statement regarding incompleteness is itself unclear. As indicated, the text identifies the four primary categories of revenues associated with mineral development. Table 3.11-30 on the other hand provides expanded detail regarding the rates of various sales and use taxes that are levied in the study.
L05	046	3.11.10.2, Tables 3.11-36 and 3.11-37	More information is needed on specific expenditure items and revenue sources for Converse County and the other jurisdictions for eventual consideration in the impact analysis. For example, Road and Bridge, Public Safety and Public Works expenditures would be of use.	The level of revenue and expenditure data is appropriate for the description of effects presented in the Environmental Consequences assessment.
L05	047	4.0	It is not meaningful to present socioeconomic impacts aggregated for counties or communities. Whereas total employment, population and housing needs can be estimated as totals, they are only relevant when broken down and discussed by jurisdiction. Each jurisdiction must deal with its own impacts.	Text has been added to summarize population, housing, local government infrastructure and service, and social effects by county and community. Employment and earnings data is presented in aggregate, which is appropriate given the characteristics of the oil and gas industry.

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Converse County Board of Commissioners (Continued)				
L05	048	4.0	The text notes a decline of more than 6,000 employees that will occur over a two years period at the end of the 10-year development period. The impact analyses for Alternatives B and C only state that there will be effects but do not address those effects in detail. These impacts deserve much more examination. Similarly, the up and down variability and associated uncertainty in planning public services, facilities and housing is one of the larger impacts, but it is not given much attention as to how or why that uncertainty itself produces major impacts. A discussion of that would help support the mitigation proposed.	Additional text has been added to describe population declines, decreases in housing prices and increasing vacancies, increases in industrial/commercial vacancies, rising unemployment, declines in the number of students in public schools, reductions in local sales and use tax receipts, and others. Additional text has been added to describe population declines, decreases in housing prices and increasing vacancies, rising unemployment, declines in the number of students in public schools, reductions in lo
L05	049	4.11	Qualitative impacts to livestock and agricultural operations are noted, but there is no quantification of potential economic impacts to ranchers or other agricultural producers.	Comment noted. A discussion of effects on agricultural production has been added to Section 4.11 and to Table 2.7-2.
L05	050	4.11.2, Table 4.11-4	It is unclear as to how the "Estimated Total Person-days On-Site to Complete Well" were calculated for several of the development phases and how the total number of 5,962 was calculated. The table presents the "typical number of persons on site" and the "typical activity duration", but then the footnote states that the actual maximum number of people on site may sometimes exceed the typical number. The DEIS does not provide the specific assumptions of workers and activity days behind the 5,962 person days total for a 4 bore multi pad well.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated.
L05	051	4.11.2	(1) How can a reader use the data in 4.11 and Appendix C to verify those numbers? The DEIS provides a lot of different employment data, but not in a way that can be followed in order to confirm these numbers. (2) While, perhaps accurate in terms of "on-site" well development and completions specifically, this sentence could be misleading because the total direct employment in the CCPA (and that which the impacts are based on) is much higher, as seen in Figure 4.11-6. The on-site employment is described as employment occurring at the individual well site (a portion of the total). The total direct employment includes other activities occurring in the 3-county area.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.
L05	052	4.11.2, Figure 4.11-6	We could not find a way to recreate the employment estimates shown in Figure 4.11-6. Additional information on project scheduling or other assumptions used to make those estimates is needed to evaluate the validity of those calculations.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.
L05	053	4.11.2, Figure 4.11-6	The information and assumptions given in the section (and in Appendix C) do not provide enough detail to be able to re-create and confirm the employment estimates. For example, the DEIS does not provide detailed information for how many well pads will be 1,2,3, ... 16 wells per pad. All the data for person days of employment is based on well pads. The number of person days per well pad varies with the number of wells per pad. The aggregate employment relies on summing the person days across all the various well pads (plus the ancillary construction and other stuff). Without this information the direct employment numbers cannot be reproduced.	Comment noted. Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.
L05	054	4.11.2, Figure 4.11-6	The DEIS does not provide any assumptions for the timing of ancillary facilities construction. Knowing when these facilities will be constructed (and how many people will be employed each year) is crucial for reproducing the employment numbers.	All ancillary facilities are assumed to be constructed with the first 8 years of project development (see introduction to Section 4.11, methodology discussion). The assessment includes projected employment of an average of 337 full-time construction workers in years 1 through 4 and 267 full-time workers in years 5 through 8. Information summarizing the timing and workforce associated with ancillary facility construction has been added to Appendix C.
L05	055	4.11.2	The direct and total employment numbers in this section do not match the employment numbers in Table 2-7 of Appendix C. Chapter 4 indicates 3,504 direct jobs (and 6,650 total jobs) in 2018, while Appendix C states 3,039 direct jobs and 6,185 total jobs. And in both places a total of 3,146 indirect and induced jobs are stated - that cannot be the case given two different estimates of direct jobs.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.
L05	056	4.11.2, Figure 4.11-6	The text does not appear to match the data in the figure. (1) The text states a total of 3,504 direct jobs in 2018, but the figure shows over 4,000 total direct jobs in that year. (2) The peak year now looks to be about 2021, not year 10 as stated in the text, and looks to have more than the 4,643 workers indicated in the text.	Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Board of Commissioners (Continued)				
L05	057	4.11.2, Figure 4.11-7	The text does not appear to match the data in the figure. The text states a total of 6,650 total jobs in 2018, but the figure number looks closer to 7,000.	The reported estimates of total jobs have been checked and changes made in the text.
L05	058	4.11.2, Figure 4.11-7	The figure shows almost 7,000 new jobs in 2018, while Table 2-7 in Appendix C indicates only 6,185 new jobs.	The same total number of jobs are shown in Figure 4.11-7 and presented in Table 2-7 of Appendix C: 3,039 (direct) + 400 (additional construction) + 3,146 (indirect & induced) = 6,585. However, critical calculations have been checked and corrections made to text; Appendix C has been updated. The same total number of jobs are shown in Figure 4.11-7 and presented in Table C-9 of Appendix C: 4,089 (direct) + 400 (additional construction) + 4,019 (indirect & induced) = 8,508. However, critical calculations have been checked and corrections made to text; Appendix C has been updated.
L05	059	4.11.2, Figure 11-7	It appears that although the direct ancillary facility employment has been added into Figure 4.11-6 in the DEIS, that additional direct employment has NOT been included in Figure 4.11-7, which is the same as in the PDEIS. Figure 4.11-7 only includes 3,500 direct workers in Year 1, while the previous figure shows over 4,000 direct workers. The text discussing direct employment is the same in the DEIS as it was in the PDEIS, leading us to believe that the ancillary facility works have NOT been incorporated into the estimates of total incremental employment, population or housing demands. In fact, the estimates of population and housing unit demands are also the same in the DEIS as in the PDEIS, even with the additional ancillary workers. This must be checked and corrected throughout.	Comment noted. Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.
L05	060	4.11.2	The treatment of impacts to those types of business appears relatively superficial, especially for businesses located in Converse County. It would be reasonable to believe that many or most people would avoid visiting Converse County for tourism or recreational purposes altogether during the development period, given the number of other locations available for those activities that would not also have drilling activity occurring. However, some of the drilling workforce might also frequent those businesses in their free time.	As stated in the comment and described more fully in the text of the EIS, recreation visits to Converse County are likely to decline, but many of the business that serve recreation visitors would also serve workers associated with oil and gas development. Those businesses would benefit from the greater, more continuous year-round demand. The text also specifies that business focused exclusively on outdoor recreation would likely see declines, although some oil and gas workers would likely frequent these businesses. Although Section 4.10 describes the anticipated reduction in recreation visits, no estimates of these reductions are available, therefore the treatment of effects on businesses that exclusively serve outdoor recreation visitors is appropriate.
L05	061	4.11.2, Figure 4.11-8 and Table 4.11-5.	These population estimates may be incorrect considering that the ancillary workers may not be included in the total employment estimates in Figure 4.11-7.	Comment noted. Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.
L05	062	4.11.2, Figure 4.11-8 and Table 4.11-5	(2) The figure footnote indicates that between 250 and 500 workers living in man camps or other workforce housing are excluded from the population estimates. We believe that they should be included since they will be using at least some local services and amenities and will be a part of the total population in the area.	Workers who stay in man-camps commonly return to their homes (leave the area) when they're not on their assigned work-shifts. Work-camps are generally quite self-contained, providing sleeping, dining, recreation facilities. Many provide on-site security and urgent/emergency health care. Thus, they will result in some limited/temporary demands on local facilities and services but at lower levels than workers who reside in the community.
L05	063	4.11.2, Figure 4.11-9 and Table 4.11-6	These housing demand estimates may be incorrect considering that the ancillary workers may not be included in the total employment estimates in Figure 4.11-7.	Comment noted. Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.
L05	064	4.11.2	Under Alternative B, the employment estimates (Figure 4.11-7), incremental population estimates (Figure 4.11- 8) and estimated housing demands (Figure 4.11-9) are based on an assumption of an average of 500 wells drilled per year for 10 years. However, depending on economic and other conditions, those impacts (population and employment changes and housing demand) could be very different than what is presented for the average situation, resulting in either higher than average or lower than average population increases and/ or housing demands in any one year. Have high/low scenarios been developed for population and housing estimates? Data on the high end of development will be necessary to evaluate the peak year socioeconomic impacts if energy prices increase substantially and/or rapidly. The possibility of dramatically different population, employment and housing impacts needs to be addressed. This comment applies to all alternatives.	Section 4.11 discusses how uncertainty and volatility in the oil and gas industry would likely result in substantially different levels of annual development than those assumed for the assessment. High or low scenarios would be arbitrary and do little to address the uncertainty regarding annual levels of development. The socioeconomic monitoring and mitigation program suggested in Section 4.11.2 would provide estimates of actual and forecast levels of development based on more current conditions, which would aide local governments in planning efforts.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Board of Commissioners (Continued)				
L05	065	4.11.2	We request that the discussion of impacts to personal income be expanded to include the range of wages for the different types of workers required for Project development.	Additional information regarding the typical range of wages associated with oil and gas development has been added to the FEIS
L05	066	4.11.2	Additionally, more analysis needs to be included somewhere in the DEIS regarding anticipated changes in the overall cost of living in the 3-county area and the impacts that those changes may have on nonoil and gas workers based on their income levels. This is touched on briefly on p 4.11-42, but it is an important effect of proposed development.	The discussion of overall changes in the cost of living that can accompany rapid energy resource development has been included in Chapter 3 and text describing the potential for such changes, particularly in Converse County have been added in the FEIS.
L05	067	4.11.2	The DEIS addresses the adequacy of the temporary accommodations to meet Project demands (although the lack of space for other visitors is noted). However, the temporary housing demands are only one portion of total housing demand, as shown in Figure 4.11-10. The DEIS only discusses the impacts to housing resources as a whole qualitatively and there is no discussion of the adequacy of other types of housing. There is no quantitative comparison of the existing housing stock, as provided in Chapter 3, and the estimated demands. That comparison would provide a clearer picture of the situation. For example, data in Chapter 3 shows about 300 rental units available for rent in mid-2014 in the 3-county area. That compares to an incremental demand of several thousand units under Alt B. The discussion of housing needs, the related impacts on housing costs and social impacts of potential housing shortages needs to be more fully developed.	The referenced section states that “Rental housing in the three-county analysis area was almost fully absorbed during the fall of 2014. Most of the incremental rental housing demand for Alternative B would need to be filled by the construction of new units.” Section 3.11.7.1 states “While mobile home pads represent a substantial portion of the housing resource (in the study area), little availability was reported during the fall of 2014, particularly in Converse County” and “As is the case for mobile home pads, the housing market was extremely tight across the region during 22 2014, and housing prices remained high.” The text has been modified to reflect that construction of new housing will be required to accommodate virtually all project-related demand for conventional housing (rental housing and mobile home spaces, and housing for purchase). The referenced section states that “Rental housing in the three-county analysis area was almost fully absorbed during the fall of 2014 when there were 18 rigs drilling in Converse County, 13 in Campbell County, and substantial oil and gas infrastructure development was occurring in both counties. Most of the incremental rental housing demand for Alternative B would need to be filled by the construction of new units.” Section 3.11.7.1 states “While mobile home pads represent a substantial portion of the housing resource, little availability was reported during the fall of 2014, particularly in Converse County” and “As is the case for mobile home pads, the housing market was extremely tight across the region during 2014, and housing prices remained high.” The text has been modified to discuss impacts of the lack of rental housing, including on temporary accommodations and unconventional housing arrangements.
L05	068	4.11.2	Converse County is concerned that instead of workers being pushed into the Casper or Gillette areas to find housing, that they might instead turn to undesirable living situations in the Douglas area, i.e. illegal camping, other situations. Those activities might have an impact on adjacent property values.	Comment noted. Section 4.11.2 describes the potential for unconventional housing arrangements resulting from anticipated housing shortages. Text has been added to discuss potential effects on property values.
L05	069	4.11.2	How certain is the development of a man-camp and workforce how certain is the number of workers that could be housed in that facility? The DEIS suggests that the facility could be removed when no longer needed or potentially converted into other housing. However, there is no discussion of who would be responsible for managing this facility. The location of this facility is very important to Converse County and we assume there will be close coordination.	As with all proposed facilities discussed in Chapter 2, the location is not known at this time. Typically, these are managed by a 3rd party service company, with operations funded by operators and/or service companies. They can be dismantled and removed, or put into temporary mothball status, fairly rapidly.
L05	070	4.11.2	Tables 3.11-20 and 3.11-21 discuss the costs of housing to residents, as compared to the statewide average and as a percent of total household spending. That information is not used in the analysis of housing impacts in Chapter 4. The DEIS includes no quantitative discussion of impacts to housing prices or what effect that might have on local workers and residents, both in the mining industry and in other industries. How will housing costs change and how will the portion of income used to pay housing costs change for locals?	The discussion of effects of project-related water demand and potential shortages during peak periods has been expanded.
L05	071	4.11.2	Anticipated changes in the local cost of living should be addressed, not only for housing, but for all components of the Wyoming Cost of Living Index. How would that compare to increases in wages and income?	As shown in Table 3.11-23, The Wyoming Attorney General provides estimates of law enforcement personnel per 1,000 population for counties and municipalities. Estimates of incremental law enforcement officer demand is possible based on these estimates. Estimates of demand for employees of other local government agencies is complicated by characteristics of each agency’s service area, types of services provided, and the degree to which employment in those agencies is driven by population growth or other factors. For example, emergency response (fire and ambulance) services, like law enforcement, are among the public services most heavily affected by oil and gas development. Yet employment in these agencies is often driven by the size of the service area, the fact that many responders are volunteers, and the specific types of services that each agency provides. Future staffing and equipment decisions by these agencies will require consideration of all those factors. Therefore, a qualitative description of staffing effects and other impact-related responses is more appropriate for the EIS.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Board of Commissioners (Continued)				
L05	072	4.11.2	(1) A quantified estimate of the number of law enforcement officers has been included in the DEIS; otherwise, the impacts to public services and facilities are largely qualitative and inadequate for planning purposes. More attention to hospitals, fire, water and sewer, library and schools, for instance, needs to be provided. There is no discussion of the magnitude of impacts to these services. (2) Some estimates of the costs of expanding services must be included in the DEIS in order to evaluate fiscal impacts to local jurisdictions.	Comment noted. The level of revenue and expenditure data is appropriate for the description of effects presented in the Environmental Consequences assessment.
L05	073	4.11.2	This is a real concern. What would these municipal water providers really be able to do to meet demands, especially in peak periods? What would the impacts to customers be from those actions? For example, the text notes some planned system expansions and improvements, but those types of activities take a long time to implement and are expensive. What would the impacts be to water rates, quality, other factors? How would demand be met prior to expansion coming online? Would water restrictions be implemented? The social and economic effects of changes in water service to local customers needs to be addressed.	Due to the programmatic nature of the proposed development and the impact analysis in the EIS, quantitative (or qualitative) answers to the questions in this comment are not possible to provide at this time. The document discloses impacts where possible based on available background information and knowledge of the proposed development.
L05	074	4.11.2	The text states that "the Converse County Road and Bridge Department would ...Incur substantial costs associated with road reconstruction and maintenance." Have any quantitative estimates been made of the anticipated costs to the Road and Bridge Department? How much of that could be made up by road use agreements and how much would the County have to make up? Converse County is concerned about those costs and about the staff and workers required to meet road maintenance demands.	Estimates of high and low production scenarios associated with high and low pricing scenarios were not provided by the OG. Moreover, high and low commodity prices are more likely to immediately affect development rates, and subsequently production levels. The proposed socioeconomic monitoring and mitigation program could provide actual and projected annual development levels and resultant production levels and would likely be of more use for local government planning than high and low production levels. See revised text on Mitigation and Monitoring.
L05	075	4.11.2	The DEIS estimates the potential increases in student enrollment and discusses the potential need for additional school facilities and staff under the alternatives. Although the text notes the potential difficulties in recruiting/retaining teachers and other staff, this challenge/concern cannot be understated. The enticement of higher wages in other industries and pressures on housing and costs of living in combination with the financial challenges faced by school districts in WY will certainly make it difficult to hire and retain staff in Converse County.	As noted in the comment, the pressures on hiring and retention are included in the text. No change to text.
L05	076	4.11.2	It appears that the Fiscal Conditions analysis applies high and low energy price assumptions to one common assumption of annual production (that associated with the development of 500 wells per year), so that the same amount of production is assumed in a specific year, regardless of the price. However, in truth, when commodity prices rise, so will production levels and vice versa. Therefore, the tables included in this section do not represent any potential actual outcome. We suggest evaluating a low price/ low production level scenario along with a high price/ high production scenario. The current analysis does not provide the state, counties or schools with an accurate picture of the flow of revenues under Alternative B. That low/ high production scenario would also play into developing a range annual population increases and housing demands.	The comment is correct in that the production levels do not vary as a function of prices. Short-term minor price fluctuations have limited impact on production. Price changes that are more substantial and anticipated to remain lower / higher for an extended period may affect drilling levels, which would then translate into differences in production. Attempting to model the various scenarios is beyond the scope of the programmatic assessment and counter to the underlying development assumptions. The potential for varying development levels and production as well as the implications for public revenue are discussed in 4.11.
L05	077	4.11.2, Table 4.11-9	Revenue flows by all sources by all jurisdictions needed. For example, the table show total severance taxes and FMR generated by production, but what jurisdictions get what portion of those monies?	Additional discussion regarding the general distribution of revenues is included in 3.11. As noted in the comment, the distribution of revenues would be influenced by the point of sale/delivery, the locations of the oil and service company operations, and the location of consumer purchases. When combined with the programmatic nature of this EIS, these factors effectively limit the value of such projections.
L05	078	4.11.2	Please provide additional information about the assumptions behind the calculation of taxable value of Project oil and gas production. We would like more detailed information about how the Converse County revenues were calculated in Table 4.11-10.	Additional information regarding the calculation of taxable values has been added to Appendix C and Section 4.11
L05	079	4.11.2, Table 4.11-9	Is this an accurate assumption given the estimated increase in enrollment in each of the school districts (Table 4.11-8) as compared to the estimated property tax revenues generated by assumed oil and gas production? Increases in the number of students will increase each District's Foundation Guarantee; but given the assumed production levels and estimated taxes generated by that production, will the Districts' Local Resource funds remain less than the Guarantee? It seems likely that at least some portion would be recaptured over the indicated time periods.	The relationship between the District's Foundation Guarantee and the District's Local Resource Funds may change over time and the District may find itself subject to recapture provisions. The text has been revised to acknowledge that potential.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Board of Commissioners (Continued)				
L05	080	4.11.2	This section of the text seems to imply that overall property values will increase given additional oil and gas activity in Converse County. Is that true for all types of existing properties, including residential properties? The demand for conventional home ownership is only a small part of the housing demand shown in Figure 4.11-10.	Discussion clarifying potential effects on property values has been provided.
L05	081	Table 4.11-12	(1) The calculations of sales and use tax revenues for Wyoming and for Local counties and municipalities are unclear and may be incorrect in this table. Given the assumptions stated in Footnote 2 of this table and knowledge of the distribution of state sales tax revenues, the total tax revenue generated under the low end of capital investment appears to be high, while the total tax revenue generated under the high scenario appears to be low.	The basis for this statement is not provided. Thus, it is difficult to respond directly. The assumptions and calculations have been checked and any changes made if required.
L05	082	Table 4.11-12	(2) Please provide additional detail on the revenues distributed to each of the three counties (Campbell, Converse, Natrona) - a breakdown of the "Local counties and municipalities" row by individual county and perhaps even the portions going to the larger communities within each county. The revenue to each county may vary substantially depending on the point of sale for deliveries.	Additional discussion regarding the general distribution of revenues is included in 3.11. As noted in the comment, the distribution of revenues would be influenced by the point of sale/delivery, the locations of the oil and service company operations, and the location of consumer purchases. When combined with the programmatic nature of this EIS, these factors effectively limit the value of such projections.
L05	083	4.11.2	Traffic is discussed in Section 4.11.2 as it would affect the Converse County Road and Bridge Department, but the increased traffic volumes would also have additional impacts to local residents and businesses, in terms of increased vehicle maintenance costs, delays in drive times and the potential for accidents and injury. Those impacts are addressed briefly and qualitatively and could be acknowledged in more detail.	Additional text has been added and the impacts and mitigation measures outlined in the Transportation subsections 4.13.2.1 and 4.13.3.1 referenced.
L05	084	4.11.3	Under Alternatives C there is mention of seasonal variation in drilling activity. The significance of this variation should be identified, since this could cause important socioeconomic effects. Similarly, the difference between year-round drilling and periodic stoppage should be discussed in greater detail, since that will cause a myriad of additional impacts.	Existing text notes that "...timing limit stipulations would affect 15 to 20 percent of the well pad locations on federal mineral ownership, leaving the remainder of sites on federal lands, and those on fee and state-managed lands unaffected. The effects of timing limit stipulations would minimally affect development in the CCPA on a seasonal basis." Seasonal variations in indirect and induced employment and seasonal variations unrelated to timing limit stipulations are also acknowledged. The text also contains the following "• Strategic planning with respect to the siting and sizing of well pads could allow operators with more extensive land positions to conduct year-round development (e.g., by focusing development on areas subject to timing limit stipulations [federal minerals] during a portion of the year, then moving operations to locations not affected [fee and state minerals and surface]). The opportunity for an individual operator to pursue such strategies would favor operators with larger leasehold interests and a combination of federal and non-federal interests." Considered together the effects of timing limit stipulations on the overall pace of development are uncertain and unclear but expected to be minimal. Therefore, further elaboration is not supported and would be very speculative.
L05	085	4.11.3	The description of socioeconomic impacts under to Alternative C discusses greater variability in employment and population changes over the course of any particular year, as compared to Alternative B. The text also states that under Alternative C, there would be relatively more short-term jobs and single-status workers. The DEIS addresses the potential impacts related to that variability, in terms of pressures on temporary housing, employment in other industries, wages, crime rates, public services. Converse County is concerned about both the economic and social effects of those factors (annual employment variability and single status workers) on county residents and public services.	The BLM acknowledges the county's concern regarding impacts from the proposed project. Please see the revisions to the mitigation measure for socioeconomics.
L05	086	4.11.3	As described in Section 4.11.2, demands for water service could exceed provider capacity during peak periods under Alternative B. It appears that those impacts would be exacerbated under Alternative C, which includes more annual variability in employment and housing demands and an additional workforce needed for construction of water management facilities. Peak period demands could be higher under Alternative C as compared to Alternative B, placing even more pressure on municipal providers. Those potential impacts must be addressed.	A discussion of the incremental water demand associated with Alternative C has been added.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Board of Commissioners (Continued)				
L05	087	4.11.3	The text notes potentially different local sales tax receipts under Alternative C (as compared to Alternative B) due to differences in the percentage share of singe status workers and the residency distribution of those workers. However, it would seem that sales tax revenues would also be different due to differences in capital investments for well pads, roads and other linear features between Alternatives B and C, although perhaps the additional costs of produced water management in Alternative C offsets some of the other reduced costs?	The factors that could result in differences in local sales tax receipts were not intended to be a comprehensive list. Differences in capital investments and water management costs, and other factors would also contribute to differences in local sales taxes. Text has been added to clarify.
L05	088	4.11.3	Revenues and expenditure effects upon each jurisdiction should be provided.	The level of revenue and expenditure data is appropriate for the description of effects presented in the Environmental Consequences assessment.
L05	089	5.2	We are concerned that the assumptions of future development used for the Cumulative Impacts Analysis may be conservative given the long-term temporal scope for analyzing effects (55 to 60 years). The assumptions of new development under Alternative A account only for historically proposed development and no other future development. The only Reasonably Foreseeable Future Project included in the Cumulative Impacts Analysis in the CCPA is the Greater CrossBow Project, which would add only a small amount of additional development in the CCPA. It. seems likely that the economic conditions that would encourage those developments (as well as those of the Proposed Action) would also result in other additional oil and gas development in the CCPA in the future. Given the assumptions stated in the DEIS, Converse County is concerned that the Cumulative Impacts Analysis may not account for the full scope of future effects on various resources in the CCPA, in combination with the Proposed Project. The County is concerned that the Cumulative Impacts described in this section may be at the lower end of actual potential effects.	Please see response to comments L05-025 and N11-45. Also, per the BLM Handbook 1790-1, "...you are not required to speculate about future actions. Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends. "
L05	090	5.3.11	The discussion of Cumulative Impacts to Socioeconomic resources (population, employment, housing, public services, fiscal conditions, etc.) provides a general picture of the types of impacts that could occur in the CCPA, but because it is largely qualitative in nature, it does not provide the specific detail necessary to comprehensively evaluate cumulative effects in this case. Given the scale of employment, population, housing and other impacts described for Alternatives A, B and C in Section 4.11, as well as the potential effects of other current and future activities noted in Section 5.2 (i.e. uranium mining, wind power projects, other developments), Converse County requests that additional quantitative detail be added to this section of the EIS in order to fully comprehend the cumulative impacts.	Up-to-date quantitative socioeconomic information is not available for reasonably foreseeable future activities within the CISA. The socioeconomic assessment assumes that development levels for Alternative A would essentially be a continuation of current development levels, increasing slightly over the 15-year development period and peaking at 736 additional residents in 2026. This population increment would be spread across the three-county study area. The assessments for Alternative B and C of the EIS assumes that population and other socioeconomic effects are layered on top of the development level for Alternative A, which was considered as part of the Affected Environment. The most likely reasonably foreseeable future activities are additional oil and gas development in Converse and Campbell counties, including the proposed Greater Crossbow Oil and Gas Project. No socioeconomic data is available for these activities, consequently quantifying potential cumulative socioeconomic impacts is not possible.
L05	091	5.3.11	There is no place in the DEIS, either in Chapter 4 or in Chapter 5 that provides a complete picture of total impacts either to the area as a whole, or to individual jurisdictions. For example, if either Alt. B or Alt. C are chosen, the true impacts to communities are the effects of Alt A plus the chosen alternative, plus any other projects included in cumulative effects. The scope of the total impacts is necessary for any county or city to truly comprehend the full set of impacts to housing resources, public services, etc. and to plan for future development.	Total study area impacts are presented for employment, income and population in Section 4.11. Text has been added to summarize impacts for each county and community. For the socioeconomic assessment, impacts from Alternative A are considered as existing conditions in the Affected Environment, and all impacts associated with Alternatives B and C are assessed in addition to those existing conditions.
L05	092	6.5.11	Only one mitigation measure is included for Socioeconomics - at least meetings with the OG, BLM and local representatives to discuss upcoming development plans or specific issues. Additional mitigation strategies must be developed to address impacts to socioeconomic resources. A long-term monitoring program might be one.	Please see the response to comment L05-001.
L05	093	4.10	The text provides a good general description of the types of recreational impacts that could occur under each alternative; however, there is no indication of the degree, or magnitude, of effect. We suggest adding some additional discussion of degree of effect and the basis for that designation. For example, would Alternative B be a big deterrent for campers, hunters, etc. when it comes to recreating in or visiting Converse County, a mild nuisance or something else? Maybe more of an issue for certain types of recreation and less of an issue for others?	Given the programmatic nature of the analysis, as well as the dispersed nature of recreation in the analysis area, a degree of effect is not possible. The analysis for Alternative C does describe differences in level of effects when compared to Alternative B.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Board of Commissioners (Continued)				
L05	094	5.3.10	The Cumulative Impacts analysis for recreation appears to focus mainly on surface disturbance - number of acres and % of CCPA, which admittedly is quite small. However, it is not only the absolute number of acres physically disturbed that may impact recreational activities - impacts may also be due to effects on adjacent properties, noise, etc. Additionally, there is no discussion of the degree or magnitude of effects given cumulative activities. For example, how much more impact occurs under the cumulative scenario as compared to Alternative B?	Table 5.3-17 details the difference in disturbance acreage between the cumulative scenario and Alternative B and C. The following paragraphs after Table 5.3-17 detail potential cumulative recreational qualitative effects within the analysis area, including adjacent properties.
L05	095	4.5	Converse County is concerned about changes in property values, especially from changes in adjacent land uses. The DEIS touches on this issue in a qualitative manner in Sections 4.5 and 4.11, but overall, provides only a cursory look at the issue of changing property values.	Additional discussion about the potential for changes in property values has been provided in Section 4.11.
L05	096	4.13.2.1, Tables	(1) Is there a way to estimate how many vehicle trips might occur on an "average" day or on peak day during well development/construction phase? For example, the Alternative B section includes Table 4.13-1 showing vehicle trips for well development, Table 4.13-2 showing vehicle activity for construction of other facilities and Table 4.13-3 showing vehicle activity for production and operations. How does all of that data combine together in individual years? It would be helpful for readers in understanding the complete traffic picture to provide a table or graphic showing total increases in traffic volume (for all activities) by year. Perhaps something similar to the total incremental population changes in Table 4.11-8?	The data presented in the analysis is not available in a form that can be manipulated to show the combination of activities requested in the comment. Note that Table 4.13-4 provides an estimate of daily trips during peak construction (2028) activities on local area roads. These estimates combine all aspects of well development and portray the anticipated volume as average daily trips.
L05	097	4.13.2.1, Tables	(2) Commuting workers are not included in the tables notes above, but they may add a considerable number of additional vehicle trips to the area. Is there a basis for not including those trips? Can they be calculated and included somewhere?	Please see the response to Comment L05-031.
L05	098	4.13.2.1, Tables	(3) Table 4.13-1 is confusing. For example, what does the 161,891 number reflect? Is that really average DAILY roundtrips, or is it total daily trips over the 10 year construction period, or maybe average annual daily trips? Again, this goes back to part 1 of this comment, as to the difficulty of determining actual daily traffic increases or even average annual traffic increases in any one year. This will be important in evaluating potential road maintenance costs and congestion.	Within Table 4.13-1 under Average Daily Trips for All Well Pads, footnote number 1 denotes that it is based on an average 10-year construction period, therefore, 161,891 reflects the total amount of daily heavy truck round-trips that would take place each year for a 10-year period.
L05	099	Appendix C, Table 2-7	The 2018 numbers in this table do not add up. The first six rows sum to the number of direct jobs. The number of direct jobs, indirect and induced jobs and the adjustment for multiple job holders sum to the total workers. However, the additional new residential and commercial construction number of 400 is not reflected in the total, or anywhere else -what is that number and how does it fit into this table?	Comment noted. Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided. Comment noted. Table C-9 numbers have been updated. The direct jobs plus additional construction jobs plus indirect jobs minus adjustment for multiple job holders equals the total number of workers.
L05	100	Appendix C, 4.0	The estimates of housing demands are unclear and possibly flawed. For example, assuming that 50% of the 2,100 jobs assumed to go to residents will be direct jobs and 50% will be indirect and induced, and following the assumptions about what proportion of direct and indirect job holders will be single or bring families generates about 3,600 single workers and about 2,700 accompanied workers moving into the area. After the 500 temporary beds are accounted for, and following the assumptions of 1 dwelling per accompanied worker and 1.2 single people per room, about 2,700 dwellings will be needed for accompanied workers and about 2,500 rooms for single workers. However, once the 2,700 dwellings are subtracted from the reported 5,640 total housing units demanded in 2025 (Table 4.11-6), this leaves about 2,900 dwellings left to supply the 2,500 rooms that house the single workers. That would indicate a housing demand estimate that is too high for the number of workers indicated.	Comment noted. Critical calculations and presentations of employment, population and housing impacts have been checked and corrections made as necessary. Appendix C has also been updated and additional information provided.

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Converse County Board of Commissioners (Continued)				
L05	101	Appendix C, Section 3	The assumption that 2,100 jobs (1,500 under Section 3 Alternative A and 600 under Alternative B) could be filled by existing residents may be overstated. (1) In 2014, during the last oil boom, there were 2,883 unemployed people in the three-county area. If these people could not find employment then, why assume that they could find employment this time? (2) In 2017, there were only 289 more people unemployed in the area than in 2014. Even if the labor force participation rate returned to the 2014 level, there are still only 324 people available to be hired. (3) If those assumptions include existing residents currently employed in other occupations that are lured into the oil and gas industry by higher wages, etc., then those jobs left behind in other sectors will also need to be filled.	Local hires come from several sources. Additional opportunities attract more workers into the work force, provide incentives for older workers to remain active, and for younger workers to enter the workforce. In 2014, the combined labor force of the 3 counties was in 2014 was 77,949, Filling 1,500 jobs would have resulted in unemployment rates equal to 1.8% - slightly lower but comparable to what was seen in Carbon, Sublette, Campbell and Natrona Counties during previous periods of rapid energy development. Note that unemployment levels fell to approx. 1.2 percent in the core development areas in North Dakota during the height of the Bakken boom, even as the workforce more than doubled in number.
L05	102	1.4.1	Please provide more details on what the NEPA review would entail and the tiering approach. The Chokecherry Sierra Madre Energy Project Programmatic EIS provided a NEPA Tiering Review Procedure. We suggest this Programmatic EIS provide a similar document to clarify the level of NEPA documentation that may be required and to understand the efficiencies in the NEPA process that are gained through the development of this Programmatic EIS.	Thank you for your suggestion. The BLM will conduct site-specific NEPA review of individual permitting requests following agency policy and guidelines in force at the time of the permitting action.
L05	103	2.4.1	If this would result in efficiencies for development that should be reflected in the resource analysis somewhere. It appears to be missing or is not clearly stated in chapter 4 analyses.	Thank you for your comment. Development efficiencies are considered in the environmental impact analysis to the extent that they modify the basis by which impacts are evaluated. Also see the response to Comment B11-024 in regard to clarification of the BLM's process for exceptions or modifications of timing stipulations.
L05	104	2.4.1	This paragraph discusses the requirements if an exception would be granted including the development of an EA, a monitoring plan, the timing and duration of the activity. However, this discussion lacks the explanation of what would qualify for an exception to be granted. Without a clear understanding of what conditions need to be present to be considered for an exception it is difficult to evaluate the potential impacts or that the inclusion of year-round development under this alternative is even likely to occur.	The conditions under which an exception would be granted for a timing stipulation will not be known until a site-specific request is received by the BLM. However, the process for granting exceptions has been clarified through text revisions in Section 2.4.1 and a new appendix. Also see the response to Comment B11-024.
L05	105	3.13 and 4.13	The Transportation sections do not include any discussion about current or future use of US Highway 26 between Douglas and Glenrock. Currently, this road is used by vehicles supporting oil and gas development. Please update the analysis to include a discussion about the potential impacts to US Highway 26.	Section 3.13 has been updated to disclose the approximate location of US Highway 20/26/87 just outside the southwest boundary of the CCPA. Section 4.13 discloses impacts to highways within and near the CCPA.
L05	106	4.13.2.1	There is no discussion about year-round development and if that would change the traffic counts in any manner. It is our understanding that the year-round development would reduce the rig movements and potentially maintain a more stable rate of development. How would that change the traffic pattern?	The traffic numbers disclosed in Section 4.13 Transportation are based on the Operator Group's Transportation Plan which assumed year-round development.
L05	107	4.13.2.1	The proposed Mitigation Opportunities proposed by the Board of Converse County Commissioners would facilitate discussions to address and prepare for the increased pressure on existing resources including road maintenance and public services. This increased level of traffic is substantial.	The BLM has included your suggested Mitigation Opportunities as a proposed mitigation measure in the Final EIS. In addition, the members of the Operator Group have committed to an annual meeting with Converse County commissioners to discuss anticipated levels of development for the coming year (see Section 6.4.11).
L05	108	4.14.2.2	There is no discussion about year-round development and the possible benefit of initiating reclamation activities in a timely manner rather than potentially leaving partially developed sites unreclaimed until the timing stipulations have been lifted. If the year-round development would expedite the reclamation activities that would reduce the potential for noxious weeds and invasive plants to establish.	Thank you for your comment. Due to the programmatic nature of the proposed development any changes in the timing of reclamation would be speculative and would not warrant analysis in the EIS.
L05	110	4.15.2.1	There is no mention of year-round development. Assuming exceptions are granted, the reduced movement of rigs and the continued activity would be a change to the view shed compared to Alternative A and C. This is not discussed.	Movement of rigs would not change the viewshed compared to other alternatives because they would be temporary impacts to the viewshed.
L05	111	4.18.1.1	Are these exceptions something other than those described under section 2.4.1 for Alternative B? If these are currently granted, the potential impact of granting those should be discussed under Alternative A and included in the Alternative B analysis as well. How are these exceptions granted (i.e., under what conditions)? How often are these granted? How do those reduce impacts to other resources etc.	No, they are the same as those described in Section 2.4.1. Under Alternative A, new development would continue within the CCPA as disclosed under previous NEPA documents. Section 2.4.1 describes the process for granting exceptions, which are granted on a case-by-case basis. Impacts to other resources are described in applicable resource sections throughout Chapter 4.0.

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Converse County Board of Commissioners (Continued)				
L05	112	4.18.1.2	Please check the 55%, as it seems low to us. This paragraph appears to be minimizing the amount of area that may be affected by timing limitations with further reduction by stating not all nests or leks are active each year. This discussion is not incorporated into the actual impact evaluation for big game, small mammals, or game birds. Those analyses focus on direct impacts. The potential for year-round development would reduce disturbance from rig movements, result in more stable traffic and potentially earlier efforts for reclamation. The analyses do not discuss the actual impact of allowing year-round development.	The 55% figure is correct. However, the BLM has updated the text based on public comment on the Draft EIS and the SDEIS.
L05	113	4.18.1.4	An discussion as to what would qualify for an exception is lacking in this document. One could assume that exceptions would only be granted in areas where the potential impact to raptors or sage grouse would be relatively low, thus a minor impact. If granting an exception is more restrictive and only a few will likely be granted than the difference between B and C could be negligible. Please provide insight as to how and when an exception might be granted.	Thank you for your comment. Also see the response to Comment B11-024.
L05	114	4.18.1.5	Without clearly understanding the likelihood or probability of the BLM granting exceptions under Alternative B, this statement is not very meaningful. It could be that the BLM would not likely grant any exceptions, then the difference between Alternative B and C could be negligible. Please provide more insight as to how and when exceptions might be granted.	Thank you for your comment. Also see the response to Comment B11-024.
L05	115	4.18.2.2	There is not a clear understanding of how exceptions might be granted. So it is not possible to understand the nature or magnitude of the potential impact. If the conditions have to be such, that the year-round development would likely not impact a nesting raptor or grouse activity at a lek, than the potential impact would be similar to Alternative A and C. There is not enough analysis to understand what the potential impact may be relative to granting exceptions under Alternative B.	Thank you for your comment. Also see the response to Comment B11-024.
L05	117	4.18.3.2	See previous comment about this language. This discussion lacks analysis without knowing what conditions would allow an exception.	Thank you for your comment. Also see the response to Comment B11-024.
L05	118	4.18.3.1	This section states that the Core Area Version 3 maps were used in the analysis. Please make sure that the Version 4 maps are used in the analysis of sage grouse under all alternatives.	The Proposed Action follows the direction of the BLM ARMPA (2015) that utilized Version 3 of the Core Area Maps.
L05	119	4.0	The correct reference is 2.2 Common to All Alternatives	The text has been revised as suggested.
L05	120	Tables 4-18 11, 14, and 18	Calculations are slightly Off	Calculations have been revised for accuracy.
L05	121	Tables 4.18 17, 13, and 10	The grassland percents are slightly off.	Calculations have been revised for accuracy.
L05	122	Tables 4.18-24 and 28	Please check numbers as the numbers are off on several tables. Likely rounding errors.	Calculations have been corrected.
L05	123	4.18.1.2	Section 2.4.1 says "limitations for raptor nests and greater sage-grouse leks in non-core areas .... check for consistency in terminology throughout document.	Comment noted. The text has been checked for terminology consistency.
L05	124	4.18.1.2	Other sections that utilize this language state 50%. Please check and correct accordingly.	Text revised as suggested.
L05	125	6.1	Correct to "objectives"	Text modified as requested.
L05	126	6.2.1	We assume 0125 was meant to be 0.125. Please correct.	Text modified to reflect 0.125 miles.
Natrona County Commissioners				
L07	02		We would like to specifically draw attention to our concurrence with the concerns expressed regarding the impact of the proposed project upon private surface owners within the project area. As noted by the Converse County Commissioners, the BLM owns only ten percent of the surface lands affected by the project, and the EIS should adequately address this fact within the proposed alternatives as suggested by Converse County.	Please see the response to Comment B11-059.
L07	03		Further, we share similar concerns regarding the socioeconomic impacts. Specifically, we agree that the potential impacts must not be aggregated, but rather broken out by governmental entity. To that end, we assert that the potential socioeconomic impacts to Natrona County and its residents should be quantified separately and accounted for independently. As a neighboring county, it is highly likely that Natrona County will experience impacts upon housing and other governmental services as a byproduct of the project.	Although the sub-sections of the socioeconomic assessment are grouped by topic, impacts for population, housing, local government infrastructure and services, schools, and fiscal conditions identify impacts by county and communities for each alternative. However, the text has been modified to include a summary of impacts by county and community.

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Town of Glenrock				
L08	05		Alternative B Is the only alternative which offers a path for year-round drilling, but even it does not outline clearly enough the exemption request process. I would ask that your office take a closer look at this, and include some language in the final ROD that clearly defines how such exemptions are to be requested and granted, so that year-round drilling can best be utilized.	Thank you for your comment. The BLM addressed the question of the exemption request process by issuing the Supplemental Draft EIS which discloses the impacts of several potential amendments to the Casper RMP in regard to providing relief from timing stipulations for raptors.
Town of Wright				
L11	03		The DEIS in inconsistent with recently announced policy directives Issued from the White House. The DEIS needs to reflect department policy as it is, not as It was under a previous administration;	The text has been updated to reflect the most current agency and department guidance and policy.
L11	04		Alternative B opens the way for receiving exemptions from certain habitat occupancy restrictions, which would allow for year-round drilling; however, it does not describe or establish the process;	Please see the response to Comment B11-024.
L11	05		The EIS does not specify how wells and construction will be managed on private lands, even though 9/10 of the land in the project area is privately owned;	The text has been updated to clarify the extent of BLM authority within the project area.
L11	06		Similarly, the EIS also fails to describe what level of identification and management of tribal or cultural resources is necessary on these privately owned lands that are within the project area;	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.
L11	07		The Greater Sage Grouse management plans referenced in the DEIS are either outdated or under review by the DOI, and likely to be revised heavily; and	The 2019 ARMPA has been placed on hold through a court challenge. As a result, the BLM will continue to utilize the 2015 ARMPA as guidance.
L11	08		The DEIS includes mitigation requirements that are based on rejected policies or withdrawn manuals and handbooks.	The text has been updated to clarify the extent of BLM authority within the project area.
Town of Wright				
L13	02		Predominantly, the DEIS, including Alternative B, contains language and provisions that do not reflect the current policy of the administration and the Department of the Interior, as revealed In a number of Presidential Executive Orders and Department Secretarial Orders. Specifically, Presidential EO 13783, "Promoting Energy Independence and Economic Growth" seems to conflict with the overall tone of the DEBS. I understand that this is largely a function of updating language that was previously in use to reflect policies of the past administration, but that language needs to be updated as policies change. Similar adjustments need to be made In regards to Sage Grouse management, to ensure that current policies, directives and maps are used In place of older, outdated ones.	The text has been updated to reflect current agency and department guidance and policy.
L13	03		I also would request that a number of clarifications be made; first, regarding exceptions to timing stipulations, necessary to permit drilling and other activity to occur in the project area year-round, the DEIS does not establish the process for requesting and receiving them. Unless a set procedure is put in place operators can have no certainty that they will be granted. Since a large number of the proposed well pads are to be built In areas that are covered by habitat timing restrictions, this Is an Important consideration.	Please see the response to Comment B11-024.
L13	04		Second, even though around 64% of the oil and gas being produced in the project Is federal, It Is being accessed from predominantly private surface; and yet the DEIS makes little mention of how the BLM plans to manage these private surface wells and other infrastructure.	Please see the response to Comment B11-059 which indicates that BLM has added a section to the EIS describing the extent of the agency's authority in the CCPA.
L13	05		And third, the same applies to the Identification and monitoring of cultural and tribal resources on private land associated with the project. These clarifications need to be made before the final plan is revealed.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.

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Town of Wright				
L14	02		Alternative B does make reference to the potential for year round drilling, but stops short of describing the process for issuing the exceptions necessary to enable it. One improvement to the Proposed action would be to delineate this process so that it is clear to operators how to use it. The Migratory Bird Conservation Plan (MBCP) being developed by your agency, in cooperation with the U.S. Fish and Wildlife Service and the operating group, offers some exceptional insight as to how to manage this issue, through such tools as operator avoi dance, and reliance on monitoring and historic data. This document should have received more than simply a passing reference in the DEIS.	The MBCP being developed between the Operator Group and the USFWS has been placed on hold and is not available for the purpose suggested in the comment. However, the BLM has included analysis of land use plan amendment options in the Final EIS to address the process for providing relief from non-eagle raptor timing stipulations.
Town of Wright				
L15	02		Alternative C is clearly off the table as far as an acceptable development plan; protection of the environment is, obviously, a key purpose of the EIS. Alternative C is unacceptable as a plan going forward, in part because it fails to include a full analysis of the environmental impacts of all of its provisions - i.e. the denial of year-round drilling. Timing stipulations put in place to restrict surface use in certain habitat buffer zones at specified times of the year means that any construction, production, or drilling activity must be stopped periodically, and all of the equipment rigged down and moved off site. Every rig move entails dozens of truck trips, many of them heavy trucks, which adds to emissions, dust, added wear on temporary roads, extra surface disturbance, greater chance of erosion, and a delay in the start of pad reclamation procedures.	Refer to primary comment(s) discussing Alt C and TLS exceptions.
L15	03		Alternative B, while obviously being the only acceptable alternative, does fall a bit short in a couple of areas. The alternative does allow for the possibility of year-round drilling, but maintains unreasonable restrictions on the issuance of timing exceptions. A clear process needs to be defined in the planning document to outline for operators just how to go about requesting and receiving exceptions. I would recommend using the Migratory Bird Conservation Plan that you are working on with USFWS and the operating group, as a guide for how to accomplish this.	Please see the response to Comment B11-024. Also note that the Operator Group has suspended development of the Migratory Bird Conservation Plan.
L15	04		The Proposed Action needs to be a little clearer in a couple of other areas as well; with 90 percent of the land in the project being either privately or state owned, there needs to be some clear description of the BLM's intentions as to management of wells on these private and state acres, which are draining federally owned oil and gas reserves, or passing through, federally owned subsurface to reach them. A little more care also needs to be taken to make sure that the DEIS, and the Proposed Action, fall in line with current, not previous, federal policy.	Please see the response to Comment B11-024 in regard to the extent of BLM authority within the CCPA. Also note that the EIS text has been updated for consistency with current agency guidance and policy.
Town of Wright				
L16	02		Timing stipulations have been put In place for raptor nesting areas and sage grouse lek buffers, however more than 50% of the well pads planned for In the project are located within these areas. Exceptions from the stipulations are crucial to being able to efficiently develop these pads. Without these exceptions, drilling rigs will need to be rigged down, moved off site, and redeployed after the stipulation ends. This Is not only an enormous drain on time, money and resources, but also leads to more emissions and dust from superfluous truck trips, and unnecessary surface disturbance.	Thank you for your comment. Note that exceptions to timing stipulations are included as part of the Proposed Action (Alternative B) which was identified in the Draft EIS as the BLM's preferred alternative. Also see the response to Comment B11-024 for information on how the BLM has clarified the process for granting of exceptions in the Final EIS.
L16	03		While Alternative B allows for the potential of granting stipulation exceptions, but does not prescribe any process. Defining the procedure that Is to be followed, and removing the overly cumbersome constraints that are attached to such requests would go a long way towards making year-round drilling a greater certainty.	Please see the response to Comment B11-024.
L16	04		The DEIS also needs to deal with harsh mitigation measures that are included in spite of changes and updates in policy. The federal executive branch reviewed and withdrew policies supporting compensatory mitigation, however the DEIS Includes It - particularly the concepts of "additionally and no-net-loss-or-measurable-gain." It also Includes language and directions take directly from a BLM mitigation manual that was rescinded via Secretarial Order from the Department of the Interior. These measures need to be removed from the DEIS to ensure that It conforms with policy from the DOI.	The BLM has revised the discussion of mitigation, including the removal of any requirement for compensatory mitigation, to be consistent with the most recent agency guidance.

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Wyoming County Commissioners Association				
L17	03		The Draft EIS contemplates an unprecedented level of drilling In the Converse County Project Area (the "CCPA"). Because of this, WCCA urges the BLM to permit development in a way that will ease impacts to socioeconomic resources in the CCPA that may accompany such intense development. Specifically, WCCA supports permitting year-round development in the CCPA. Lifting seasonal drilling restrictions would allow development to occur at a more even rate throughout the year, putting less pressure on local communities to respond to dramatic fluctuations in housing needs, traffic, utility use and other socioeconomic demands.	Please see the response to Comment B11-024.
L17	04		Further, changes in development activities can negatively impact air quality, vegetation and wildlife. WCCA asks that BLM fully consider the positive and negative impacts of year-round development on all resources.	The BLM has considered and disclosed the impacts associated with year-round drilling through the analysis of Alternative B (see specific sections in Chapter 4).
L17	05		WCCA also urges BLM to clarify what criteria an operator would need to satisfy to develop year-round where existing wildlife-related stipulations might otherwise prevent such activity and to provide all operators the same opportunity.	Please see the response to Comment B11-024.
L17	06		WCCA urges BLM to ensure that any requirements regarding cultural resources in the Converse County EIS is consistent with federal law and regulation and does not exceed the agency's statutory authority. For example, in a fee-fee-fed situation, BLM's analysis under the National Historic Preservation Act ("NHPA") and applicable environmental statutes, should be limited to the impacts of drilling a well, not the entire well pad. Comments provided by Wyoming counties, including the Converse and Campbell Counties, detail these concerns.	Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.
L17	07		Moreover, the NHPA does not require private landowners to provide access to BLM or tribes for cultural resource surveys or tribal consultation in these situations. WCCA asks that BLM make this clarification in the final Converse County EIS and provide a process by which tribal consultation can be completed in the absence of owner-granted access. Requiring surveying and monitoring on private land as a condition to the issuance of a permit to drill encroaches on the rights of private surface owners. Again, these issues are addressed in more detail in the Converse and Campbell County comment letters.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.
Cheyenne Area Landowner's Coalition				
N01	03		Has the required environmental impact analysis been conducted, and what is the result?	An analysis of the environmental impacts of the proposed development in Converse County by a group of five Oil and Gas operators is presented in Chapters 4 and 5 of the EIS.
N01	04		How will this impact the sage grouse core area, and how does this plan jive with Wyoming's Sage Grouse Management Plan?	See Section 4.18.3.
N01	05		Where will the tremendous amount of water required for drilling and fracking come from, and how will it affect the current potable water aquifer(s).	See response to comment B11-154.
N01	07		How does this plan jive with the other multiple use requirements (e.g., recreation and grazing) on BLM land?	Possible impacts to multiple uses, such as recreation and grazing are disclosed in Sections 4.10 and 4.9, respectively.
N01	08		Will BLM require each and every oil company to post a third-party bond sufficient to cover remediation of the land after all this drilling is finished?	Whether a remediation bond would be required following completion of the proposed drilling effort is speculative and beyond the scope of the EIS analysis.
N01	09		How will air quality and ozone be monitored?	Air quality in the region is being monitored at several sites in the region by WDEQ and EPA. These sites can be found at WDEQ website: http://deq.wyoming.gov/aqd/monitoring/ and USEPA's Air Data's website: https://www.epa.gov/outdoor-air-quality-data Both WDEQ and USEPA assess the monitored data to make air quality assessments and determinations of air quality standard compliance.
Converse County Landowners				
N02	01		Dramatic Underestimate of Total Water Usage: The BLM and OG based its analysis of water usage and produced water quantities on the claim that each oil and gas well would use approximately 100,000 barrels of water. In fact, each horizontal oil and gas well drilled within Converse County within the last six months has utilized between 250,000 and 300,000 barrels of water on average. This means that the BLM's analysis of impacts is based upon an inaccurate and unreasonable belief that a mere 33-40% of fresh water is going to be utilized and 33-40% of produced water is going to be generated than what is being used in reality, This makes the BLM's analysis fundamentally flawed and not legally sufficient to support the choice of either Alternative B or C.	See response to comment B11-154.

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Converse County Landowners (Continued)				
N02	02		Reliance on Outdated Data: All data and studies relied on in the EIS are from 2014 or older. As this EIS came out in 2018, this means that the newest data is still 4 years old. The age of the data significantly reduces its validity and cannot and should not be relied upon by the BLM in analyzing the potential impacts of the alternatives. The BLM should require the OG to produce newer data with a higher degree of reliability and validity to base any decisions upon.	Not all of the data is from 2014 or older. The BLM established a cutoff date (around the end of 2015) for acceptance of new data to support the impact analysis. The BLM endeavors to obtain the latest data to support a NEPA analysis but a defined point in the process must establish a cut-off date for updating with additional data in order to avoid a potentially continuous cycle of document updating. The BLM believes the data is sufficiently representative of site conditions to support the impact analysis in the EIS.
N02	03		Failure to Provide Analysis of Current Groundwater Levels and Conditions: This EIS acknowledges that there are few to no monitor wells in the EIS area. This results in all information contained in the EIS in regard to the amount of groundwater being nothing more than a guess. Combining the gross underestimation of freshwater usage with an unknown water table (as well as unknown recharge rates for that water table) creates an unacceptable risk of depletion of the aquifer under either Alternative B or Alternative C.	The analysis was conducted with the information that was provided by the Operator Group. See the response to Comment B11-154.
N02	04		Range Resources Damage is Significantly Underestimated: The BLM calculates that the total loss of AUM's due to Alternative B and Alternative C is 25,198 and 22,812. Analysis of the impacts was based upon these numbers. However, these numbers clearly only apply to range resource destruction on federally owned lands. As federally owned lands make up only 10% of the EIS area, the actual impact to range resources is ten times greater than what the BLM considered in this document. This is such a dramatic underestimation this is the equivalent of no analysis at all and neither Alternative B and Alternative C should be chosen without a true and correct analysis.	Please see responses to comments B09-07 and S01-01.
N02	05		Alternative C Mitigation Requirements Cannot Be Enforced: Alternative C includes several mitigating design requirements that the BLM has relied on to claim a diminution in impacts, thus making it more likely the BLM will find the Alternative C attractive. However, this EIS area is only 10% federally owned. Private landowners that own surface not over the federal minerals cannot be forced to accept the BLM's mitigation factors. Therefore, the OF should not get credit for mitigation that there is no guarantee can happen.	Thank you for your comment. The BLM has added a new subsection to Section 1.4 to provide clarification on the extent of BLM authority in the CCPA. Also note that the BLM identified Alternative B, the Proposed Action, as the agency's preferred alternative in the Draft EIS.
N02	05		Accordingly, BLM must go back, provide full consideration of cleaner alternatives, including an alternative that would require operators to use cost-effective, feasible measures to reduce emissions such as a quarterly leak detection and repair provision, and re-issue the DEIS after rigorously exploring and objectively evaluating cleaner alternatives as required by NEPA.	Thank you for your comment. The BLM has conducted a thorough evaluation of alternatives as detailed in Section 2.6.
N02	06		How will the waste water from oil and gas drilling be disposed of, and will there be a requirement that oil companies reuse this waste water to the maximum extent?	See response to comment B11-154.
N02	06		Recycling Production Water Cannot Be Done at This Time: Alternative C also reduces the total impacts in the analysis by stating that much produced water will be recycled and used again. However, at this time, the recycling of production water in Converse County is not technologically feasible to conduct economically. Therefore, it should not be used to mitigate the impacts in the analysis.	See response to Comment B09-02.
N02	06	4.1	Despite the significant amounts of estimated pollutants from the Project, BLM has proposed zero control strategies that will reduce methane, VOCs or NOx from the Project. The only proposed measure to reduce air quality impacts is a requirement that gas plants and compressor stations located on BLM surface estate must be located at least 2,000 meters from residences or other occupied dwellings. While this is an important measure for safety, it in no way will reduce emissions.	Please see response to comment number F02-26.
N02	07		Disposal Wells Can Cause Significant Damage: The EIS states that much of the produced water shall be disposed of in disposal wells. However, the known dangers of disposal wells are not analyzed in depth. It has been conclusively proven in Oklahoma and other places that these disposal wells cause serious and continuing earthquakes and tremors. And Oklahoma, prior to the creation and use of the many disposal wells, was not as seismically active as Wyoming is right now. Therefore, allowing the OG to drill and use 30 more disposal wells in Converse County could very likely cause significant seismic activity here. Thus, it should not be allowed.	See response to Comment E09-10.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Converse County Landowners (Continued)				
N02	21		Notably, BLM's current waste prevention rule requires operators to curtail flaring over several years by either routing saleable gas to a pipeline or using onsite gas capture equipment—demonstrating that BLM itself has found these options technically feasible and appropriate for projects on BLM lands. Other jurisdictions contain similar restrictions on flaring.30 Since BLM has proposed to rescind its waste prevention rule,31 BLM must go back and include a thorough consideration of an analysis that considers limits on flaring such as those contained in its own rule. 30 17 C.C.R. § 95665 et seq. (allowing flaring only where capture is infeasible). 31 Waste Prevention, Production Subject to Royalties, and Resource Conservation; Rescission or Revision of Certain Requirements, 83 Fed. Reg. aAt 7924.	Please see response to comment F02-26.
Environmental Defense Fund, Rocky Mountain Region				
N03	01		This new project will contribute thousands of tons of volatile organic compounds (VOCs) and oxides of nitrogen (NOx) to the regional air shed annually, over one thousand tons of carbon dioxide equivalent (CO2e) emissions per well at the peak of production activity, and a suite of hazardous air pollutants (HAPs), including known human carcinogens. Astonishingly, BLM's proposal is completely devoid of any measures that will reduce these harmful smog-forming, climate-altering and toxic air pollutants beyond those required by federal and state laws. This is despite the fact that EDF provided detailed information on cost-effective, technically feasible measures to reduce VOCs, methane and HAPs to BLM. The Draft Environmental Impact Statement (DEIS) fails to address these comments in any meaningful way.	Please see response to comment F02-26.
N03	03		The DEIS is also rife with inaccuracies regarding emission reduction federal requirements applicable to the new wells.	The emission inventory and associated reductions due to state and federal regulation were reviewed and approved by the BLM and cooperating agencies prior to modeling and DEIS.
N03	04		For these reasons, it is clear that BLM failed to take a hard look at the air quality impacts and potential mitigation measures as required by NEPA, and that BLM failed to "rigorously explore and objectively evaluate" all reasonable alternatives to its proposed action, as required by NEPA.	Thank you for your comment. The BLM believes the EIS presents a hard look at the impacts of the proposed development and considered a reasonable range of alternatives.
N03	05		Accordingly, BLM must go back, provide full consideration of cleaner alternatives, including an alternative that would require operators to use cost-effective, feasible measures to reduce emissions such as a quarterly leak detection and repair provision, and re-issue the DEIS after rigorously exploring and objectively evaluating cleaner alternatives as required by NEPA.	Please refer to the response to Comment N02-05.
N03	06	4.1	Despite the significant amounts of estimated pollutants from the Project, BLM has proposed zero control strategies that will reduce methane, VOCs or NOx from the Project. The only proposed measure to reduce air quality impacts is a requirement that gas plants and compressor stations located on BLM surface estate must be located at least 2,000 meters from residences or other occupied dwellings. While this is an important measure for safety, it in no way will reduce emissions.	Please see response to comment F02-26.
N03	07		The failure to propose any clean air measures that would reduce emissions and wasteful practices such as venting, flaring and leaking of natural gas is particularly problematic in light of the fact that BLM has proposed to rescind or scale back its own waste prevention rule. This rule requires operators to reduce waste and methane emissions from the venting and flaring of associated gas, liquids unloading activities, storage tanks, pneumatic devices and pumps—all major sources of waste and pollution.	Please see response to comment F02-26.
N03	08		BLM cannot point to Wyoming standards to fill the gaps in the DEIS with respect to mitigation measures to reduce wasteful leaks and the venting and flaring of associated natural gas. The Wyoming Department of Environmental Quality permitting guidance for this portion of the state does not require operators to conduct quarterly leak inspections, as is required for operations located elsewhere in the state. This requirement has been effective in restoring healthy air to the citizens of the Upper Green River Basin, as evidenced by the fact that the area is now on track to regain attainment with the federal health-based standards for ozone.	Please see response to comment F02-26.
N03	09		At least quarterly or continuous leak inspections is essential to preventing waste and harmful emissions that degrade air quality. BLM must ensure that actions on its land do not cause undue degradation to air quality or waste. Failure to provide due consideration to an alternative that analyzes the feasibility of requiring operators to conduct quarterly inspections or install continuous monitors is a fatal flaw in the DEIS.	The State of Wyoming operates and maintains an air quality monitor just downwind of the project area. Furthermore, The BLM will work with the Operator Group to seek additional mitigation strategies for inclusion into the Record of Decision.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	10	5.3, Table 5.3-2; and 4.1, Table 4.1-6	BLM'S INVENTORY ESTIMATES LIKELY UNDERESTIMATE EMISSIONS, INDICATING THAT ITS MODELING IS LIKELY INCORRECT: The DEIS contains an estimate of VOC and CO2e emissions from the proposed project. According to the Draft EIS' estimates based on the BLM's inventory, oil and gas activities on state lands in Wyoming are expected to emit 81,160 tons of VOCs in 2028, 43,467 tons of NOx in 2028 and a total of 861.82 MMT CO2e through the life of the Project. As discussed in our scoping comments, these numbers likely significantly underestimate actual emissions, as a series of scientific studies demonstrate that measured emissions are magnitudes higher than estimates based on emission factors and engineering calculations. These studies demonstrate that emission inventories consistently underestimate actual emissions, which calls into question the adequacy of BLM's DEIS, in particular the emission inventory, cumulative impacts analysis, and modeling. We urge BLM to go back and revisit these sections of the DEIS, taking into consideration the scientific information discussed above.	The emission inventory was calculated using standard practices and publicly available sources. The emission calculation methodologies were reviewed and approved by the BLM and other cooperating agencies prior to modeling and DEIS competition.
N03	11		Field Studies Using Direct Measurement Demonstrate that Actual Emissions are Significantly Higher than Inventories Estimations: Up until recently, regulators have relied nearly exclusively on emission inventories to understand the magnitude of a pollution problem as well as the potential reductions associated with a proposed solution. Now, however, recent advances in science have added to our knowledge and understanding of emissions from oil and gas facilities. These studies demonstrate that emissions are systematically significant and, at a select number of facilities, actual emissions are magnitudes higher than emission inventories suggest. From a policy standpoint, they point clearly to the need for frequent inspections to identify abnormal operating conditions and malfunctioning or defective equipment.	Please see response to comment N03-10.
N03	12		A recent series of studies in the Barnett—incorporating both top-down and bottom-up measurement—found that emissions were 50 percent greater than estimates based on the GHGI.15 The studies partially attributed these large emissions to high emission sites not reflected in inventories, which focus on average emission factors. One study in particular found that a small number of sources are responsible for a disproportionate amount of emissions, noting specifically that "sites with high proportional loss rates have excess emissions resulting from abnormal or otherwise avoidable operating conditions, such as improperly functioning equipment."16 15 Robert Harriss, et al., Using Multi-Scale Measurements to Improve Methane Emissions Estimates from Oil and Gas Operations in the Barnett Shale, Texas: Campaign Summary, 49 ENVIRON. SCI. TECHNOL. 7524-7526 (July 7, 2015) available at http://pubs.acs.org/doi/abs/10.1021/acs.est.5b02305 (providing a summary of the 12 studies that were part of the coordinated campaign). 16 Daniel Zavala-Araiza, et al., Toward a Functional Definition of Methane Super-Emitters: Application to Natural Gas Production Sites, 49 ENVIRON. SCI. TECHNOL. 8167−8174 (July 7, 2015), available at http://pubs.acs.org/doi/pdfplus/10.1021/acs.est.5b00133.	Please see response to comment N03-10.
N03	13		In addition, a helicopter study of 8,220 well pads in seven basins, including sites in Eastern Wyoming's Powder River Basin, confirms that leaks occur randomly and are not well correlated with characteristics of well pads, such as age, production type or well count.17 That study focused only on very high emitting sources, given the helicopter survey detection limit which ranged from 35–105 metric tons per year of methane. The paper reported that emissions exceeding the high detection limits were found at 327 sites. 92 percent of the emission sources identified were associated with tanks, including some tanks with control devices that were not functioning properly and so could be expected to be addressed through a leak detection and repair program. While the study did not characterize the individually smaller but collectively significant leaks that fell below the detection limit, it nonetheless confirms that high-emitting leaks occur at a significant number of production sites and that total emissions from such leaks are very likely underestimated in official inventories. 17 David R. Lyon, et al., Aerial Surveys of Elevated Hydrocarbon Emissions from Oil and Gas Production Sites, 50 ENVIRON. SCI. TECHNOL. 4877–4886 (Apr. 5, 2016), available at http://pubs.acs.org/doi/abs/10.1021/acs.est.6b00705.	Please see response to comment N03-10.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	14		Phase I, University of Texas. This study found that emissions from equipment leaks, pneumatic controllers and chemical injection pumps were each 38%, 63% and 100% higher, respectively, than as estimated in national inventories.18 This study also found that 5% of the facilities were responsible for 27% of the emissions.19 18 David T. Allen, et al., Measurements of Methane Emissions at Natural Gas Production Sites in the United States, 44 PROC. NATL. ACAD. 110 (Aug. 19, 2013), available at http://www.pnas.org/content/110/44/17768.full 19 See David T. Allen, et al., Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Pneumatic Controllers, 49 ENVIRON. SCI. TECHNOL. 633–640 (Dec. 9, 2014) (referencing 2013 Allen study), available at http://pubs.acs.org/doi/abs/10.1021/es5040156 (hereinafter "Pneumatic Controllers Study").	Please see response to comment N03-10.
N03	15		Phase II, University of Texas. Two follow-up studies focused specifically on emissions from pneumatic controllers and liquids unloading activities at wells found similar results.20 Specifically, the studies found that 19 percent of the pneumatic devices accounted for 95 percent of the emissions from the devices tested, and about 20 percent of the wells with unloading emissions accounted for 65 to 83 percent of those emissions. The average methane emissions per pneumatic controller were 17 percent higher than the average emissions per pneumatic controller in EPA's national greenhouse gas inventory.21 20 David T. Allen, et al., Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Liquid Unloadings, 49 ENVIRON. SCI. TECHNOL. 641–648 (Dec. 9, 2014) available at http://pubs.acs.org/doi/abs/10.1021/es504016r. 21 Pneumatic Controllers Study, 49 ENVIRON. SCI. TECHNOL. at 633–640.	Please see response to comment N03-10.
N03	16		Gathering and Boosting. The gathering and processing study found substantial venting from liquids storage tanks at approximately 20 percent of the sampled gathering facilities.22 Emission rates at these facilities were on average four times higher than rates observed at other facilities and, at some of these sites with substantial emissions, the authors found that company representatives made adjustments resulting in immediate reductions in emissions. 22 Austin L. Mitchell, et al., Measurements of Methane Emissions from Natural Gas Gathering Facilities and Processing Plants: Measurement Results, 49 ENVIRON. SCI. TECHNOL. 3219–3227 (Feb. 10, 2015), available at http://pubs.acs.org/doi/abs/10.1021/es5052809.	Please see response to comment N03-10.
N03	17		Transmission and Storage. In the study on transmission and storage emissions, the two sites with very significant emissions were both due to leaks or venting at isolation valves.23 The study also found that leaks were a major source of emissions across sources, concluding that measured emissions are larger than would be estimated by the emission factors used in EPA's reporting program. 23 R. Subramanian, et al., Methane Emissions from Natural Gas Compressor Stations in the Transmission and Storage Sector: Measurements and Comparisons with the EPA Greenhouse Gas Reporting Program Protocol, 49 ENVIRON. SCI. TECHNOL. 3252-3261 (Feb. 10, 2015), available at http://pubs.acs.org/doi/abs/10.1021/es5060258.	Please see response to comment N03-10.
N03	18		BLM HAS FAILED TO FULLY CONSIDER ALTERNATIVES THAT WOULD REDUCE AIR EMISSIONS BY REQUIRING OPERATORS TO EMPLOY COST-EFFECTIVE, TECHNICALLY FEASIBLE MEASURES	Please see response to comment N02-05.
N03	19		BLM's consideration of low-emitting alternatives fails to meet NEPA requirements. NEPA, 42 U.S.C. §§ 4321-70, requires federal agencies must "take a 'hard look' at the environmental consequences" of the proposed courses of action. An EIS must "rigorously explore and objectively evaluate" all reasonable alternatives to a proposed action, in order to compare the environmental impacts of all available courses of action. For those alternatives eliminated from detailed study, the EIS must briefly discuss the reasons for their elimination. BLM's elimination of lower emitting alternatives to the preferred action consisted of a cursory description of such alternatives and BLM's reason for rejecting them. This cursory evaluation fails to comport with legal requirements.	Thank you for your comment. Note that BLM conducted a thorough review of reasonable alternatives and has described the basis for elimination of alternatives in Section 2.6. Also see the response to Comment F02-26.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	20	2.6.5	BLM noted, but dismissed, an alternative that would have required operators to use flareless drilling, completion and production practices. BLM eliminated this option on the grounds that this was “not technically feasible, and it is inconsistent with the basic policy objectives for the management of the area.” BLM explained that this is not a technically feasible option because the state allows for flaring, and it may not be possible to have pipelines installed prior to completions and to use pipelines in all instances. BLM’s rejection of this alternative and any logical outgrowths of this alternative, such as flaring limits, is contrary to NEPA. Alternatives that fall within the agency’s statutory mandate are reasonable and must be considered. Technologies and practices are available to limit flaring, even if not wholly eliminate flaring, and BLM should have considered these.	The text has been revised to clarify that the alternative considered but eliminated from detailed analysis was to eliminate all flaring from the drilling and completion process. The Proposed Action includes technologies and practices to limit flaring to short durations mainly during production testing and emergency situations for safety purposes.
N03	23		Lastly, BLM failed to consider an alternative that could significantly decrease emissions by utilizing zero-emitting technologies.	As discussed in Section 2.6, alternatives were reviewed for technical or economically feasibility. Zero-emitting technologies are not technically or economically feasible within the CCPA.
N03	24	2.6.3 and 2.3.1.3	BLM summarily dismissed this alternative, “use of electrical power for production,” on the basis that the project is exploratory in nature and therefore the precise location of facilities is still unknown. Regardless of the exact location of a particular facility, BLM does know that the project will occur in a region that is currently home to electrical distribution lines. The existence of these current lines, and their ability to provide grid electricity to the proposed facilities, should have been considered.	Given the sparsely populated and developed nature of the CCPA it is reasonable to assume that the extent of the electric grid is limited and likely insufficient to provide service to a substantial portion of proposed production facilities.
N03	26		In order to avoid further sage grouse population declines and triggering the potential for and Endangered Species Act (ESA) listing, BLM must implement the mitigation practices outlined in the ARMPA.	Please refer to Section 6.1.1
N03	27		The 2015 FWS Not-Warranted Decision for the Greater Sage Grouse takes as a fundamental precept that, "all of the [ARMPAs] require that impacts to sage-grouse habitats are mitigated and that compensatory mitigation provides a net conservation gain to the species.35" In this statement, FWS highlights three features of effective mitigation that will achieve conservation outcomes: 1) adherence to the mitigation hierarchy; 2) use of compensatory mitigation to offset unavoidable impacts; and 3) achieving a net conservation gain. These three features drive the structure of mitigation policies and practices included in the ARMPAs, and must be fully implemented in order to address the impacts of the Converse County project. 35 U.S. Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List Greater Sage-Grouse (Centrocercus urophasianus) as an Endangered or Threatened Species; 80 FR 59887, 59881. (Sept. 2015).	Please refer to Section 6.0.
N03	28		In addition to the ARMPA applicable to the Project Area, the BLM and Converse County DEIS comport to comply with the State of Wyoming Sage Grouse Executive Order (EO-2015-4) (SGEO) and Framework for Mitigation, in accordance with a Memorandum of Understanding signed by the BLM and State of Wyoming. The State’s Framework in turn reiterates that, in coordination with the BLM, it will comply with the ARMPA to a net benefit standard.37 37 State of Wyoming. Revised Greater Sage-grouse Compensatory Mitigation Framework. https://wgfd.wyo.gov/WGFD/media/content/Habitat/20170710-Revised-Habitat-Mitigation-Framework.pdf	See Section 3.18.3.1.
N03	29		The 2015 FWS Not-Warranted Decision evaluated disturbance caps at scales of both the Biologically Significant Unit and the Priority Habitat Management Area, as established in the ARMPAs. In order to be maximally effective, best available science indicates that disturbance caps must be accompanied by strict density limits to accommodate known direct and indirect impacts associated with development. 52 However, the Converse County DEIS clearly indicates that disturbance thresholds will be exceeded as “existing disturbance within the DDCT assessment areas already exceeds the five percent disturbance cap for four of the five assessment areas as stipulated in WY EO 2015-4, the Approved Resource Management Plan Amendment for the Wyoming Greater Sage-grouse Sub-region (Attachment 4 to BLM 2015b), and the Land Management Plan Amendment for TBNG (Attachment B to USFS 2015b).”53 This is inconsistent with the ARMPAs, standing agreements with the State of Wyoming and other federal land management agencies, and inconsistent with the best available science relied upon in the 2015 FWS Not Warranted Decision. 52 J. W. Connelly, S. T. Knick, M. A. Schroeder, and S. J. Stiver, “Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats,” Proc. West. Assoc. Fish Wildl. Agencies, no. June, p. 610, 2004. 53 Impacts to Greater Sage-grouse PHMAs. 4.18-62. 4.18 – Wildlife and Aquatic Biological Resources. Converse County Draft EIS.	Not necessarily. As described in Section 4.18.3.2 (pg. 4.18-63), “The programmatic nature of this document details that the current 5 percent disturbance cap is exceeded in four of the PHMA (Bill, Douglas, North Glenrock, and Thunder Basin). However, under Alternative B, development could be approved on a site-specific basis consistent with the DDCT process 3 if found to be under the 5 percent cap.”

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	30		Due to the unequivocally critical importance of intact, un-impacted sagebrush habitat to sage grouse survival, the weakening of the restrictions set forth in the ARMPA and SGEO that require avoidance of key sage grouse habitat must be resisted. This applies to disturbance thresholds as well as restrictions on disturbance during the breeding season. Greater sage grouse are vulnerable to a wide range of human disturbances, particularly when they are associated with breeding. The birds engage in mating behavior involving a communal courtship area, known as a lek, in which males of the species compete through calls and displays for females. Excessive noise, or close proximity to human structures or activities, can lead to reduced breeding success, and more often than not, total abandonment of breeding for that year. To address these issues, the Converse County DEIS incorporates buffers of various distances around sage grouse leks and nesting sites as well as restrictions on activity during the breeding, nesting, and early brood rearing season in compliance with the BLM ARMPA and the USFS Land Management Plan Amendments. The DEIS identifies the following avoidance measures for “sage grouse, leks, core areas, nesting, early brood-rearing, wintering habitats, PHMAs, and GHMAs”: · NSO or no surface disturbing activities on or within a 0.6 mile radius of the perimeter of 13 occupied sage-grouse leks. No surface disturbing and/or disruptive activities within PHMA from March 15 to June 30 to 15 protect sage-grouse breeding, nesting, and early brood rearing habitat · No surface disturbing and/or disruptive activities within PHMAs (connectivity only) from 17 March 15 to June 30 to protect breeding, nesting, and early brood-rearing habitats within · 4 miles of the lek or lek perimeter of any occupied sage-grouse lek · No surface disturbing and/or disruptive activities from March 15 to June 30 to protect sage grouse nesting and early brood rearing habitats within 2 miles of the lek or lek perimeter of any occupied lek located outside PHMAs · NSO within 0.25 mile of occupied leks. Avoid human activity between 8 PM and 8 AM from March 1 to May 15 within GHMAs · Avoid surface disturbing activities in suitable nesting and early brood rearing habitats within 25 2 miles of occupied leks or in identified nesting and brood rearing habitats outside of the 26 2-mile buffer from March 15 to July 15 within GHMAs · Construction of new oil and gas development is prohibited within 0.25 mile of display grounds within GHMAs · No construction or drilling within 2 miles of active display grounds from March 1 to June 15 30 within GHMAs · Limit new noise levels to 10 dBA above ambient noise (existing activity included) measured 32 at the perimeter of a lek from 6 PM to 8 AM from March 1 to May 15 · Avoid surface disturbance in winter concentration areas from December 1 to March 1555 However, the Converse County DEIS also states: If residual impacts affect the ability to comply with laws, regulations, policies, and/or land use plan objectives, compensatory mitigation would be warranted to offset the impact(s). This category would apply to the request for exceptions to timing limitation stipulations under Alternative B. This is illogical. Timing limitation stipulations are imposed to avoid seasonal impacts to sage grouse and leks during critical life-cycle periods, such as breeding. Impacts caused during those critical life-cycle periods cannot be mitigated; lower male lek attendance, lek avoidance and other impacts will result in localized population declines. The addition or rehabilitation of habitat elsewhere, at a different time, cannot mitigate these impacts. Moreover, if allowed to occur, these impacts are likely irreversible.57 BLM failed to demonstrate how compensatory mitigation could minimize the impacts associated with exceptions to timing limitations. Due to these serious and potentially irreversible impacts, and B	Each site-specific request for year-round development would require an environmental assessment to be completed that would allow the BLM to analyze the effects of development on wildlife within the site-specific project area following guidance from federal and state policy. The approach to achieving a net conservation gain for the species and its habitat is then described in Section 6.6.2.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	31	4.18 and 6.6.2.2	This is clearly a misapplication of compensatory mitigation. BLM is required to comply with applicable laws, regulations, policies and land use plan objectives, not "mitigate" around them. BLM mitigation policy clearly states: "BLM policy is to mitigate impacts to an acceptable level onsite whenever possible through avoidance, minimization, remediation, or reduction of impacts over time. Offsite mitigation is not to become the default resource mitigation practice for projects permitted by the BLM."60 Allowing blanket use of compensatory mitigation as a loophole to the disturbance caps and seasonal timing requirements in the EO and ARMPA as proposed for Alternative B is clearly not copacetic with the intent of the ARMPA or SGEO, and is not compatible with healthy sage grouse populations. 60 BLM. Offsite Mitigation. Instruction Memorandum 2008-204. 30 Sept 2008. https://www.blm.gov/policy/im-2008-204	Comment noted. The project, as stated, will be in compliance with the WY EO 2019-3, BLM ARMPA, and USFS LRMPA.
N03	33	4.18.3.4 and 4.18.3.5	This analysis clearly suggests that Alternative B's proposed use of compensatory mitigation as a way to avoid timing restrictions as required by the ARMPA and SGEO will have clear consequences for the sage grouse. However, it also suggests that even Alternative C – which would all implement management direction or requirements from the BLM Casper RMP (BLM 2007b) and USFS TBNG LRMP (USFS 2001) to minimize impacts to all wildlife species – will have significant impacts to the sage grouse because of the vulnerability of this population. These impacts are clearly inconsistent with the intent of the ARMPA and SGEO to conserve sage grouse.	Due to the programmatic level of this document, it is not possible to determine impacts at the site-specific level. The document is consistent with the intent of the ARMPA and the WY EO 2019-3. As stated, "development could be approved on a site-specific basis consistent with the DDCT process" (the guidance provided in both documents) during the APD process under further site-specific NEPA to avoid or minimize impacts to the greater sage-grouse. No change to text.
N03	34		For further discussion of the analysis in the DEIS and the impacts to sage grouse, please see Attachment A, Draft Environmental Impact Statement for Converse County Oil and Gas Project (January 2018): A technical and scientific assessment of the greater sage-grouse relevant portions of the document, authored by Dr. Matt Holloran. EDF incorporates and fully adopts his comments and recommendations. Dr. Holloran identified several fundamental errors in the DEIS analysis, including: · The DEIS erroneously focuses on infrastructure density to assess the impacts of well pads on sage grouse, ignoring other factors that also influence lek occupancy by males such as distance to infrastructure and configuration of infrastructure around leks.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N03	35		The DEIS incorrectly relies on metrics from the Wyoming SGEO to assess landscape-scale disturbance, whereas the Wyoming SGEO metrics are site specific and not applicable to scenarios in which disturbance thresholds are exceeded, as they are in proposed Alternatives. To remedy this deficiency, BLM should incorporate metrics that will better assess large-scale impacts, such as fragmentation statistics, habitat patch size and juxtaposition, and connectivity.	Comment noted. BLM used the appropriate and available metrics for this level of impact analysis to be conducted. Subsequent NEPA will be conducted at the site-specific level.
N03	36		· The DEIS neither appropriately assessed impacts associated with roads, nor identified appropriate mitigation for the significant impacts associated with daily truck traffic in close proximity to leks, key habitat.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N03	37		The DEIS failed to evaluate long-term impacts of cheatgrass introduction and proliferation, and the potential for indefinite elimination of sage grouse habitat and drier Wyoming big sagebrush sites due to Project development.	While cheatgrass is not specifically detailed, the section "Types of Impacts Common to All Species" identifies habitat loss and conversion as an impact related to project development.
N03	38		The DEIS did not reflect the science-based reality that impacts associated with Project development are widespread and irreversible. Particularly, where BLM states that "all the leks in the Project Area would be at risk of being abandoned"66 as a result of development, BLM failed to acknowledge that lek abandonment and associated population declines are not reversible. 66 4.18-72. Wildlife and Aquatic Biological Resources. Converse County DEIS. Volume II Chapter 4. Environmental Consequences.	See Section 4.18.3.9. Also, according to the lek and population data provided in Section 3.18.3.5, lek abandonment and population declines are reversible.
N03	42		We urge the BLM to clearly define the residual impacts for which compensatory mitigation will be required now for the project in its entirety, and not wait to assign mitigation on a case-by-case basis. We expect this mitigation to cover the residual impacts of the project as identified by the BLM.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N03	43		We also recommend the BLM approve development to proceed on a phased basis, using monitoring and adaptive management to ensure that the impacts of the project on wildlife resources are as expected and that mitigation efforts have been successful in ameliorating impacts.	The BLM's rationale for not considering phased development in the detailed impact analysis is presented in Section 2.6.12.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	44		Provide full consideration of cleaner alternatives, including an alternative that would require operators to use cost-effective, feasible measures to reduce emissions such as a quarterly leak detection and repair provision, and re-issue the DEIS after rigorously exploring and objectively evaluating cleaner alternatives as required by NEPA.	Comment noted. Please see the discussion in Section 2.6.
N03	45		Revisit the air quality assumptions of the DEIS, taking into consideration the scientific information discussed above. These studies demonstrate that emission inventories consistently underestimate actual emissions, which calls into question the adequacy of BLM's DEIS, in particular the emission inventory, cumulative impacts analysis, and modeling.	Please see response to comment N03-10.
N03	46		Reconsider lower emitting alternatives to the preferred action. BLM's analysis in this proposal consisted only of a cursory description of such alternatives and BLM's reason for rejecting them. This cursory evaluation fails to comport with legal requirements.	As discussed in Section 2.6, alternatives were reviewed for technical or economic feasibility. Numerous control strategies were utilized in Alternative B, which are reflected on Table 4.1-1.
N03	50		Clearly define the residual impacts for which compensatory mitigation will be required now for the project in its entirety in the Final EIS and Record of Decision, and not wait to assign mitigation on a case-by-case basis.	The text has been updated to reflect the most current BLM guidance and policy with regard to mitigation, including removal of the requirement for compensatory mitigation.
N03	51		Infrastructure Density:--Assuming a uniform distribution of infrastructure throughout the Project area, it was estimated that each lek (on average) would have 9.9 additional well pads placed within 2 miles under Alternative B (pg. 4.18-63). These estimates were added to the number of existing well pads within the 2-mile buffers, and infrastructure density estimates presented in Doherty et al. (2010) were used to categorically establish that 31 leks (58%) in the Project area would be "moderately" impacted as a result of pursuing Alternative B (pg. 4.18-63). These results led to the conclusion in the DEIS that "development under Alternative B would exceed [the 1 well pad per square mile threshold] of development for 38 of the 46 sage-grouse leks within 2 miles of the [Project area]" (pg. 4.18-63). Although the numbers cited in this sentence do not track from the information provided in this section of the DEIS, the line of reasoning presented suggests that 58 to 83% of the leks in the Project area would be at risk of being abandoned as a result of increased infrastructure densities within 2 miles (see Holloran 2005, Doherty et al. 2010). However, based on the information provided in Doherty et al. (2010; Table 1), more specific estimates of potential impact could have been generated from the analyses presented. For example, given the estimate of 9.9 additional wells within 2 miles of each lek, the probability of lek abandonment will double for 31 of the 52 leks (60%) listed in Table 4.18-21 (pg. 4.18-51), suggesting that up to 16 of those 31 leks would be abandoned. Combining this result with the "resulting decline in active leks" estimate (-11.5%) provided in Doherty et al. (2010; Table 1) suggests that approximately 4 of those 31 leks would be abandoned, providing a more accurate estimate of 4 to 16 of the 31 leks where the development threshold has been exceeded would become inactive as a result of pursuing Alternative B. Further, based on the lek count information provided in Table 4.18-21 (pg. 4.18-51) and "decline in males on remaining active leks" estimate (-31.4%) provided in Doherty et al. (2010; Table 1), the estimated decline in the total population as a result of pursuing Alternative B would be approximately 20%. This was estimated by establishing the proportion of the total counted population associated with leks where it was predicted that infrastructure densities would surpass the threshold, and multiplying that estimate by -31.4%. This provides a relative and additive estimate of population declines expected (i.e., the population on all leks that remain active following development will decline by an estimated 20%). This admittedly preliminary assessment of impact provides a more tangible goal for developing compensatory mitigation needs (see pg. 4.18-72), discussed in more detail below.	Text numbers have been revised for accuracy. Due to the programmatic nature of the document, site specific analyses will be conducted and permitting will be authorized within the requirements of BLM and USFS land use plan amendments for the greater sage-grouse, as well as the WY EO 2019-3, including the consideration of compensatory mitigation. It will be during further NEPA at the APD level where the DDCT process will identify impacts to specific leks based on PHMA thresholds of 1 disturbance per square mile and no threshold for those within GHMA. The current analysis does depict that Alternative B has the greatest potential of lek abandonment as also portrayed in the recommended analysis within the comment.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	52		The approach taken in the DEIS of assessing the impact of well pads (as well as my suggested modifications to those estimates) focuses on infrastructure density, but research suggests that the distance from leks to infrastructure, as well as the configuration of infrastructure surrounding leks influence the number of males occupying those leks. Several authors have reported a distance-effect associated with the infrastructure of energy fields whereby sage-grouse are negatively influenced to a greater extent if infrastructure is placed near seasonal habitat with the response diminishing as distances from the habitat to infrastructure increase (Manier et al. 2013). The majority of the research has investigated the response of lekking sage-grouse to energy development, with studies consistently reporting impacts from infrastructure on the number of males occupying leks to approximately 2 miles, with lesser impacts consistently apparent to approximately 4 miles (Holloran 2005, Walker et al. 2007, Tack 2009, Harju et al. 2010, Johnson et al. 2011). Additionally, distance-effects of infrastructure associated with energy developments of between approximately 0.9 and 1.7 miles on average have been noted during nesting, brood-rearing, and winter (Doherty et al. 2008, Carpenter et al. 2010, Holloran et al. 2010, Dzialak et al. 2011, LeBeau 2012, Dinkins 2013, Fedy et al. 2014). Research also suggests that the spatial configuration of infrastructure within landscapes surrounding leks influences male numbers, with leks where wells were clustered in a way that maintained open areas and where infrastructure did not surround the lek having a higher likelihood of remaining active (Holloran 2005, Doherty et al. 2010). Further, changes in the number of males occupying leks situated east (generally downwind) of infrastructure were more negative than those witnessed on leks west of infrastructure (Holloran 2005). These results suggest that increased noise intensity at leks may negatively influence male lek attendance, which is supported by experimental information establishing that sage-grouse avoid leks in response to anthropogenic noise, with intermittent noise (e.g., vehicle traffic) having a greater effect on attendance than continuous noise (e.g., drilling rig; Blickley et al. 2012). These additional considerations suggest that impact estimates resulting from an assessment of changes in infrastructure density within 2 miles of leks should be considered minimums.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N03	53		Surface Disturbance:--Surface disturbance impacts were established as an estimate of the proportional increase in surface disturbance within DDCT assessment areas established essentially at the scale of core areas located within the Project area (see Figure 4.18-1; pg. 4.18-49). These analyses led to the conclusion that the 5% surface disturbance cap was exceeded in 3 of the 5 core areas situated within the Project area. However, under Alternative B, “development could be approved on a site-specific basis consistent with the DDCT process if found to be under the 5 percent cap” (pg. 4.18-63). This conclusion is correct, and points to the concern with the approach used to estimate impact: the metrics and thresholds established in Wyoming’s sage-grouse management plan (WY SGEO 2015-4) are site-specific, and are not applicable for assessing sage-grouse habitat conditions at larger spatial scales (e.g., the scale of a core area or a Biologically Significant Unit [BSU]). Thus, the DEIS cannot rely solely on the metrics included in the State’s approach (i.e., surface disturbance and infrastructure density) when investigating the potential impacts of a proposed development at larger spatial scales. Additional assessment metrics that can be used to effectively establish the conditions of sage-grouse habitats at these larger scales (e.g., fragmentation statistics; habitat patch size and juxtaposition; connectivity; etc.; Wisdom et al. 2011, Knick et al. 2013, Burkhalter et al. 2018) are worth considering. Also worth noting is that the site-specific metrics developed by the State of Wyoming are relevant only in the situation where management adheres to threshold values (Holloran 2005; Doherty et al. 2010). To be useful in the situation where those thresholds are surpassed, the use of those metrics needs to be modified to account for incremental impacts to sage-grouse populations at infrastructure levels higher than the thresholds (Decker et al. 2017).	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	54		Fragmentation:--Again assuming a uniform distribution of infrastructure throughout the Project area, it was estimated that the average length of linear features (used as a proxy for fragmentation in the DEIS) would increase from 1.9 mi/mi2 of roads, pipelines, and overhead power lines to 3.72 mi/mi2 in the Project area under Alternative B (pg. 4.18-65). The increase in linear features was not tied to sage-grouse populations in the DEIS. Based on information provided in Knick et al. (2013), most active leks in western portions of the sage-grouse range were in areas with less than 1.6 mi/mi2 of secondary roads and less than 0.1 mi/mi2 of overhead power lines. Using information provided by Tack (2009), an estimated 2-fold decrease in the probability of a large lek (>25 males) when road densities increased from 2 to 4 mi/mi2 would be expected; at 4 mi/mi2 of road, the probability of a large lek was approximately 18%. Further, “new roads would be constructed and maintained to provide year-round access” (pg. 2-26) and estimates of traffic volumes (pg. 2-33) suggest >4,000 truck trips/day during a majority of the time the field would be in development and production. This suggests that impacts of development would not be isolated to the breeding season (i.e., all seasonal habitats including winter habitats will be impacted by the development). Research indicates that sage-grouse are avoiding human activity (e.g., truck trips) at the time that activity is experienced (Dzialak et al. 2012, Holloran et al. 2015), suggesting that mitigation measures (e.g., timing restrictions if followed) that minimize human activity throughout the life of the potential Project (e.g., using liquid gathering systems; Holloran et al. 2015) may be necessary to minimize impacts of that activity.	Site specific impacts would be determined at the APD level under further NEPA review which includes adhering to the mitigation measures (i.e., BMPs, Standards and Guidelines, and state requirements). Text has been revised to incorporate the impacts associated with road density.
N03	55		Development Planning:--The DEIS assesses levels of impact by species assuming a uniform distribution of development throughout the Project area (e.g., pg. 4.18-1). Based on the distributional pattern of existing infrastructure in the Project area (see Figure 2.3-1), this is more than likely a flawed assumption. This assumption leads to a situation where impact assessments could either be considered worst case (i.e., all leks and habitats impacted a small amount) or best case (i.e., in reality some leks and habitats will be impacted more than estimated); either way the predictions are likely not accurately estimating impact. Although I do not disagree that it is premature at this stage to expect the location of all infrastructure to be known (see pg. 1-5), obvious flaws in assumptions limit effective decision making in the context of the DEIS providing the level of information required to do so. I suggest developing build-out scenarios based on geophysical variables that may influence gas potential (i.e., built from production data of existing wells in the Project area; see Copeland et al. 2009) to establish – in a spatially-explicit manner – the probability of development within the Project area. This would provide the framework for predicting the location of infrastructure in the Project area, which could be combined with other sources of information important to avoidance and minimization measures to establish a more accurate prediction of infrastructure layout. For example, infrastructure will likely be clumped on the landscape relative to resource location, and the horizontal offset potential described in the DEIS (up to 2 miles) suggests that the companies have the technological capacity to clump infrastructure even more than the underlying resource may suggest.	Comment noted. Due to the programmatic nature of the document, the assumption of uniform distribution of development was necessary. A site-specific analysis will be conducted and permitting will be authorized within the requirements of BLM and USFS land use plan amendments for the greater sage-grouse, as well as the WY EO 2019-3. It will be during further NEPA at the APD level where the DDCT process will identify impacts to specific leks based on the location of development. The current analysis does depict that Alternative B has the greatest potential of lek abandonment as also portrayed in the recommended analysis within the comment.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	56		The approach to planning energy developments suggested by the previous paragraph is critically important for sage-grouse, where the likely effects of relatively discrete levels of development may result in large-scale indirect loss of habitat for the species (Copeland et al. 2011, Holloran et al. 2015). The DEIS specifically indicates that "specific estimates of indirect impacts from project components are not possible due to the programmatic nature of this EIS. Indirect impacts to wildlife species and habitats are [therefore] qualitatively described" (pg. 4.18-1). This is problematic. Informative indirect and cumulative impact assessments require that surface locations of proposed infrastructure are at least somewhat established. From these spatially-explicit estimates in the context of existing conditions, the potential response of sage-grouse populations can be predicted; and these predictions are the metric critical for informed decision making. Otherwise proactive approaches to planning development in the context of multiple use cannot be pursued; we are left instead with qualitatively informed conclusions that are not necessarily helpful in decision making. Consider developing from the aforementioned infrastructure placement scenarios a holistic plan for the placement of development (in aggregate) in relation to areas set aside as wildlife refugia (also in aggregate) throughout the project area. Use these scenarios to inform avoidance, minimization and mitigation to reduce impact to sage-grouse of development while allowing for the full development of the resource (see for example Kirol et al. 2015). Further, within the context of this plan, I suggest re-considering some of the development Alternatives eliminated from consideration (section 2.6), especially phased/concentrated development (pg. 2-46). This approach to planning development would generate more empirically-based information for decision making, and better inform avoidance, minimization, and compensatory mitigation needs at the scale of the Project area.	Comment noted. Due to the programmatic nature of the document, the assumption of uniform distribution of development was necessary. A site-specific analysis will be conducted and permitting will be authorized within the requirements of BLM and USFS land use plan amendments for the greater sage-grouse, as well as the WY EO 2019-3. It will be during further NEPA at the APD level where the DDCT process will identify impacts to specific leks based on the location of development. The current analysis does depict that Alternative B has the greatest potential of lek abandonment as also portrayed in the recommended analysis within the comment.
N03	57		Invasive Plants:--The DEIS identifies cheatgrass as being pervasive across the Project area, and mentions that in some areas of the Project area cheatgrass is the dominant herbaceous species (pg. 3.14-6). The approach established in the DEIS to managing invasive annual grasses is to limit "further expansion of areas already affected by invasive plant species" (pg. 4.14-5) by arranging for infestations to be mapped to assist land management agencies in the development of treatment plans (pg. 4.14-11). Although it is acknowledged in the DEIS that adherence to Federal protocols "would not completely eliminate the threat of invasion and spread of invasive plant species" (pg. 4.14-12) and that "populations of weedy annual species may become established" for extended periods of time (pg. 4.14-15), the conclusion rendered for cheatgrass in the DEIS is that infestations would be temporary, localized and reversible (pg. 4.14-12 and 4.14-15). By changing fire-frequency, cheatgrass infestations cause the direct elimination of native shrubs, forbs, and perennial grasses and result in self-perpetuating stands of cheatgrass (Chambers et al. 2007). Next to habitat destruction, invasive plants are considered the second-most important threat to rangeland biodiversity, with many shrub-dominated rangelands throughout the western U.S. having been converted to monocultures of cheatgrass that are now considered steady states (i.e., are irreversibly altered; Sedgwick 2004, Miller et al. 2011). Given restoration technology and knowledge, these altered landscapes are currently considered indefinitely lost as sage-grouse habitat. As a consequence, most land managers emphasize that extreme caution and discretion need to be employed when proposing actions that disturb drier Wyoming big sagebrush sites, especially in areas where cheatgrass may become established and/or spread (as is the case in the Project area; e.g., Connelly et al. 2004, Bohne et al. 2007). Because of this, cheatgrass proliferation in the Project area cannot be considered reversible, and the potential for the indefinite elimination of substantial amounts of sage-grouse habitat must be considered a short-term impact that could result in irreversible long-term degradation. This further suggests that the potential for cheatgrass to become established for extended periods of time (pg. 4.14-15) should be considered residual, warranting compensatory mitigation. Consider taking a more proactive approach to managing invasive plants, especially invasive annual grasses, than the approach described in the DEIS (pg. 4.14-11). I encourage the development and implementation of a comprehensive weed management plan for the Project area following Ecologically Based Invasive Plant Management principles (http://www.ebipm.org/). The University of Wyoming and Agricultural Research Service (USDOA) have tremendous expertise that could assist in this effort.	Thank you for your comment. Development of weed management plans would be conducted at the site-specific permitting phase of this programmatic development proposal.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	58		Residual Impacts:--The impact information presented in the DEIS was used to conclude that: “Alternative B would result in impacts to special status wildlife species associated with surface disturbance, habitat fragmentation, human disturbance, and the potential for granting of exceptions to timing limit stipulations,” and in the case of sage-grouse, “all leks in the [Project area] would be at risk of being abandoned” as a result of development (pg. 4.18-72). These impacts were considered residual in the case of sage-grouse for Alternative B, warranting compensatory mitigation. However, it was further suggested in the DEIS that “oil and gas development would have localized impacts on [special status terrestrial] wildlife populations” and that special status wildlife habitat impacted during development could return to pre-disturbance conditions, “which would avoid any irreversible commitments” (pg. 4.18-85). The literature establishes that lek abandonments as a result of anthropogenic disturbance are not solely a product of displacement, but represent a population-level impact (i.e., population size will be negatively impacted; Hagen 2010, Naugle et al. 2011). Further, it has been demonstrated that population trends within relatively small management areas (e.g., BSUs) can differ from trends in the overall management unit (e.g., BLM Field Office; Edmunds et al. 2017), suggesting that an impact could be successfully mitigated at the site level, yet impacts may remain at larger spatial scales (e.g., impacts to a critical travel corridor between seasonal ranges; impacts to a regionally-limiting seasonal habitat type). Therefore, the long-term consequences resulting from short-term use and residual impacts could include the reduction or extirpation of sage-grouse from portions of or the entire Project area, and impacts could extend well beyond the boundaries of the Project area. Because of the philopatric behavior of sage-grouse (see Holloran and Anderson 2005), recolonization of abandoned areas may take multiple generations (Holloran et al. 2010), especially if these areas are large and/or geographically isolated from remaining populations. In contrast to the conclusions reached in the DEIS, the information presented in the DEIS under Alternative B establishes that the impacts to sage-grouse populations will more than likely be widespread. Further, although technically the impacts to sage-grouse populations will not be irreversible, I would contend that considering the impacts potentially irreversible and designing the development and compensatory mitigation plans to collectively guard against the risk of irreversible damage is pragmatic.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N03	59	Table 5.3-34 and Table 5.3-28	Cumulative Effects:--The purpose of cumulative effects analyses is to “ensure that federal decision-makers consider the full range of consequences of actions” when making decisions (pg. 5-1). This was pursued in the DEIS by estimating the cumulative habitat disturbed under Alternative B. Although the numbers presented in Table 5.3-34 appear to be incorrect [i.e., estimated cumulative habitat disturbed under Alternative B exceeds the total acreage of the Project area], Alternative B will more than double the surface disturbance in the Project and surrounding area based on terrestrial wildlife estimates (Table 5.3-28).	The Greater sage-grouse CISA is 3,226,826 acres in size and includes the CCPA plus an 11-mile radius. Therefore, the disturbance is not greater than the CISA. The terrestrial wildlife CISA is 2,206,155 acres and includes the HUC-12 hydrological units intersected by the CCPA. The numbers were reviewed for accuracy.
N03	60		As with other impact assessments, the DEIS establishes that specifics associated with cumulative effects will be addressed at time of APD (e.g., pg. 1-5). The site-specific scale at which the assessment of potential impact will occur establishes a situation where the cumulative impacts of development may not be realized until regional monitoring metrics suggest an adverse effect has already occurred (e.g., lek count-based metrics assessed at the scale of a BSU or BLM Field Office). Sage-grouse are a landscape species (Connelly et al. 2004), yet within this landscape sage-grouse rely on habitats with a diversity of species and subspecies of sagebrush interspersed with a variety of other habitats (e.g., riparian meadows, agricultural lands, grasslands) that are used by sage-grouse during certain times of the year (e.g., summer) or during certain years (e.g., severe drought; Connelly et al. 2011). The diversity of resources sage-grouse require seasonally and annually must be considered holistically to provide the large, functional, connected habitat patches necessary to sustain populations of the species. As suggested earlier, population trends within relatively small management units can differ from trends in the overall management unit, suggesting that regional-scale assessment metrics may not accurately depict what is occurring in smaller management units (and vice-versa) establishing a situation where the actual cumulative effects may not be noticeable at the local scale at which they are being assessed (Edmunds et al. 2017). This could result in regional-scale (cumulative) impacts to sage-grouse populations even in the event local-scale impacts are successfully managed. The approach to assessing impact through build-out scenarios described above (e.g., Copeland et al. 2009) would inherently address cumulative impacts, and this approach is encouraged.	Comment noted. Due to the programmatic nature of the document, the assumption of uniform distribution of development was necessary. A site-specific analysis will be conducted and permitting will be authorized within the requirements of BLM and USFS land use plan amendments for the greater sage-grouse, as well as the WY EO 2019-3. It will be during further NEPA at the APD level where the DDCT process will identify impacts to specific leks and sage grouse populations based on the location of development.

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Environmental Defense Fund, Rocky Mountain Region (Continued)				
N03	61		Unfortunately, the general approach to compensatory mitigation described in the DEIS establishes temporal and spatial disconnects in the mitigation strategy; e.g., “the degree of the impact would be analyzed through desktop analysis and ground surveys conducted during future site-specific NEPA during the APD stage of development” (section 6.6.1). This suggests an approach to mitigation that will inadequately address the concerns raised in the preceding paragraph. Again because of the reliance on addressing impacts at the APD stage, impact assessments will be spatially limited and assessed near the time of impact, thereby limiting the ability to address landscape-scale goals and issues of timeliness. I strongly encourage the collaborative and coordinated development of a comprehensive compensatory mitigation strategy that closely adheres to science-based, adaptive management principles (Aldridge et al. 2004, Williams et al. 2009, Williams and Brown 2012). Science-based management requires the rigorous collection and recurring assessment of monitoring data and inclusive stakeholder community engagement, therefore a long-term (at least the life of the Project) commitment is required to implement an applicable compensatory mitigation program. The mitigation program could build from the infrastructure/refugia placement plan as informed through the build-out scenarios described above, and incorporate the weed management plan as an integral component of the compensatory mitigation strategy. In this way, a comprehensive strategy for developing the Project area adhering to Wyoming’s sage-grouse conservation goals while providing for the development of the resource could be pursued.	Comment noted. Compensatory mitigation has been modified by policy and guidance. The document has been edited accordingly.
Great Plains Tribal Water Alliance, Inc.				
N04	02		Under the Winters Doctrine, Indian Tribes possess water rights for all present and future beneficial uses to waters arising on, flowing through, bordering, and subsurface to the Reservation and Treaty lands. Water rights are Treaty rights, implicitly reserved in the Treaties in order for the Reservations to become permanent homelands for the Tribes. (Felix S. Cohen’s Handbook on Federal Indian Law §19.93 (2011 ed.)). The Draft EIS contains no mention of the reserved water rights of the Great Sioux Nation to the Cheyenne River, even though its waters are potentially impacted by the preferred alternative.	Issues concerning water rights, boundaries and treaty rights are beyond of the scope of this EIS.
N04	03		The Cheyenne River is an extremely important water source for the Great Sioux Nation, and it flows into the Missouri River, the primary water source for the Water Alliance Tribes. The Oglala Sioux and other Tribes of the Sioux Nation possess reserved water rights to the Cheyenne River, downstream from the Converse County Oil and Gas Project. All of the Tribes of the Great Sioux Nation possess extensive water rights to the Missouri River main stem, of which the Cheyenne is a major tributary. The Powder River is a tributary to the Yellowstone River, which flows into the Missouri River. The Powder River is also an important watershed for the Lakota. This area comprises the Tribes’ traditional hunting grounds, and is unceded Treaty land of the Sioux. Under Article 16 of the Fort Laramie Treaty of 1868: The United States hereby agrees and stipulates that the country north of the North Platte River and east of the summits of the Big Horn Mountains shall be held and considered to be unceded Indian territory, and also stipulates and agrees that no white person or persons shall be permitted to settle upon or occupy any portion of the same, without the consent of the Indians… (15 Stat. 639). Thus, the Sioux Nation enjoys extensive Treaty rights in the project area, including reserved water rights to the Missouri River and Cheyenne River downstream from the project area. Significantly, Indian water rights include the right to adequate water quality for all beneficial uses. “Upstream, non-Indian users may be required to limit their diversions as necessary to achieve or preserve the required quality of tribal water rights.” (Cohen’s Handbook on Federal Indian Law §19.93). In the Draft EIS, the BLM failed to consider the existence of downstream Tribal water claims to the Cheyenne River, and the potential adverse impacts to these waters that may result from the project.	See response to comment N04-02.

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Great Plains Tribal Water Alliance, Inc. (Continued)				
N04	04		In fact, the Draft EIS erroneously states “There are still substantial portions of the annual surface water volumes available for new uses in the… Cheyenne river drainage.” (BLM, Draft EIS, p. 3.16-6). This statement appears designed to justify the significant upstream water diversions associated with the oil and gas project. Indian water claims in the Cheyenne River basin remain unresolved, and the BLM suggestion that there is substantial available water for non-Indian development conflicts with Indian water claims to the Cheyenne River.	The purpose of the NEPA (EIS) process is to disclose potential project impacts. The BLM appreciates that you have identified your specific concerns regarding the impacts disclosed in the DEIS. Issues concerning water rights, boundaries and treaty rights are beyond of the scope of this EIS.
N04	05		Moreover, the preferred alternative poses a risk of contamination to the Cheyenne River and its headwaters, further jeopardizing Tribal water rights in the Cheyenne watershed. This is evidenced on page 3.16-16 of the Draft EIS: “Within the Northeast Wyoming River Basin, there are several streams in portions of Converse County that are also rated as high or medium-high sensitivity because of the interaction with groundwater, including Antelope Creek, Dry Fork Cheyenne River, the confluence of Dry and Lightning creeks, and Box Creek.” Thus, the groundwater is jeopardized by fracking and the injection of waste water, and the groundwater “interrelates” with surface water in the Cheyenne River headwaters. For these reasons, the Draft EIS violates the Winters Doctrine water rights of the Tribes of the Great Plains Tribal Water Alliance.	As described in the EIS (Section 4.16.1.2), hydraulic fracturing and injection of waste water would have a very small potential to contaminate useable groundwater.
N04	06		The diversion of ground water for oil and gas development in this area is already considerable, with 12,400 acre-feet in current production. (BLM, Draft EIS, p. 3.16-23). Nevertheless, the Draft EIS fails to accurately describe the future water diversions that will be required for the Converse County Oil and Gas Project. It states on page 3.16-20, “Based on a Water White Paper provided by the OG (owner group) for the Project, water requirements per well can range from 6.1 to 12.3 acre-feet.”	See response to Comment B11-154.
N04	07		The Converse County Oil and Gas Project would significantly accelerate oil and gas development and magnify the impacts in the affected water basins. A total of 5,000 new wells would be authorized. Consequently, based upon the oil companies’ estimate, the water requirements will range from 30,500 acre-feet to 61,500 acre-feet (5,000 wells multiplied by 6.1-12.3 acre-feet per well). That is too wide of a range to accurately determine the impacts of the water diversions on the water resources in the affected area. The Draft EIS lacks sufficient data to determine the environmental impacts of the significant water withdrawals associated with the Converse County Oil and Gas Project. The Council on Environmental Quality regulations governing NEPA require an EIS to “include the environmental impacts of alternatives… It shall include discussions of direct impacts and their significance.” (40 CFR §1502.15). The Draft EIS fails to adequately evaluate environmental impacts of the preferred alternative, because it does not disclose the water requirements for 5,000 new oil and gas wells.	The Draft EIS discloses the water use associated with the proposed project in Section 2.4.3.4. Baseline conditions for water resources are discussed in Section 3.16 and impacts are discussed in Section 4.16. Note that the text has been revised to include updated water use numbers provided by the Operator Group.
N04	08		Nevertheless, the BLM gives different estimates of water use on page 4.16-14. This section states, “Under Alternative B (the preferred alternative), 5,000 wells would be drilled over a 10-year period. Water for drilling operations primarily would be from groundwater sources and would be approximately 7,000 acre-feet per year or an average of 13.1 acre-feet per well.” (BLM, Draft EIS, p 4.16-14). On page 3.16-20 the BLM utilizes industry estimates of 61,500 acre-feet of ground water withdrawals over a 10-year period, and on page 4.16-14 the BLM estimates total water use to be 70,000 acre-feet. Thus, the BLM utilizes wildly different water diversion estimates in different parts of the Draft EIS.	Comment noted. According to the comment, “on page 3.16-20 the BLM utilizes industry estimates of 61,500 acre-feet of ground water withdrawals over a 10-year period.” The 61,500 acre-feet is not in the text of page 3.16-20.
N04	09		Moreover, the BLM relied upon incomplete and outdated data on the groundwater resources. The Draft EIS states that “Groundwater flow in the entire CCPA (project area) is not well documented due to a lack of monitoring wells.” (Id. p. 3.16-15). There is considerable reliance on an outdated study by Hochkiss and Levings published in 1986. That is inadequate for a baseline evaluation of impacts to groundwater.	The commenter did not mention the more recent citations in the same sentence, which include Thamke, et al. (2014) and Long et al. (2014) that are in substantial agreement with the Hotchkiss and Levings (1986).
N04	10		Significantly, the location of points of diversion are not identified. The Draft EIS opines that “all water for the Project would be obtained from these 50 new wells.” (Id. p. 4.16-14). The BLM assumes that the wells would be “equally distributed” throughout the project area. Id. That unverified assumption leads to the conclusion of “isolated and very localized cones of depression” in the affected aquifers. (Id.). The conclusions relating to impacts on ground water resources are based upon unverified assumptions of the locations of the points of diversion, and therefore lack credibility.	Without site-specific information, a programmatic EIS cannot predict where future wells are going to be placed. Reasonable assumptions have been made, which is why the groundwater model ran two general hypothetical cases, one with distributed well locations and the other with closely spaced wells.

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Great Plains Tribal Water Alliance, Inc. (Continued)				
N04	11		In sum, the BLM totally ignores the existence of Indian water claims in the Cheyenne River watershed, and fails to disclose the potential impacts of contamination to Indian waters.	See response to comment N04-02.
N04	12		The estimate of water use lacks credibility.	See response to Comment B11-154.
N04	13		There is insufficient information on the potential impacts to Indian water rights from the very high intensity development contemplated in the preferred alternative. The Draft EIS fails to disclose the impacts of the preferred alternative on Indian water rights, in violation of NEPA.	See response to comment N04-02.
N04	14		The Draft EIS fails to adequately evaluate the potential environmental impacts of water contamination and air pollution from hydraulic fracturing (fracking). It states on page 4.16-14, (B)y applying the spill rate discussed for Alternative A (0.5 percent in a given year) to the number of wells that would be drilled in one year under Alternative B there potentially would be less than 3 spill incidents to affect groundwater in 1 year. It is not certain how many disposal wells would be drilled in any given year, therefore, this calculation considers only oil and gas production wells. (Id. p. 4.16-14). Thus, the BLM underestimates the percent chance of migration from a fracked well, and ignores the significant environmental risk posed by the injection of waste fluid. The Draft EIS utilizes the 0.5 percent figure for estimating well failures. Based upon that figure, BLM concludes that “no impacts to usable waters from hydraulic fracturing would be expected.” (Id. p. 4.16-15). That conclusion is contradicted by data and is blatantly erroneous. The 0.5 percent estimate for well failures is too low. According to Anthony R. Ingraffea, a recognized expert at Cornell University, the frequency of well casing failures in the Marcellus Shale may be as high as 7 percent – 14 times higher than BLM’s estimate for Converse County. (Anthony R. Ingraffea, Fluid Migration Mechanisms Due to Faulty Well Design and/or Construction: An Overview and Recent Experiences in the Marcellus Shale Play, pp. 8-9, http://www.damascuscitizensforsustainabilty.org/wpcontent/uploads/2012/11/PSECementFailuresCauseRateAnalysisIngraffea.pdf). Studies documenting groundwater contamination in close proximity to frack wells abound, but BLM ignores them. (E.g. Ingraffea (2012); Avner Vengosh et al., A Critical Review of the Risks to Water Resources from Unconventional Shale Gas Development and Hydraulic Fracturing in the United States, www.pubs.asc.org/est (2014); U.S. Environmental Protection Agency, Draft Investigation of Groundwater Contamination near Pavilion, Wyoming (2011), https:/www.epa.gov/sites/production/files/documents/EPA_ReportOnPavilion_Dec-8-2011.pdf). In doing so, the Draft EIS contains erroneous conclusions that vastly underestimate the risk posed to groundwater, and, as groundwater interacts with surface water in the project area, to the Cheyenne, Platte and Powder Rivers.	Thank you for expressing your concerns. The BLM has based its estimates of number of spills that could impact groundwater on available recent literature sources appropriate to the proposed development in the CCPA and current regulatory programs such as the State of Wyoming's UIC program.
N04	15		Methane gas contamination is a significant concern, but is not properly evaluated by BLM. As reported by Vergosh, “reports of stray gas contamination in some unconventional shale gas development in the northeastern Appalachian Basin (U.S.) and Montney and Horn River Basins (Canada) may be associated with leaking of oil and gas wells.” (Vergosh, Environ. Sci. Technol.2014, p. 8338). A Study by the National Academy of Sciences determined that average methane concentrations in domestic wells near fracking sites were 17 times higher than wells in inactive areas. (Stephen G. Osborn et al., “Methane Contamination of Drinking Water Accompanying Gas-well Drilling and Hydraulic Fracturing,” Proceedings of the National Academy of Sciences 108 no. 20, (May 17, 2011) http://www.pnas.org/content/early/2011/05/02/1100682108.full.pdf+html). The concentration of methane was found to be proportionate to the distance from the frack site.	Information on stray methane gas has been added to the subsection entitled “Groundwater Contamination from Other Sources.” Biogenic methane gas occurs in coals and sandstones in the Lower Tertiary rocks in the basin. If coal seams and associated gas-charged sandstones are used as water sources (aquifers), there is potential for methane gas hazards. This methane gas hazard is not caused by hydraulic fracturing.

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Great Plains Tribal Water Alliance, Inc. (Continued)				
N04	16		A recent study evaluated the mobility of contaminants found in fracking fluids, and reached troubling conclusions. (Jessica D. Rogers et al., A Framework for Identifying Organic Compounds of Concern in Hydraulic Fracturing Fluids Based on Their Mobility and Persistence in Groundwater, www.pubs.asc.org/est (2015)). The study found: Of 996 organic fracturing fluid compounds identified by the U.S. Environmental Protection Agency and FracFocus for four states, data were available to perform an additional screening of 659 compounds for sufficient mobility and persistence to reach a water well under fast and slow groundwater transport scenarios. For the fast transport scenario, 15 compounds identified on at least 50 FracFocus reports were predicted to have an elevated exposure potential. (Environ. Sci. Technol. Lett. 2015, p. 158).	The migration of the chemicals is constrained because of factors such as limited fracture height, gradients that inhibit upward flow, local geologic conditions, and the extremely low permeability of the shale beyond artificially created fractures.
N04	18		The Environmental Protection Agency (EPA) issued a draft report in 2011, in response to concerns expressed by residents of Pavilion, Wyoming, with potential contamination of their drinking water wells from nearby fracking. EPA groundwater sampling confirmed the fears of Pavilion community members: 6 Detection of high concentrations of benzene, xylenes, gasoline range organics, and total purgeable hydrocarbons in ground water samples from shallow monitoring wells near pits indicates that pits are a source of shallow ground water contamination in the area of investigation. Pits were used for disposal of drilling cuttings, flowback and produced water. There are at least 33 pits in the area of investigation. (EPA 2011, p. 33).	The conditions at Pavillion are different from the CCPA in that the hydrocarbon-bearing formation at Pavillion is also the aquifer used for water supply. The initial study by the USEPA did not account for other potential sources of contaminants not sourced by oil and gas operations such as contaminated septic systems, poorly maintained water wells, maintenance shop sumps, fuel tanks, chemical tanks, unlined dipping vats, unpermitted waste dumps, and animal confinement areas.
N04	19		A follow-up study by the U.S. Geologic Survey confirmed elevated levels of specific conductance, pH, methane, ethane ad propane. (USGS, Groundwater-Quality and Quality-Control Data for Two Monitoring Wells Near Pavilion, Wyoming, p. 26 (2012)). Indeed, in Pavilion, the groundwater supplies for an entire community were polluted, with no feasible remediation. The health of farm animals was affected, with livestock suffering blindness and a high rate of stillborn births.	See response to Comment N04-18.
N04	21		BLM totally ignored the experience in Pavilion. With respect to the contamination of groundwater from fracking fluids, BLM wrote: (N)o impacts to usable waters from hydraulic fracturing would be expected… (D)ue to the physical constraints on fracture growth and regulatory requirements, there would be an extremely low risk of impacts to usable waters and the risk would not change because of the increased number of wells to be drilled. (BLM Draft EIS, p. 4.16-15). Geophysical constraints are diminished by the fracking process itself – the injection of fracking fluids under extremely high pressure creates fractures and fissures, causing new pathways for the migration of contaminants. Indeed, Rogers et al. documented that numerous contaminants common in fracking fluid are mobile and persistent. The Draft EIS lacks sufficient data to support the finding of no risk to groundwater. Available studies raise concern with groundwater contamination from fracking fluids, and the experience of Pavilion bears this out.	See response to Comment N04-16.
N04	23		With respect to contamination from produced water, the Draft EIS states: Impacts due to surface spills under Alternative B (the preferred alternative) still present a very small risk to groundwater (due to) the small volume of expected spills, the low spill rate, and the regulatory requirements to remediate spills of potentially hazardous materials. (BLM, Draft EIS, p. 4.16-15). The Draft EIS discloses that the preferred alternative will result in the production of significant volumes of waste water. However, it does not disclose how the waste water will be disposed of or recycled. In fact, the report identifies “a potential shortage of injection capacity under Alternative B.” (Id. p. 4.16-16). Thus, “Evaporation ponds could provide excess disposal capacity as well.” (Id.)	Comment noted. The remainder of referenced paragraph states that increased disposal well capacity could be obtained by converting underperforming production wells to water disposal wells. In addition, evaporation ponds could provide the excess disposal capacity.

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Great Plains Tribal Water Alliance, Inc. (Continued)				
N04	24		The use of surface storage ponds could increase run-off and contamination. The ponds attract wildlife, which are already stressed by the current level of oil and gas development. The ponds also intensify harmful air emissions. As explained by Vengosh: Spills or leaks of hydraulic fracturing and flowback fluids can pollute soil, surface water, and shallow groundwater with organics, salts, metals, and other constituents. A survey of surface spills from storage and production facilities at active well sites in Weld County, Colorado that produces both methane gas and crude oil, showed elevated levels of benzene, toluene, ethylbenzene, and xylene (BTEX) components in affected groundwater. (Vengosh, 2014, p. 8340). Thus, there is extensive literature documenting concerns with ground and surface water pollution from fracking. The BLM ignored this in the Draft EIS, and accordingly the report lacks adequate analysis to support the preferred alternative. At the very least, the impacts of fracking are sufficiently controversial and in need of additional study, to justify a more realistic evaluation of the risk to ground and surface water. (40 CFR §§108.27(b)(4) & (5)). None of this was done by BLM. For these reasons, the no action alternative is required.	Comment noted. Impacts from hydraulic fracturing are noted in Section 4.16.2.2.
Independent Petroleum Association of America				
N05	01		Year-round exploration and development is a crucial aspect of the Proposed Action and provides for less overall surface disturbance, fewer rig moves in the field and reduced vehicle traffic throughout the area. All of these benefits translate to reduced air emissions and potentially fewer traffic accidents, leaks and spills.	Thank you for your comment. Please see response to comment B11-024.
N05	03		BLM has not clearly identified in the project how programmatic timing stipulation relief will be administratively managed and it is vital that the agency clearly describe the process it will use to process APDs that request timing stipulation relief.	Please see the response to Comment B11-024.
N05	04		Alternative C does not provide a reasonable path for implementation since it artificially mandates the number of wells drilled per pad, eliminates drilling in core sage grouse habitats that have active leases and attempts to promote infrastructure development outside the agency's permitting authority. BLM has not adequately described a number of issues associated with the impacts of Alternative C and we strongly urge BLM to not consider this option as part of the FEIS.	Thank you for your comment. Note that the BLM identified the Proposed Action (Alternative B) as the agency's preferred alternative in the Draft EIS.
N05	05		IPAA welcomes the Trump Administration's efforts to make American energy dominance a cornerstone of Administration policy. However, the current regulatory process at the BLM hampers that important goal. The Converse County Oil and Gas Development Project and specifically Alternative B, provide the necessary tools for the agency and oil and gas producers to move forward on a plan that will create significant economic benefit to the State of Wyoming while at the same time protecting wildlife and the surrounding environment. IPAA strongly urges the agency to adopt Alternative B and issue the FEIS by the end of 2018.	Thank you for your comment. Please see the response to Comment B11-024.

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Multiple Non-governmental Organizations: Environmental Defense Fund; Institute for Policy Integrity at NYU School of Law; Montana Environmental Information Center; Sierra Club; Union of Concerned Scientists; WildEarth Guardians				
N06	01	Tables 4.1-3 and 4.1-6	While the DEIS quantifies the tons of greenhouse gas emissions related to this project, BLM fails to use the social cost of greenhouse gas metric to fully account for the climate effects of these emissions. The agency's refusal is arbitrary and unlawful in light of a growing body of case law holding that failure to monetize a project's costs is impermissible if the agency relies on the project's monetized benefits to justify its action. The refusal is also arbitrary in light of the growing consensus around the appropriate social cost of greenhouse gas values to use in environmental impact statements.	Protocols to estimate what is referenced as "social cost of carbon" (SCC) associated with GHG emissions were developed by a federal Interagency Working Group (IWG), to assist agencies in addressing Executive Order (EO) 12866, which requires federal agencies to assess the cost and the benefits of proposed regulations as part of their regulatory impact analyses. The SCC is an estimate of the economic damages associated with an increase in CO2 emissions and is intended to be used as part of a cost-benefit analysis. BLM is not using the SCC protocol for this project decision for several reasons. First, NEPA does not require a cost-benefit analysis (40 C.F.R. § 1502.23), although NEPA does require consideration of "effects" that include "economic" and "social" effects, 40 CFR 1508.8(b). Regional economic impact analyses describe effects that agency activities may have on economic conditions and local economic activity, generally expressed as projected changes in employment, labor income, and economic output (Watson, Wilson, Thilmany, and Winter 2007). An economic cost-benefit analysis, on the other hand, is an approach used to determine economic efficiency by focusing on changes in social welfare by comparing whether the monetary benefits gained by people from an action/policy are sufficient in order to compensate those made worse off and still achieve net benefits (Watson et al. 2007, Kotchen 2011). A cost-benefit analysis requires the identification and valuation of all the costs and benefits associated with an action/policy in a common monetary measure and is often expressed either as net benefits or as a cost-benefit ratio, which indicates the value of benefits obtained from each dollar of costs (Field 2008). The economic analysis in the EIS was a regional economic impact analysis and not an economic cost-benefit analysis. Furthermore, foundational economic theory dictates that an economic impact does not equate to an economic benefit. Any increased economic activity, in terms of revenue, employment, labor income, total value added, and output that is expected to occur with the proposed action is simply an economic impact, rather than an economic benefit (Watson et al. 2007). Based upon their views and values, people may perceive increased economic activity as a 'positive' impact that they desire to have occur; however, that is very distinct from being an 'economic benefit' as defined in economic theory and methodology (Watson et al. 2007, Kotchen 2011). Therefore, it is critical to distinguish that how people may perceive an economic impact is not the same as, nor should be interpreted as, a cost or a benefit as defined in a cost-benefit analysis. The distinction is anything but semantics, because principles of an economic benefit-cost analysis prohibits mixing economic impacts into the net benefit calculation. Additionally, BLM's approach recognizes that there are adverse environmental impacts related to climate change associated with the development and use of fossil fuels, provides potential GHG emission estimates in appropriate context, and discusses potential climate change impacts qualitatively, thus effectively informing the decision-maker and the public of the potential for GHG emissions and the potential implications of climate change. The BLM has taken this approach because research indicates that for difficult environmental issues such as climate change, most people more readily understand the discussion if the issue is brought to a scale that is relatable to their everyday life (Dietz 2013); when the science and technical aspects are presented in an engaging way such as narratives about the potential implications of the climate impacts (Corner, Lewandowsky, Phillips, and Roberts 2015); or use examples and make information relevant to the audience while also linking the local and global scales (National Research Council 2010). The approach in this EIS presents the data and information in a manner that follows many of the guidelines for effective climate change communication developed by the National Academy of Sciences (National Research Council 2010) by making the information more readily understood and relatable to the decision-maker and the general public. Specifically, Section 5.3.1.6 discusses climate change. To summarize, the BLM did not undertake an analysis of SCC because 1) NEPA does not require cost-benefit analysis and the EIS did not conduct an economic cost-benefit analysis; and, 2) the full social benefits of energy production have not been monetized, and quantifying only the costs of GHG emissions but not the benefits would yield information that is potentially inaccurate. The approach taken in this EIS qualitatively discusses climate projections and the link to GHGs and quantifies GHG emissions for the various alternatives effectively informs the decision-maker and the public of future climate effects at a variety of scales, whereas the social cost of carbon metric would only provide a monetary value at the global scale.

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Multiple Non-governmental Organizations: Environmental Defense Fund; Institute for Policy Integrity at NYU School of Law; Montana Environmental Information Center; Sierra Club; Union of Concerned Scientists; WildEarth Guardians (Continued)				
				References: Corner, A., Lewandowsky, S., Phillips, M. and Roberts, O. (2015). The uncertainty handbook-A practical guide for climate change communicators. Bristol: University of Bristol. Dietz, T. (2013). Bringing values and deliberation to science communication. Proceedings of the National Academy of Sciences (PNAS) 110(3): 14081-14087. Field, B.C. (2008). Natural resource economics: An introduction, second edition: Illinois, Waveland Press, Inc. Kotchen, M.J. (2011). Cost-benefit analysis. Chapter in: Encyclopedia of climate and weather, Second edition. Schneider, S.H., editor-in-chief. New York, Oxford University Press: pp 312-315. National Research Council. (2010). Informing an effective response to climate change: Washington D.C.., The National Academies Press. Watson, P., Wilson, J., Thilmany, D., and Winter, S. (2007). Determining economic contributions and impacts: What is the difference and why do we care? The Journal of Regional Analysis and Policy 37(2):140–146.
N06	02		These comments explain why the DEIS's failure to use the social cost of greenhouse gases leaves the public and decisionmakers in the dark about the full climate effects of the project, in violation of NEPA.	Please see response to Comment N06-01.
N06	03		NEPA requires a "reasonably thorough discussion" and "necessary contextual information" on climate impacts. The social cost of greenhouse gases provides such information, while the mere recitation of so many tons of carbon that will be emitted by the project fails to provide the public and decisionmakers with the required information. Moreover, when an agency monetizes a project's potential benefits—as BLM does here—the potential climate costs must be treated with proportional rigor.	Please see response to Comment N06-01.
N06	04		The social cost of greenhouse gases metric is appropriate for a project-level EIS with emissions of this magnitude. The metric can be applied to any action that significantly increases greenhouse gas emissions, not just to rulemakings. The uncertainty around factors like catastrophic outcomes that cannot currently be fully monetized is not a reason not to use the metric, but rather a reason to treat available values as lower-bound estimates of the true climate costs of emissions.	Please see response to Comment N06-01.
N06	05		The Interagency Working Group's 2016 estimates of the social cost of greenhouse gases remain the best available values for federal agencies to use in analyses.	Please see response to Comment N06-01.
N06	06		BLM fails to consider whether and to what extent this action could increase downstream emissions by increasing the total supply of oil and gas, thereby lowering the commodities' prices and increasing demand.	Analysis of the impact to oil and gas supply and price is beyond the scope of the EIS analysis. An estimation of the indirect GHG emissions due to the consumption of the product produced by this project us presented in Sections 4.1.2.2 and 4.1.3.3.
N06	07		BLM fails to discuss the actual climate impacts of the project, even though it quantifies the tons of greenhouse gas emissions from the action. BLM neither quantitatively nor qualitatively discusses the damages to which these additional tons of greenhouse gases would contribute.	The greenhouse gas emissions are quantified for Alternatives A and B are provided in sections 4.1.2.2 and 4.1.3.2, respectively. These are compared to state, national, and global greenhouse emissions to help put the greenhouse gas emissions for each alternative into context. However, as climate change is a global issue, no standard methodology currently exists to assess how a proposed project's GHG emissions would translate into physical effects on the global environment.
N06	08		Meanwhile, BLM has quantified thousands of additional jobs allegedly associated with the project5 as well as monetized billions of dollars' worth of additional investment, taxes, and royalties6, which the agency presents as "benefits" of the project7. Failing to similarly monetize the climate costs of the project is inconsistently arbitrary and deprives the public and decisionmakers of the information and context they need to weigh all the project's potential effects.	The analyses this EIS presents are commonly accepted metrics of economic effects established in NEPA practice. Those metrics include a number of monetary effects that would accrue to the federal, state and local governments and a comparison of the alternatives. This information provides important data regarding the differences between alternatives. For a response to monetizing the climate cost of the project, please see response to Comment N06-01.

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Multiple Non-governmental Organizations: Environmental Defense Fund; Institute for Policy Integrity at NYU School of Law; Montana Environmental Information Center; Sierra Club; Union of Concerned Scientists; WildEarth Guardians (Continued)				
N06	09		NEPA Requires Monetizing Climate Effects If Other Costs and Benefits Are Monetized In this DEIS, BLM monetizes the same economic benefits as in High Country and MEIC v. OSM— billions of dollars' worth of economic output, taxes, and royalties19—and so is required to be consistent in monetizing other significant effects, including climate costs. It is arbitrary to apply inconsistent protocols for analysis of some effects compared to others, and to monetize some effects but not others that are equally monetizeable. High Country Conservation Advocates v. Forest Service, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014); accord. MEIC v. Office of Surface Mining, 15-106-M-DWM, at 40-46 (D. Mt., August 14, 2017) (holding it was arbitrary for the agency to quantify benefits in an EIS while failing to use the social cost of carbon to quantify costs, as well as arbitrary to imply there would be no effects from greenhouse gas emissions).	The case High Country Conservation Advocates v. Forest Service, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014); accord. MEIC v. Office of Surface Mining, 15-106-M-DWM, at 40-46 (D. Mt., August 14, 2017) was regarding a NEPA document that were prepared before the issuance of Executive Order 13783, which eliminated federal policies regarding the use of certain social cost of carbon guidance documents in federal rulemaking. A more recent Montana district court opinion held that BLM was not required to prepare a social cost of carbon assessment even though the EIS at issue in that case reported monetized values for certain economic benefits, such as tax revenue and regional earnings and output. See Western Organization of Resource Councils v. BLM, 2018 WL 1475470 (D. Mont. March 26, 2018).
N06	10		Moreover, in obligating agencies to take "hard look" at projects' climate impacts, NEPA requires more than simply disclosing the volume of anticipated emissions.20 As discussed further below, under NEPA, agencies must provide details on discrete effects of a project's impacts within the relevant context. The social cost of greenhouse gases provides this critical information. 20 Supra notes 8-9. 8 Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, 462 U.S. 87, 96 (1983). 9 As the Ninth Circuit has held: "[T]he fact that climate change is largely a global phenomenon that includes actions that are outside of [the agency's] control . . . does not release the agency from the duty of assessing the effects of its actions on global warming within the context of other actions that also affect global warming." Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1217 (9th Cir. 2008); see also Border Power Plant Working Grp. v. U.S. Dep't of Energy, 260 F. Supp. 2d 997, 1028-29 (S.D. Cal. 2003) (failure to disclose project's indirect carbon dioxide emissions violates NEPA).	Please see response to Comment N06-01.
N06	11		The social cost of greenhouse gases directly reflects the discrete effects of climate change.22 The three integrated assessment models used to calculate the social cost of greenhouse gases together incorporate such damage categories as: agricultural and forestry impacts, coastal impacts due to sea level rise, impacts to the energy and water sectors, impacts from extreme weather events, vulnerable market sectors impacted by changes in energy use, human health impacts including malaria and pollution, outdoor recreation impacts and other non-market amenities, impacts to human settlements and ecosystems, and some catastrophic impacts.23 Though some important damage categories are currently omitted due to insufficient data and modeling,24 the integrated assessment models do a reasonable job of capturing many of the discrete climate effects that decisionmakers and the public care about. BLM argues that "it is not possible to quantify any effect (positive or negative) of the Project-only GHG emissions on climate with any degree of certainty."21 This statement reveals a deep misunderstanding of the design and proper application of the social cost of greenhouse gases. Not only is the social cost of greenhouse gas methodology ideally suited for valuing the marginal climate damages of individual projects, but the monetization directly reflects the actual incremental impacts of emissions on climate change. Monetization is actually a more useful way under NEPA to present the information to decisionmakers and the public than a qualitative description of discrete effects or a mere tallying of the tons of emissions. 22 As a comparison, while a carbon price developed for a carbon tax arguably measures the value of a constrained resource (i.e., carbon emission allowances), the integrated assessment models used to calculate the social cost of greenhouse gases directly measures climate damages. 23 See descriptions of the IAMs at pages 6-8 of the Interagency Working Group on the Social Cost of Carbon's 2010 Technical Support Document. 24 Peter Howard, Omitted Damages: What's Missing from the Social Cost of Carbon (2014), available at http://costofcarbon.org/files/Omitted_Damages_Whats_Missing_From_the_Social_Cost_of_Carbon.pdf.	Please see response to Comment N06-01.

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Multiple Non-governmental Organizations: Environmental Defense Fund; Institute for Policy Integrity at NYU School of Law; Montana Environmental Information Center; Sierra Club; Union of Concerned Scientists; WildEarth Guardians (Continued)				
N06	12	29 Compare id. At table 4.1-3 with table 4.1-6.	Monetizing climate damages provides the informational context required by NEPA, while a purely quantitative estimate of tons or a qualitative description of discrete climate effects like sea-level rise provide little context. Courts review NEPA documents "under an arbitrary and capricious standard," which requires "a reasonably thorough discussion of the significant aspects of the probable environmental consequences," to "foster both informed decision-making and informed public participation."25 In particular, "the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impact analysis that NEPA requires," and it is arbitrary to fail to "provide the necessary contextual information about the cumulative and incremental environmental impacts."26 To "provide the necessary contextual information," economic theory shows that one useful tool is monetization of environmental impacts. As Professor Cass Sunstein has explained, drawing from the work of recent Nobel laureate economist Richard Thaler, a well-documented mental heuristic called "probability neglect" causes people to irrationally reduce small probability risks entirely down to zero.27 In this case, for example, many decisionmakers and interested citizens would wrongly reduce down to zero the climate risks associated with the 0.019 million metric tons of direct emissions that BLM calculates and highlights for year 40 of the project,28 simply due to the leading zeros before the decimals. Yet the monetized expected cost of the climate risks associated with the hundreds of millions of tons of additional emissions over the entire life of the project29—representing damages of billions of dollars—is less likely overlooked. As the Environmental Protection Agency's website explains, "abstract measurements" of so many tons of greenhouse gases can be rather inscrutable for the public, unless "translat[ed] . . . into concrete terms you can understand."30 Monetization contextualizes the significance of the additional tons of emissions. BLM is required by NEPA to provide enough context to ensure that the public and decisionmakers would not overlook the associated climate risks. Monetization is one way that BLM could provide the necessary context to foster both informed decision-making and informed public participation.34 25 Ctr. for Biological Diversity, 538 F.3d at 1194 (citations omitted). See also Montana Envtl. Info. Ctr. v. Office of Surface Mining, cv 15-106-M-DWM, at 12-13 (D.Mt., Aug. 14, 2017). 26 Ctr. for Biological Diversity, 538 F.3d at 1217; see also Montana Envtl. Info. Ctr., cv 15-106-M-DWM at 45. 27 Cass R. Sunstein, Probability Neglect: Emotions, Worst Cases, and Law, 112 Yale L. J. 61, 63, 72 (2002). 28 DEIS at 4.1-16. 29 Compare id. at table 4.1-3 with table 4.1-6. 30 EPA, Greenhouse Gas Equivalencies Calculator, https://web.archive.org/web/20180212182940/https:/www.epa.gov/energy/greenhouse-gas-equivalencies-calculator (last updated Sept. 2017). 34 While the regulations promulgated by the Council on Environmental Quality to implement NEPA do not require a "monetary cost-benefit analysis," 40 C.F.R. § 1502.23, monetization nevertheless remains an available tool for contextualizing information. As the Council on Environmental Quality has explained, monetization may be "appropriate and relevant" and, in particular, "the Federal social cost of carbon . . . provides a harmonized, interagency metric that can give decision makers and the public useful information for their NEPA review." CEQ, Final Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews 32-33 & fn.86 (2016), available at https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf.	Additional text has been added to Sections 4.1.2.2 and 4.1.3.3 providing GHG equivalences. For a response to monetizing the climate cost of the project, please see response to Comment N06-01.
N06	13		BLM has used the social cost of greenhouse gases in previous NEPA analyses,35 demonstrating that the metric is readily available and appropriate for NEPA analyses like this DEIS. By comparison, simply tallying the volume of emissions fails to give the public and decisionmakers the required information about the magnitude of discrete climate effects from those emissions. The social cost of greenhouse gas metric provides that necessary context. 35 E.g. BLM, Envtl. Assessment—Waste Prevention, Prod. Subject to Royalties, and Res. Conservation 39 (Feb. 2016), https://www.regulations.gov/document?D=BLM-2016-0001-0003.	Please see response to Comment N06-01.

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Multiple Non-governmental Organizations: Environmental Defense Fund; Institute for Policy Integrity at NYU School of Law; Montana Environmental Information Center; Sierra Club; Union of Concerned Scientists; WildEarth Guardians (Continued)				
N06	14		BLM claims that it is not "possible to determine" the "effects of climate change due to . . . any particular source" or individual project;36 that "it is not possible to assign a 'significance' value" to greenhouse gas emissions from a particular project;37 and that quantification of climate effects cannot be done "with any degree of certainty."38 Each of these claims fundamentally misunderstands the social cost of greenhouse gas metric. First, the social cost of greenhouse gas methodology is well suited to measure the marginal climate damages of individual projects. These protocols were developed to assess the cost of actions with "marginal" impacts on cumulative global emissions, and the metrics estimate the dollar figure of damages for one extra unit of greenhouse gas emissions. This marginal cost is calculated using integrated assessment models. These models translate emissions into changes in atmospheric greenhouse concentrations, atmospheric concentrations into changes in temperature, and changes in temperature into economic damages. A range of plausible socio-economic and emissions trajectories are used to account for the scope of potential scenarios and circumstances that may actually result in the coming years and decades. The marginal cost is attained by first running the models using a baseline emissions trajectory, and then running the same models again with one additional unit of emissions. The difference in damages between the two runs is the marginal cost of one additional unit. The approach assumes that the marginal damages from increased emissions will remain constant for small emissions increases relative to gross global emissions. In other words, the monetization tools are in fact perfectly suited to measuring the marginal effects of individual projects or other discrete agency actions.	Please see response to Comment N06-01.
N06	15	40 Compare id. at table 4.1-3 with table 4.1-6.	Second, BLM claims there is no impact threshold to characterize the significance of a single action on global climate change.39 While there may not be a bright-line test for significance, the emissions BLM estimates for this project—hundreds of millions of tons in direct and indirect emissions over the life of the project40—are clearly significant and warrant monetization. This is especially true since, once emissions have been quantified (as they have been here), the additional step of monetization through application of the Interagency Working Group's 2016 estimates entails nothing more than a simple arithmetic calculation.41 39 Id. at 4.1-16. 40 Compare id. at table 4.1-3 with table 4.1-6. 41 Agencies simply need to multiply their estimate of tons in each year by the IWG's 2016 values for the corresponding year of emissions (adjusted for inflation to current dollars). If the emissions change occurs in the future, agencies would then discount the products back to present value.	Please see response to Comment N06-01.
N06	16		In High Country, the District Court for the District of Colorado found that it was arbitrary for the Forest Service not to monetize the "1.23 million tons of carbon dioxide equivalent emissions [from methane] the West Elk mine emits annually."42 That suggests that emissions in quantities far below what BLM estimates here are significant and warrant monetization. In Montana Environmental Information Center, the District Court for the District of Montana found it was arbitrary for the Office of Surface Mining not to monetize the 23.16 million metric tons emitted annually over nine years;43 the hundreds of millions of tons total over 40 years at stake here are of even greater magnitude. In Center for Biological Diversity, the Ninth Circuit found that it was arbitrary for the Department of Transportation not to monetize the 35 million metric ton difference in lifetime emissions from increasing the fuel efficiency of motor vehicles:44 given the estimated lifetime of vehicles sold in the years 2008-2011 (sometimes estimated at about 15 years on average), this could represent as little two million metric tons per year, well below the annual emissions at stake here. In a recent environmental impact statement from the Bureau of Ocean Energy Management published in August 2017, the agency explained that the social cost of carbon was "a useful measure" to apply to a NEPA analysis of an action anticipated to have a difference in greenhouse gas emissions compared to the no-action baseline of about 25 million metric tons over a 5-year period,45 or about 5 million metric tons per year. Once again, BLM's estimate for the Converse project and its downstream emissions is much higher. 42 52 F. Supp. 3d at 1191 (quoting an e-mail comment on the draft statement for the quantification of tons). 43 15-106-M-DWM, at 36-37. 44 538 F.3d at 1187.	Please see response~~s~~ to Comment N06-01.

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Multiple Non-governmental Organizations: Environmental Defense Fund; Institute for Policy Integrity at NYU School of Law; Montana Environmental Information Center; Sierra Club; Union of Concerned Scientists; WildEarth Guardians (Continued)				
N06	17		Under any reasonable social cost of greenhouse gases, the direct and indirect emissions from the Converse project will cause billions of dollars in climate damages. Tellingly, BLM had no problem monetizing, for example, few million of dollars per year in state mineral royalties as a significant benefit (in addition to billions of dollars estimated for other monetized economic benefits).46 Certainly, a potential climate cost of hundreds of millions of dollars is also significant, particularly in the context of a document the very purpose of which is to evaluate a project's environmental impacts.	Please see response to Comment N06-01
N06	18		Finally, BLM questions the certainty of estimates of climate impacts. Agencies in general—and BLM in this particular instance—should remember that uncertainty is not a reason to abandon the social cost of greenhouse gas methodologies;47 quite the contrary, uncertainty supports higher estimates of the social cost of greenhouse gases, because most uncertainties regarding climate change entail tipping points, catastrophic risks, and unknown unknowns about the damages of climate change. Because the key uncertainties of climate change include the risk of irreversible catastrophes, applying an options value framework to the regulatory context strengthens the case for ambitious regulatory action to reduce greenhouse gas emissions. There are numerous well-established, rigorous analytical tools available to help agencies characterize and quantitatively assess uncertainty, such as Monte Carlo simulations, and the IWG's social cost of greenhouse gas protocol incorporates those tools. For more details, please see the attached technical appendix on uncertainty. 47 Center for Biological Diversity v. NHTSA, 538 F.3d 1172, 1200 (9th Cir. 2008) ("[W]hile the record shows that there is a range of values, the value of carbon emissions reductions is certainly not zero.").	Please see response to Comment N06-01.
N06	19		The recent disbandment of the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG) does not negate the importance of using the metric to provide context in NEPA analyses. The IWG's social cost of greenhouse gas estimates remain the best available assessments for federal agencies to use in evaluating climate impacts. Executive Order 13,783 officially disbanded the IWG and withdrew its technical support documents that underpinned their range of estimates.48 Nevertheless, Executive Order 13,783 assumes that federal agencies will continue to "monetiz[e] the value of changes in greenhouse gas emissions" and instructs agencies to ensure such estimates are "consistent with the guidance contained in OMB Circular A-4."49 Consequently, while BLM and other federal agencies no longer benefit from ongoing technical support from the IWG on use of the social cost of greenhouse gases, by no means does the new Executive Order imply that agencies should not monetize important effects in their regulatory analyses or environmental impact statements. In fact, Circular A-4 instructs agencies to monetize costs and benefits whenever feasible.50 The Executive Order does not prohibit agencies from relying on the same choice of models as the IWG, the same inputs and assumptions as the IWG, the same statistical methodologies as the IWG, or the same ultimate values as derived by the IWG. To the contrary, because the Executive Order requires consistency with Circular A-4, as agencies follow the Circular's standards for using the best available data and methodologies, they will necessarily choose similar data, methodologies, and estimates as the IWG, since the IWG's work continues to represent the best available estimates.51 The Executive Order does not preclude agencies from using the same range of estimates as developed by the IWG, so long as the agency explains that the data and methodology that produced those estimates are consistent with Circular A-4 and, more broadly, with standards for rational decision-making. Similarly, the Executive Order's withdrawal of the CEQ guidance on greenhouse gases does not —and legally cannot—remove agencies' statutory requirement to fully disclose the environmental impacts of greenhouse gas emissions. As CEQ explained in its withdrawal, the "guidance was not a regulation," and "[t]he withdrawal of the guidance does not change any law, regulation, or other legally binding requirement."52 In other words, when the guidance originally recommended the appropriate use of the social cost of greenhouse gases in environmental impact statements,53 it was simply explaining that the social cost of greenhouse gases is consistent with longstanding NEPA regulations and case law, all of which are still in effect today.	Please see response to Comment N06-01.

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Multiple Non-governmental Organizations: Environmental Defense Fund; Institute for Policy Integrity at NYU School of Law; Montana Environmental Information Center; Sierra Club; Union of Concerned Scientists; WildEarth Guardians (Continued)				
			Notably, some agencies under the Trump administration have continued to use the IWG estimates even following the Executive Order. For example, in August 2017, the Bureau of Ocean Energy Management called the social cost of carbon "a useful measure" and applied it to analyze the consequences of offshore oil and gas drilling,54 and in July 2017, the Department of Energy used the Interagency Working Group's 2016 estimates for carbon and methane emissions to analyze energy efficiency regulation, describing the social cost of methane as having "undergone multiple stages of peer review."55 For more detail on why the IWG's 2016 estimates remain the best values currently available to federal agencies and why the IWG's choice of a central estimate of global damages calculated at a 3% discount rate is appropriate under Circular A-4, please see the attached comments on the social cost of greenhouse gases submitted last year to the Bureau of Land Management. 48 Exec. Order. No. 13,783 § 5(b), 82 Fed. Reg. 16,093 (Mar. 28, 2017). 49 Id. § 5(©. 50 OMB, Circular A-4 at 27 (2003) ("You should monetize quantitative estimates whenever possible."). 51 Richard L. Revesz et al., Best Cost Estimate of Green	
N06	20		BLM Fails to Consider Whether and to What Extent This Permit Could Increase Downstream Emissions While BLM calculates that the project will increase fossil fuel production and so increase indirect emissions, it claims that because the end-uses of the fuels are uncertainty, its estimate of downstream emissions is "conservatively high."56 In fact, BLM's estimate of downstream emissions may be conservatively low, as there is no evidence that BLM estimated whether and to what extent the addition of this addition of 800 million barrels of oil and over 3 trillion cubic feet of natural gas57 could affect the commodities' prices in ways that ultimately increase fossil fuel demand and associated emissions. 56 DEIS at 4.1-16. 57 Casper Field Office, Bureau of Land Management, Environmental Impact Statement for Converse County Oil and Gas Project 1, ES-14 (2018) (hereinafter "DEIS").	Please see response to Comment N06-08.
N06	21		Basic principles of supply and demand predict that increasing the supply of a commodity like oil or gas I will lower prices, and that lower prices will lead to increased demand for and consumption of that commodity.58 If the increased consumption of oil and gas due to the increased supply from the Converse project comes at the expense of energy conservation or of cleaner energy sources like natural gas and renewables, the end result would be an increase in greenhouse gas emissions. 58 See N. Gregory Mankiw, Principles of Economics 74–78, 80–81 (5th ed. 2008).	Your comment is noted. Evaluation of impacts from the proposed development on commodity prices or demand is beyond the scope of the EIS analysis.
N06	22		Under the requirement of NEPA, BLM may not ignore the impact that increased production could have on the availability of oil and gas, the price of those fuels relative to other energy resources, and the downstream emissions that could result from those changes.	Please refer to the responses to your detailed comments above (Comment # N06-01 through N06-21).

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National Park Conservation Association				
N07-B	01		As explained below, BLM's DEIS fails to meet the requirements of NEPA and must be overhauled. The DEIS must be revised to include the Greater Crossbow Project, to evaluate the air pollution impacts of all alternatives to the same degree, to rigorously explore and objectively evaluate all reasonable alternatives, and to correct the arbitrary and irrational rejection of reasonable alternatives.	Please see response to comment F04-12.
N07-B	02		Section 2.0. The DEIS Fails to Include the Abutting Greater Crossbow Oil and Gas Project Within Its Scope. 40 C.F.R §§ 1502.4(a) (Actions requiring EIS), 1508.25(a)(2), (3) (Scope of EIS), Kleppe v. Sierra Club, 427 U.S. 390, 410 (1976). BLM currently is preparing a separate EIS for the Greater Crossbow Oil and Gas Project. https://www.blm.gov/programs/planning--and--nepa/plans--in--development/wyoming/greater--crossbow--oil--and--gas--project. This project abuts the northern border of the Converse County project, and proposes the drilling of 1,500 oil and natural gas wells during the same time period as the Converse County project. In short, the Converse County and Greater Crossbow projects are one in the same. To create two projects out of one when they share both common timing and geography is plainly contrary to 40 C.F.R. §1508.25(a)(3), and works to downplay and obscure the impacts from, and reasonable alternatives to, a much larger, unitary undertaking. NEPA and its implementing regulations require BLM to prepare a single EIS that includes both the Converse County and Greater Crossbow projects, which are separate in name only.	The Greater Crossbow project was included within the scope of the cumulative impact analysis in the EIS (see specifically Tables 5.2-1 and 5.3-2; and Figure 5.2-1; also see various resource sections within Chapter 5).
N07-B	03		Section 4.1 The DEIS Fails to Provide Information Sufficient to Compare and Evaluate the Merits of Each Alternative. 40 C.F.R. § 1502.14(b). Even viewed as an isolated project independent of Greater Crossbow, BLM failed to model the air pollution impacts associated with Alternatives A and C to the same degree as BLM's preferred Alternative B.	Of the three alternatives, Alternative B is likely to result in the largest air impacts because it would have the greatest number of well pads constructed, the greatest miles of road and pipeline constructed, and the largest total surface disturbance. Additionally, all alternatives would utilize similar construction, drilling, and production methods. Therefore, the methodologies used in the Alternative B emission inventory, nearfield modeling, and far field modeling are comparable to the other alternatives. The nearfield modeling scenarios outlined in Section 4.1.3.2 are representative of the possible well pad configurations for all alternatives. When scaled based on total surface disturbance and number of wells, the far field modeling results from Alternative B are also representative of Alternative A and C.
N07-B	04		With respect to Alternative A, for example, BLM did not model hazardous air pollutant impacts, visibility effects, and atmospheric deposition effects although it did for Alternative B. The absence of similar modeling deprives reviewers from evaluating the merits of Alternative A compared to the merits of Alternative B. Air Quality Review of Megan Williams (herein "Williams AQR"), Section I.A., pp. 2--3.	Please see response to comment N07-B-03.
N07-B	05		Similarly, BLM did not model the air pollution impacts associated with Alternative C although it did for Alternative B. The absence of such modeling deprives reviewers from evaluating the merits of Alternative C compared to the merits of Alternative B. Id.	Please see response to comment N07-B-03
N07-B	06		Section 4.1 The DEIS Fails to Rigorously Explore and Objectively Evaluate All Reasonable Alternatives. 40 C.F.R. § 1502.14(a). BLM's DEIS does not rigorously explore and objectively evaluate all reasonable alternatives to the preferred action and thus is fatally flawed. This deficiency is most starkly demonstrated regarding air quality impacts where the DEIS fails to present even one reasonable alternative to eliminate, substantially mitigate or meaningfully minimize the significant air quality violations and health risks associated with the preferred action.1 1 That BLM should have developed one or more reasonable alternatives that would avoid	Your comment is noted. The BLM conducted a thorough evaluation of alternatives as summarized in Section 2.6.

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National Park Conservation Association (Continued)				
N07-B	07		According to the DEIS, BLM's preferred Alternative B will cause adverse, significant and unmitigated air quality impacts. These include: (1) National Ambient Air Quality Standards (NAAQS) violations for PM10 and PM2.5; (2) unacceptable "near field" concentrations of hazardous air pollutants (HAPs); (3) visibility impairment greater than 1.0 dv in one Class I Area (Badlands National Park) and visibility impairment greater than 0.5 dv in multiple sensitive Class II areas (Fort Laramie National Historic Site (WY), Agate Fossil Beds National Monument (NE), Devil's Tower National Monument (WY), Crow Indian Reservation (WY), Dinosaur National Monument (UT/CO), Jewel Cave National Monument (SD), and Soldier Creek Wilderness Area (NE); (4) acid deposition above threshold tolerances in three Class I areas (Badlands National Park, Wind Cave National Park and Northern Cheyenne Indian Reservation) and seven Class II areas (Black Elk Wilderness Area (SD), Devil's Tower National Monument, Fort Laramie National Historic Site, Agate Fossil Beds National Monument, Jewel Cave National Monument, Mount Rushmore National Memorial and Soldier Creek Wilderness Area); (5) "major" health risks to vegetation, an air quality related value (AQRV), caused by elevated ozone levels in Class I and sensitive Class II areas; and (6) a four--fold increase in greenhouse gas (GHG) emissions compared to the no--action alternative. Table 2.7--2 and related text; Appendix A, Section 8-- 1. BLM presents no alternative that would prevent or meaningfully mitigate these significant air quality impacts, although a number of reasonable alternatives exist.	Please see response to comment F02-26.
N07-B	08		The only alternative to the preferred action presented by BLM, other than no--action, is Alternative C. Regrettably, Alternative C is basically indistinguishable from the preferred action when it comes to air emissions and resulting air quality impacts because it assumes the same degree of oil and gas development in the same area, i.e., 500 wells drilled per year for a total of 5,000 wells developed in ten years. In fact, Alternative C may result in greater emissions compared to Alternative B, particularly with respect to NOx. Williams AQR, Section 1.A., p. 3. Neither Alternative C nor any other alternative to BLM's preferred action identifies reasonable methods: (a) to avoid exceeding the NAAQS and HAPs unacceptable risk limits, (b) to avoid predicted visibility impairment, exceedances of acid deposition thresholds, and vegetation AQRV impacts in protected Class I and Class II areas, and (c) to reduce GHG emissions. As shown below, reasonable alternatives that BLM should have but did not consider to eliminate or mitigate the exceedance of established air quality thresholds include modulating the extent or tempo of development, employing well--established pollution reduction strategies, or a combination of the two.	Comment noted. As discussed in Section 2.6, alternatives were reviewed for technical or economic feasibility. In addition, numerous control strategies were utilized in Alternative B, which are reflected on Table 4.1-1.
N07-B	09		1. Reasonable alternatives to reduce PM emissions. Reasonable alternatives to avoid predicted PM10 and PM2.5 NAAQS violations caused by the preferred alternative, that BLM should have rigorously explored and objectively evaluated but did not, include the use of magnesium chloride as a dust suppressant on all un--paved roads, controlling PM emissions from diesel engines applying Tier 4 technology that includes a diesel particulate filter (DPF), and requiring all diesel vehicles to use DPF technology. Williams AQR, Section VII.B., pp. 20--21. Reasonable alternatives to reduce PM emissions that BLM failed to rigorously explore and objectively evaluate also include reducing the pace and intensity of development and using remote monitoring systems to reduce the extent of on--site inspections and associated mobile source emissions.	Please see response to comment F02-26.
N07-B	10		2. Reasonable alternatives to reduce HAP emissions. Reasonable alternatives to avoid unacceptable risks from near field HAPs concentrations caused by the preferred alternative that BLM failed to rigorously explore and objectively evaluate include: (1) the use of more efficient flaring practices, (2) the application of high--efficiency compressor technologies and practices, and (3) advanced leak detection and repair protocols. Williams AQR, Section VII.C., pp. 23--26.	Please see response to comment F02-26.
N07-B	11		3. Reasonable alternatives to reduce NOx emissions. Reasonable alternatives to avoid or substantially mitigate predicted NOx--related impacts (visibility impairment, acid deposition, secondary ozone and PM2.5) caused by the preferred alternative, that BLM should have rigorously explored and objectively evaluated but did not, include: (1) field electrification, (2) the use of Tier 4 drill rigs and Tier 2 or better construction equipment, (3) centralization of well pad production facilities (e.g., to reduce onsite equipment emissions, such as from heaters, etc.), and (4) the best available NOx emission limits for compressors. Williams AQR, Section VII.A., pp. 20--22.	Please see response to comment F02-26.

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National Park Conservation Association (Continued)				
N07-B	12		4. Reasonable alternatives to reduce GHG emissions. Reasonable alternatives to avoid or substantially mitigate predicted visibility, HAPs, and GHG impacts caused by the preferred alternative, that BLM should have rigorously explored and objectively evaluated but did not, include: (1) the use of more efficient flaring practices, (2) the application of high--efficiency compressor technologies and practices, and (3) advanced leak detection and repair protocols. Williams AQR, Section VI, pp. 18--20.	Please see response to comment F02-26.
N07-B	13		5. Reasonable alternatives to address PSD increment consumption. BLM's DEIS is deficient in at least three respects when it comes to PSD increment consumption. First, BLM's DEIS fails to determine the current extent of PSD increment consumption in the affected area. Second, BLM's DEIS fails to examine the extent to which emissions from the preferred alternative cause or contribute to any PSD increment violation. Third, to the extent the preferred alternative causes or contributes to any PSD increment violation, BLM's DEIS fails to rigorously explore and objectively evaluate reasonable alternatives to eliminate any PSD increment violations. Williams AQR, Section III, pp. 12--14. By failing to follow these three essential steps BLM's DEIS is fatally flawed.	The analysis of increment consumption within the DEIS is for informational purposes only and does not represent a formal analysis. Operators would follow all regulations and a formal analysis of increment consuming sources would be performed at the time of development, if needed. A determination of adverse impacts based on exceedances of the increment would be determined by the WDEQ-AQD.
N07-B	14		We agree with BLM that the comparison of Significant Impact Levels (SILs) to PSD increments does not "represent a regulatory PSD increment consumption analysis." BLM asserts that an increment consumption analysis would occur at the permitting phase "if required." Nevertheless, in the absence of a cumulative increment assessment it is impossible for the public, any stakeholder or the agency itself to determine whether PSD increment headroom remains to accommodate the increase in emissions caused by the proposed development.	The PSD increment analysis performed estimated increment consumption by utilizing cumulative regional modeling concentrations, which included all emission sources within the region (see Appendix A, Attachment C). The analysis of increment consumption within the DEIS is for informational purposes only and is an additional metric to assess the potential impacts. Operators would follow all regulations and a formal analysis of increment consuming sources would be performed at the time of development, if needed. A determination of adverse impacts based on exceedances of the increment would be determined by the WDEQ-AQD.
N07-B	15		6. Reasonable alternatives to address viewshed impacts to National Historic Trails. The southern area of the project overlaps or is adjacent to the National Park Service National Trail System. Included in BLM's DEIS is a discussion of the National Historic Trials (NGTs) located in or immediately adjacent to the project itself. It appears that BLM has failed to mitigate or minimize the impact of development on area viewsheds by excluding consideration of reasonable alternatives, thus compromising the value of the NGTs. For example, the project area will be visible from the California NHT, including sections along the Bozeman Trail and Child's Cuttoff Trail. These areas are also under consideration for inclusion in the Oregon NHT. As the DEIS does not include reasonable alternatives to avoid or meaningfully mitigate such impacts, BLM's action is arbitrary and capricious.	Please see Section 2.5.2.2 of Alternative C regarding protections for Historic and Culturally Sensitive Areas, which includes a section on Historic Trails. Additionally, text in Chapter 1 has been revised to clarify the extent of BLM's authority on private surface, and there is very little BLM surface in the viewshed of these trails (see Figure 1.1-1).
N07-B	21		Sections 4.1.1.4. 4.18. The DEIS Fails to Evaluate Impacts to Class I and Sensitive Class II Fish and Wildlife AQRVs. 40 C.F.R. § 1502.16. Fish and wildlife-related AQRVs in the downwind Class I and sensitive Class II areas impacted by the Converse County project have been identified as "sensitive to air pollution" by the National Park Service. https://www.nature.nps.gov/air/permits/aris/docs/Network_park_Aqrvs_sortedbyPark.pdf. However, the DEIS fails to analyze the project's impacts to these important values.	Impacts to AQRVs in Class I and sensitive Class II areas are presented in Sections 4.1.3.5 and 4.1.3.6 based on regional air quality modeling of visibility and deposition.

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The Nature Conservancy – Cheyenne, Wyoming				
N08	02		The Executive Order of Wyoming Governor Matthew Mead provides important guidance on protections in core areas of sage-grouse habitat. The development should, at a minimum, not compromise that order.	Any new surface disturbance in PHMAs and Core Areas within the CCPA would be subject to current BLM, USFS, and WGFD management regulations that would restrict surface disturbance and disruption in important sage-grouse habitats, including restrictions on surface disturbance exceeding the 5 percent disturbance threshold and 1 well pad and associated infrastructure per 640 acres, on average (WY EO 2019-3, Attachment 4 to BLM 2015b, Attachment B to USFS 2015b).
N08	03		The Wyoming Oil and Gas Conservation Commission has adopted rules regarding ground water protections in the vicinity of oil and gas development. We ask that the BLM work cooperatively with the commission and operators to ensure compliance.	Thank you for your comment. Your suggestion has been carefully considered by the BLM but has not resulted in changes to the analyses presented in this document.
N08	04		We also recommend consideration of additional protections, such as that ground water be tested at semi-annual intervals during production. More than 70% of Wyoming's citizens depend on ground water in whole or in part for drinking water. Thus, it is vital that ground water be protected from adverse impacts.	Thank you for your comment. Your suggestions have been carefully considered by the BLM but have not resulted in changes to the analyses presented in this document.
N08	05		The BLM has published rules that help protect air quality in the vicinity of oil and gas drilling and production. For now, these rules are at least as protective of air quality within the area of development as are those of the State of Wyoming. The rules are reasonable and have the added benefit of reducing/eliminating the flaring and/or venting of natural gas. In turn there is an economic benefit – by capturing gas that would otherwise be wasted in traditional production, both federal and state mineral royalties may be increased.	The oil and gas operators will follow all regulations through the permitting process. The WDEQ-AQD is responsible for regulating emissions from oil and gas sources through their Oil and Gas Permitting Guidance. Oil and gas developments must comply with EPA regulations and standards as well as WDEQ regulations and standards.
N08	06		Routine, quarterly leak detection and repair (LDAR) requirements should be considered as well to protect air quality even better and move gas to market. Quarterly LDAR requirements are an important component of the air quality plan in the Upper Green River Basin and are generally credited with improving air quality and helping to reduce ozone concentrations in that area.	Please see response to comment F02-26.
N08	07		The project should follow the stipulations for wildlife for all surface ownership types, as the project is proposing for U.S. Forest Service-administered surface in the preferred alternative.	Comment noted. See Sections 1.3-1.5.
N08	09		In order to avoid landowner conflicts, we urge the BLM to require an operator/applicant to send notice of intent to drill to all landowners within 1/2 mile of a proposed well at the time the APD is submitted and provide a written comment period for 30 days for site specific information and data prior to approval of a permit.	Please see the response to Comment B04-02.
N08	10		Because impacts from the development will likely be significant and endure for generations, we ask the BLM to strictly apply the full mitigation hierarchy and evaluate mitigation requirements that will result in a net conservation gain.	Thank you for your comment. Note that the text has been revised to reflect the most recent agency guidance with regard to mitigation. This includes reference to the Greater Sage-grouse amendment for the Casper RMP currently in force (2015 ARMPA) which defers mitigation to the Governor's Executive Order.
N08	11		Under the mitigation hierarchy, avoidance of valued resources during project siting and/or execution is the first level necessary to limit negative impacts of projects. As a result, GRSG Priority Habitat Management Areas with density and disturbance that exceed 5 percent, as calculated by the Density Disturbance Calculation Tool process, should not be subject to new disturbance as a result of development under this plan.	Comment noted. Any new surface disturbance in PHMAs and Core Areas within the CCPA would be subject to current BLM, USFS, and WGFD management regulations that would restrict surface disturbance and disruption in important sage-grouse habitats, including restrictions on surface disturbance exceeding the 5 percent disturbance threshold and 1 well pad and associated infrastructure per 640 acres, on average (WY EO 2019-3, Attachment 4 to BLM 2015b, Attachment B to USFS 2015b).
N08	13		Compensatory mitigation should use a science-based system for calculating debits and credits. Compensatory mitigation associated with GSRG should also comply with the provisions in the State of Wyoming Sage-Grouse Executive Order 2015-4 requiring net conservation gain.	As stated in Section 6.6.2, "The system for calculating debits and credits will comply with the State of Wyoming EO 2019-3."
N08	14		Established science has demonstrated the adverse impacts of sound on human well-being and animal populations. There is emerging consensus that the cumulative impacts of sound should also be considered in areas of intense development. We ask that the BLM implement requirements that will avoid sound impacts.	Comment noted. Section 4.7 discloses noise impacts and subsequent measures to reduce impacts, and Section 4.18 discloses noise impacts to wildlife resources as well as subsequent measures to reduce noise impacts. These impacts are also disclosed cumulatively in Sections 5.3.7 and 5.3.18.
N08	15	3.7.2	Sage-grouse in particular are known to be sensitive to sound (Blickley et al. 2012), and the Executive Order on sage-grouse specifically directs management actions to reduce noise levels during the breeding season for sage-grouse (March 1 – May 15). In the EIS, (Section 3.7.2) it states that "Ambient noise levels in rural rangeland area of Wyoming typically are near 24 dBA (Ambrose and MacDonald 2015)". This information is not consistent with what was reported in (Ambrose et al. 2014), which is the final report that was presented at the SGIT meeting. We are not aware of a document "Ambrose and MacDonald 2015" and no reference is listed in the references section.	Please see the response to Comment L01-12.

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The Nature Conservancy – Cheyenne, Wyoming (Continued)				
N08	16		Ambrose et al. 2014 reported that the median L50 for all hours (for all four sites) was 18.0 dBA (not 24dBA as cited in the EIS). In addition, the median ambient sound level (L50) during lekking hours (1800-800) was reported at 15.4 dBA and the Wyoming Governor's Executive Order on sage-grouse directs that noise levels not exceed 10 decibels (as measured by L50) from "baseline noise at the perimeter of a lek from 6:00pm to 8:00am during the breeding season". Specifically, Ambrose et al. 2014 state: "Results of these measurements demonstrate that ambient sound levels in sage habitats in rural Wyoming during hours critical to lekking activity of greater sage-grouse are likely between 10-15 dBA, depending on terrain, vegetation, and meteorological conditions." Therefore, to be consistent with the executive order, ambient measurements should reflect the best estimate of ambient levels during lekking hours (6:00pm – 8:00am), which in this case was recommended in Ambrose et al. 2014 to be 10-15 dBA.	Please see the response to Comment L01-12.
N08	17		The BLM should carefully evaluate all potential impacts to human health and work to avoid human impacts with effective setback requirements -- high air concentrations of VOCs are known to be adverse to human health.	Please see response to comment F02-26.
Petroleum Association of Wyoming				
N09	01		PAW strongly supports Alternative B of the Converse County Oil and Gas Project (Project) as the Proposed Action of the Operator Group (OG) comprised of Anadarko Petroleum Company, Chesapeake Energy Corporation, Devon Energy, EOG Resources, Inc. and SM Energy and encourages the BLM to issue a Record of Decision approving the Project this year.	Thank you for your comment.
N09	03		In addition to these comments, PAW fully incorporates and adopts the comments submitted by the OG on the DEIS.	Please refer to the responses to Comments B11-001 through B11-235.
N09	05		SOCIOECONOMIC BENEFITS The Project will provide crucial economic support to Wyoming's state and local economies in a time of decreased commodity prices. Development of one oil or gas well can yield hundreds of thousands of dollars that are paid to governments and reinvested in the local community. Oil and gas production provides revenue to county and state governments through royalties and taxes. Further, the stable employment provided by oil and gas development will support state and local economies and will become even more important as the state continues to suffer from the impacts of depressed oil, gas, coal, and other commodity prices.	Comment noted. No specific response or changes required for the FEIS.
N09	06		Based upon the socioeconomic analysis in the DEIS, implementation of the proposed Project is expected to produce approximately 1.37 billion barrels of oil and 5.79 trillion cubic feet (Tcf) of gas over the life of the project. It must also be recognized that natural gas production from public lands provides considerable revenue to state, local, regional and national economies. Importantly, the value of production from the Project disclosed in the DEIS could generate tax and royalty revenue ranging from $19.9 to $30.8 billion (based on commodity prices). Furthermore, development of the Project would create over 8,400 jobs at its peak resulting in substantial economic investments in the local economies in Converse and surrounding counties. These economic benefits are considerable and strongly favor BLM approving the Project without delay.	Comment noted. No specific response or changes required for the FEIS.
N09	09		VALID EXISTING RIGHTS We are concerned that our review of the DEIS failed to provide a full commitment by BLM to protect valid existing lease rights held by the OG in the project area. We remind BLM that its management options for the project are limited by the terms and conditions of existing federal lease contracts held by the project proponents. For example, it is not within BLM's authority to impose new, highly restrictive access limitations, such as no surface occupancy, on leases that were granted with surface occupancy. Moreover, despite the analysis conducted on all the DEIS alternatives, BLM must provide for reasonable development of a leasehold in accordance with these valid existing rights.	Text has been added to Section 1.5.1 to describe an oil and gas lease as a contract between the Federal government and the lessee.

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Petroleum Association of Wyoming (Continued)				
N09	10		EXECUTIVE ORDER 13783 AND SECRETARY'S ORDER 3349 OBJECTIVES Approval of the Project advances the policies and objectives set forth in President Trump's Executive Order 13783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16,093 (Mar. 31, 2017), and Secretary of the Interior's Order No. 3349 (Mar. 29, 2017). Executive Order 13783 announces a national policy that requires all government agencies, including the BLM, to "promote clean and safe development of our Nation's vast energy resources, while at the same time avoiding regulatory burdens that unnecessarily encumber energy production, constrain economic growth, and prevent job creation." Executive Order 13783, §1(a). It further announces a national policy wherein regulations that "unduly burden the development of domestic energy resources beyond the degree necessary to protect the public interest or otherwise comply with the law" must be appropriately suspended, revised, or rescinded. Executive Order 13783, §1(c). For purposes of the Executive Order, "'burden' means to unnecessarily obstruct, delay, curtail, or otherwise impose significant costs on the siting, permitting, production, utilization, transmission, or delivery of energy resources." Executive Order 13783, §2(b). It also revokes the Presidential Memorandum of November 3, 2015 (Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment) ("Memorandum"). Executive Order 13783, §3(a)(iii). That Memorandum directed the Secretary of the Interior, among other Cabinet officials, to undertake a number of actions to implement a landscape-scale mitigation policy, including specific directions to the BLM and the U.S. Fish and Wildlife Service (USFWS) to develop mitigation policies that incorporated compensatory mitigation into planning and permitting processes. Likewise, Secretarial Order 3349, which implements Executive Order 13783, mandates a "reexamination of the mitigation policies and practices across the Department of the Interior . . . in order to better balance conservation strategies and policies with the equally legitimate need of creating jobs for hard-working American families." Secretary's Order 3349, §1. It also revokes Secretarial Order 3330, "Improving Mitigation Policies and Practices of the Department of the Interior," dated October 13, 2013.	The text has been updated to reflect the most current agency and department guidance and policy.
N09	12		PAW opposes the compensatory mitigation strategy set forth in Chapters 4 and 6 of the DEIS. The compensatory mitigation requirements for Greater Sage-grouse (GRSG) are inconsistent with Executive Order 13783 and Secretary's Order 3349. The DEIS also includes provisions based on DOI's Landscape-Scale Mitigation Policy, BLM Manual Section 17984 and BLM Mitigation Handbook H-1794-1, all of which were recently rescinded by DOI Secretarial Order 3360.	The text has been updated to reflect current agency guidance and policy with regard to mitigation, including removal of requirements for compensatory mitigation.
N09	13		The DEIS requires onerous mitigation requirements that limit operational certainty either before project initiation or while activities are being conducted. These requirements also impose an unnecessary burden on the OG's ability to generate jobs and economic growth for state and local economies in Wyoming. Included in the DEIS compensatory mitigation strategy are the concepts of "additionality" and "no net loss or measurable net gain," even though these policies and directives were withdrawn per DOI and the President as discussed earlier in our comments. The DEIS further bases compensatory mitigation determinations on the rescinded DOI Landscape-Scale Mitigation Policy by stating that, "[c]ompensatory mitigation is to be developed with a focus on a landscape-scale approach." DEIS at 6-28.	The text has been updated to reflect the current agency guidance and policy with regard to mitigation.
N09	14		With this in mind, BLM must revise the mitigation measures outlined in Chapters 4 and 6 of the DEIS to reflect current national and Departmental policies, particularly Departmental policies related to compensatory mitigation.	The text has been revised to reflect the agency's current guidance and policy with respect to mitigation, including removal of requirements for compensatory mitigation.
N09	15		EXCEPTIONS TO TIMING STIPULATIONS FOR RAPTORS AND OTHER SPECIES PAW strongly advocates that the Final Environmental Impact Statement (FEIS) highlight the environmental and economic benefits of year-round development. Nearly 50% of the well pads in the development area are within raptor nest or GRSG lek buffers and, as such, year-round development in the Project Area is a key component of the OG's Proposed Action. It is necessary for BLM to prescribe a clear process that will provide meaningful relief from timing stipulations for raptors and other species, however, the DEIS only references the potential for year-round development and does not fully outline how or when BLM may grant exceptions to raptor and GRSG timing stipulations. Without timing stipulation relief, operators will likely require multiple drill rig mobilizations to these pads, resulting in increased heavy truck traffic, dust, and other impacts.	Please see the response to Comment B11-024.

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Petroleum Association of Wyoming (Continued)				
N09	16		In order to effectuate the necessary procedure to offset these impacts and provide for year-round development, BLM needs to amend the Casper Resource Management Plan (RMP) to waive or modify timing stipulations around raptor nests consistent with the OG's Proposed Action.	The BLM issued a Supplemental Draft EIS to disclose impacts associated with proposed amendments to the Casper RMP. Text from the supplement has been incorporated into the Final EIS with revisions to address public comment.
N09	17		Additionally, PAW strongly recommends the Final EIS provide a clear process allowing for year-round drilling within the CCPA.	Please see the response to Comment B11-024.
N09	18		ALTERNATIVE C IS FLAWED PAW maintains that Alternative C of the DEIS is not implementable because it limits the number of wells drilled per pad, eliminates drilling active leases in core GSG habitat areas, and attempts to dictate infrastructure siting in a manner that exceeds BLM's permitting authority.	Thank you for your comment. Note that the BLM identified Alternative B, Proposed Action, as the agency's preferred alternative in the Draft EIS.
N09	19		Alternative C severely restricts the instances in which BLM would grant exceptions to timing stipulations, which is contrary to the Casper RMP, and does not describe or analyze the increased traffic and impacts associated with limiting the granting of those exceptions.	Thank you for your comment. Note that the impact analysis for Alternative C has been updated to more clearly disclose the impacts associated with an increase in rig moves under this alternative.
N09	20		As such, Alternative C needs to be revised as it contains management measures beyond BLM's regulatory authority.	Thank you for your comment. See the new subsection in Section 1.4 which describes the extent of BLM's authority within the CCPA.
N09	21		PRIVATE SURFACE CONSIDERATIONS Given the limited amount of federal surface (10%) and the preponderance of federal minerals (64%) in the CCPA, PAW strongly recommends that BLM clearly define the scope of its authority on private surface.	Please see the response to Comment B11-059.
N09	22		BLM also needs to clearly outline its approach to the management of wells located off-lease on private surface that will penetrate and produce federal minerals (i.e. fee/fee/fed scenario). While this ownership scenario yields implementation challenges as it relates to National Historic Preservation Act (NHPA) and NEPA compliance in BLM permitting processes, the DEIS does not clearly discuss how BLM will permit development in fee/fee/fed situations. As such, it is imperative for BLM to recognize the limitations of BLM's authority on non-federal surface.	Please see the response to Comment B11-059.
N09	23		TRIBAL AND CULTURAL RESOURCE MANAGEMENT As operators in Wyoming are facing more and more impediments due to the ambiguous nature and inconsistent application of NHPA Section 106 process for tribal consultation, BLM needs to clarify the necessary level of identification and monitoring for tribal and cultural resources, particularly when such resources occur on private surface.	Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface and would develop a Programmatic Agreement to address alternative strategies for complying with NHPA, including monitoring. Also see the response to Comment B11-059.
N09	24		PAW maintains the Section 106 process is fraught with ambiguity that needs to be remedied through the inclusion of a clear procedure for BLM to follow in such instances. PAW has recommended a procedure for conducting the Section 106 process (attached) and we believe the elements of our recommendation need to be considered for inclusion in the FEIS.	Please see the response to Comment N09-23. In regards to inclusion of your recommended procedure for conducting the Section 106 process in the EIS, the BLM believes this is beyond the scope of the analysis.
N09	25		GREATER SAGE-GROUSE MANAGEMENT The DEIS references the BLM GRSG Land Use Plan Amendment Record of Decision (ROD) for the Rocky Mountain Region and Approved RMP Amendment for the Wyoming GRSG Sub-region, but fails to recognize these plans are under review by DOI and that new Instructional Memoranda released by BLM may alter management of GRSG habitat areas before release of the FEIS.	Comment noted. The 2019 ARMPA has been placed on hold through a court challenge. As a result, the BLM will continue to utilize the 2015 ARMPA as guidance.
N09	26		The DEIS also imposes operational restrictions in BLM priority habitat management areas (PHMA) in the Douglas GRSG area, even though the PHMA boundary reflects the State of Wyoming's Version 3 GRSG boundary and not the most recent Version 4 boundary. In October 2017, the Wyoming BLM State Office issued a maintenance action updating RMPs across the state with the state's Version 4 map, an action that took place well in advance of the publication of the DEIS. As such, it is imperative that the FEIS recognize that BLM is reviewing its RMP amendments for GRSG management and incorporates Version 4 of the state's core area map.	The 2019 ARMPA has been placed on hold through a court challenge. As a result, the BLM will continue to utilize the 2015 ARMPA as guidance.

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Petroleum Association of Wyoming (Continued)				
N09	27		NOISE The DEIS specifically applies noise provisions to leks located in GHMAs. Both the Wyoming Executive Order 2015-4 Greater Sage-grouse Core Area Protection (EO 2015-4) and the BLM Wyoming Sage-Grouse RMP Amendments provide that noise stipulations only apply in PHMA. EO 2015-4 under the General Stipulations section states, “New project noise levels, either individual or cumulative, should not exceed 10 decibels…above baseline noise at the perimeter of a lek from 6 pm to 8 am during the breeding season (March 1 to May 15).” EO 2015-4 Attachment B at 8. General Stipulations in EO 2015-4 are those that “…are recommended to apply to all activities in Core Population Areas…” EO 2015-4 Attachment B at 5. They do not apply to non-core or GHMA population areas. Also, the noise stipulations in the BLM Wyoming Approved RMP Amendment for Greater Sage-Grouse (September 2015) (Sage-Grouse RMP Amendment) in Appendix C – Required Design Features specifically apply only to activities in PHMAs. Sage-Grouse RMP Amendment at 131. There is no reference to noise stipulations being required in GHMAs. As such, BLM must maintain consistency with EO 2015-4 and the Sage-Grouse RMP Amendment and specifically state that noise stipulations are only required in PHMAs.	The BLM ARMPA, USFS LRMP, and the WY EO 2019-3 indicate that noise standards, guidelines, and regulations relate to the perimeter of a lek as described in the DEIS. No change to text.
Powder River Basin Resource Council (email)				
N10	01		On behalf of the undersigned organizations and our millions of members across the nation, and especially on behalf of our members who live, work and/or recreate in the Converse County Oil and Gas Project EIS area, we request that you extend the comment period for the draft EIS by at least sixty (60) more days. The draft EIS is just under 1,000 pages with another 1,000 pages in technical appendices. Our organizations and our members need more time to review this information and to consult with technical experts, wildlife biologists, and other reviewers to help us prepare and submit substantive comments. This is a large project with large impacts. In order for the public to be able to meaningfully participate in the NEPA process, we ask for additional time to be able to prepare comments. Please extend the comment period by an additional sixty days.	The BLM did not extend the comment period due to schedule directives from the Interior Department.
Powder River Basin Resource Council (letter)				
N11	03		As discussed below, BLM seems unwilling to incorporate public comment and to consider alternatives and mitigation measures proposed by the public. BLM seems intent on moving forward with its Alternative B – the proposal from the oil and gas operators – no matter what the public comments say. We are greatly concerned by BLM’s troublesome – and likely illegal – treatment of the NEPA process.	Please refer to Section 7.3 for a description of the public involvement process the BLM has followed for this EIS.
N11	04		Alternatives & Mitigation Measures Because of the significant – and in many ways irreversible – level of impacts resulting from the Project, our organization submitted scoping comments asking BLM to analyze a range of reasonable alternatives, including an enforceable phased development plan. We also suggested numerous mitigation options throughout our scoping comments to reduce impacts in a variety of resource areas. (See attached scoping comments). Unfortunately, BLM chose to ignore all of our organization’s proposed alternatives and mitigation measures. We therefore incorporate our scoping comments into these comments on the DEIS and renew our request that BLM consider the proposed alternatives and mitigation measures. BLM has a duty under NEPA to consider a full range of reasonable alternatives – alternatives which are the “heart” of the EIS. This especially includes reasonable alternatives suggested by the public. BLM also has a duty to consider mitigation measures within an EIS, including mitigation measures proposed through public comments.	Thank you for your comment. The BLM considered all scoping comments in the development of the EIS. See Section 2.6 for a discussion of alternatives considered but eliminated from detailed analysis. Through this process the BLM considered a reasonable range of alternatives for analysis in the EIS.
N11	05		BLM did not provide any rationale for rejecting out of hand our proposed alternatives and mitigation measures. To the contrary – such alternatives and mitigation measures would comply with BLM’s purpose and need, which includes: “to the extent possible, minimize or avoid environmental impacts.” (DEIS at 1-2).	Please see the response to Comment N11-04.

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Powder River Basin Resource Council (letter) (Continued)				
N11	06		Additionally related to phased development and reclamation, BLM specifically determined that the following topics are within the scope of its review: Reclamation • What elements should be required as part of a comprehensive reclamation plan that addresses post-reclamation monitoring, annual reporting, and bonding? • How will the BLM ensure that reclamation requirements are being met? (DEIS at 1-16). While BLM claims that phased development would be too complicated because of the mixed land ownership in the Project area, BLM has adopted phased development in other oil and gas plans in similar mixed land ownership areas, including the Fortification Creek EA/RMPA. Phased development also complies with the operators' own plan for phasing drilling over a ten-year period. BLM could easily divide the area into different years and require phasing, coupled with enforceable reclamation requirements and mitigation thresholds for air, water, and wildlife, similar to the Fortification Creek plan. Even if this is limited to the federal oil and gas estate, there would be a substantial benefit to phasing, ensuring reclamation success, and moderating the socio-economic impacts that result from a boom in drilling and development.	Thank you for your comment. The BLM's rationale for eliminating phased development from detailed analysis in the EIS is set forth in Section 2.6.12. Also please see the new subsection to Section 1.4 which describes the extent of BLM's authority within the CCPA.
N11	07		As far as the other alternatives and mitigation measures suggested in our scoping comments, BLM provided no response in the DEIS to why they were not considered. BLM must consider them as part of the NEPA process.	Please see the response to Comment N11-04.
N11	08		Consideration of alternatives and mitigation measures proposed by our organization – and through other public comments on the Project – is especially warranted because BLM's own alternatives analysis is illegally limited. BLM's Alternative B and Alternative C are virtually the same alternative and propose the same number of wells and the same drilling rate. A true range of alternatives would consider permitting a fewer number of wells and would consider a lower number of wells drilled each year. While Alternative C has fewer well pads and a few other differences, BLM acknowledges that Alternative C does not reduce the impacts from the Project, especially for air, land, and wildlife resources. Nor does it reduce socio-economic impacts.	Thank you for your comment. Also see the response to Comment N11-04.
N11	10		Additionally, for almost all impact areas, BLM discloses that no mitigation measures were considered. In other words, the agency completely failed to consider any mitigation in both Alternatives B and C. BLM must do better and should consider a full range of mitigation options to reduce the significant – and in many cases irreversible – impacts from the Project.	The BLM considered mitigation for many of the resources analyzed in the Draft EIS; see mitigation sections of Chapter 4 and Section 6.5 in Chapter 6.
N11	11		BLM's Illegal Cost-Benefit Analysis NEPA requires a full disclosure of the costs and benefits of a proposed agency action. In the case of the DEIS, BLM has disclosed the economic benefits of the Project in terms of estimated jobs and tax revenue but has failed to disclose many of the reasonably foreseeable economic costs. Federal courts have held that if any agency chooses to quantify economic benefits in a NEPA document it must also quantify economic costs. Otherwise, the NEPA document will not be serving its twin purposes of informing agency decision-making and disclosing costs and benefits to the public.	While the EIS estimates employment and economic effects of the proposed action and alternatives, it does not describe those effects as benefits. The analysis describes the many of the secondary effects of increased employment and higher wages in terms of competition for employees, housing shortages and higher costs, hiring difficulties for some employers, and a variety of social issues and concerns. Qualitative descriptions of these effects are presented in compliance with CEQ regulations for implementing NEPA, which does not require a cost benefit analysis. According to CFR 40 1502.23,... "For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost benefit analysis and should not be when there are important qualitative considerations. In any event, an environmental impact statement should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision. "
N11	12		1) BLM discloses a significant loss of grazing allotments on federal land in the Project area and the loss of pastureland on private and state lands. BLM notes that such reductions in grazing lands "could result in adverse effects on farm income." (DEIS at 4.11-20). However, BLM fails to quantify these economic costs.	The assessment of impacts to range resources does not conclude that any allotments would be lost or closed. Rather a loss of grazing on federal lands, expressed in terms of AUMs, is estimated. The estimated losses are not described as "significant". Discussion added to section 4.11 presents an estimated monetary value of the reductions in grazing.
N11	13		2) BLM discloses significant negative impacts to the cost of living within the Project area, including increased housing prices as a result of fast economic growth/inflation, and corresponding recession after development ends. However, BLM fails to quantify these economic costs.	The discussion of overall changes in the cost of living that can accompany rapid energy resource development has been included in Chapter 3 and text describing the potential for such changes, particularly in Converse County have been added in the FEIS.

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Powder River Basin Resource Council (letter) (Continued)				
N11	14		3) BLM discloses increased costs for emergency services (DEIS at 4.11-29). BLM also discloses increased medical debt as a result of the Project because "hospitals and health care providers in other large-scale energy development communities have reported increases in uncollected debt." (DEIS at 4.11-32). However, BLM fails to quantify these economic costs.	Emergency response costs are dependent on the actual number, location, and type of emergencies and the characteristics of emergency response agencies, which in and near the CCPA include a large number of volunteer responders. Forecasts of increased costs would be unreliable, particularly given the uncertainty associated with oil and gas development. Uncollected hospital and health care provider debt would be affected by hospital payment policies, employee insurance coverage, and the availability of urgent care facilities and other private care providers. No reliable methods have been identified for quantification of increased uncollected hospital debt. Moreover, overall revenues would likely be higher due to increased visits. Consequently, it is unclear whether uncollected debts as a percentage of overall revenues would rise, remain about the same, or decline.
N11	15		4) BLM discloses significant impacts to air quality and climate change. As discussed below, pollution levels will lead to the violation of health-based ambient air quality standards. Both air pollution and climate change lead to premature death and disease, among other impacts. However, BLM does not quantify any costs stemming from air pollution1 or climate change – in spite of readily available calculation tools, like the social cost of carbon, available to estimate such costs.2 1 The Global Bank has estimated global air pollution costs at $225 billion per year. http://www.worldbank.org/en/news/press-release/2016/09/08/air-pollution-deaths-cost-global-economy-225-billion 2 https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html	Please see the response to Comment N06-01.
N11	16		5) As discussed below, BLM fails to disclose lost revenue, including royalties and severance taxes, from flared and vented gas.	Comment noted. Text has been added to address the potential magnitude of overall losses due to flaring and venting. The information available for the programmatic assessment does not support the differentiation of losses due to safety concerns or lack of a collection system. The lack of differentiation does not alter the fundamental assessment of alternatives.
N11	17		BLM must go back and quantify all of these, and any other, economic costs that are reasonably foreseeable consequences of the Project. Otherwise, its EIS will present a one-sided analysis of economic benefits without consideration of costs.	Qualitative descriptions of these effects are presented in compliance with CEQ regulations for implementing NEPA, which does not require a cost benefit analysis. According to CFR 40 1502.23,... "For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost benefit analysis and should not be when there are important qualitative considerations. In any event, an environmental impact statement should at least indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision."
N11	18		Regrettably, BLM has completely failed to meaningfully analyze reasonably foreseeable impacts of the Project to public health. BLM should conduct a public health impacts assessment ("HIA") as part of this EIS. NEPA requires incorporation of impacts on the human health environment into its comprehensive impact analysis. When federal actions have significant potential health impacts, a HIA is a tool that can be adapted to meet NEPA's legal standards and administrative processes and CEQ regulations. A number of federal agencies have recently begun voluntarily to use HIA to comply with NEPA's health mandate to analyze public health impacts and to assess mitigation options. Our organization attached numerous studies and information about public health impacts to our scoping comments, which BLM could use as the start of such an analysis. Additionally, Physicians, Scientists, and Engineers for Healthy Energy has a repository of studies available on their website: https://www.psehealthyenergy.org/our-work/shale-gasresearch-library/.	The DEIS discloses impacts to public health and safety in Section 4.4. This analysis includes potential impacts to public health and safety from hazardous materials, solid waste, wildland fires, increased vehicular traffic, and project construction and operation activities.

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Powder River Basin Resource Council (letter) (Continued)				
N11	19		1) BLM considers some direct public health impacts, but fails to consider indirect impacts, such as loss of sleep, additional stress, psychological distress, and quality of life impacts from living with oil and gas development. Many oil and gas health studies show that increased noise and light pollution, and increased stress are a significant cause of public health impacts in communities affected by oil and gas development, and in the short-term these indirect causes may be even more harmful than air or water pollution. 3 BLM must consider direct, indirect, and cumulative impacts to public health as part of its NEPA analysis. Analysis must be of both short and long-term public health impacts. 3 See https://wvutoday.wvu.edu/stories/2016/12/22/noise-pollution-from-oil-and-gas-development-may-harmhuman-health (attached); http://www.environmentalhealthproject.org/health-issues/noise-light-vibration	The DEIS does disclose direct, indirect, and cumulative impacts from construction and operation activities to public health and safety as part of the NEPA analysis in Sections 4.4 and 5.3.4. Potential noise impacts are disclosed in Section 4.7, and impacts from project related lighting are disclosed in Section 4.15.
N11	21		3) BLM incorrectly assumes that the WOGCC setback distance between homes and oil and gas wells is 500 meters (DEIS at 4.1-27). The WOGCC regulatory setback distance is 500 feet (approximately 152 meters). This incorrect assumption makes BLM's analysis of noise, light, and air pollution fundamentally flawed. Since the DEIS does not quantify the well-to-residence setback needed to adequately protect public health (only the gas plant and compressor station setbacks are quantified), it is possible that this threshold is somewhere between 500 and 1,640 feet and therefore exceeds the WOGCC requirement. In this event, the implied protection from WOGCC regulations is nonexistent.	The reference to 500 meters will be corrected to 500 feet for the Final EIS. Section 4.4.1.3 correctly states the set back as 500 feet and the text has been corrected to identify the source of the setback as the Wyoming Statutes Chapter 3, Section 47 (not Section 46).
N11	22		4) BLM does not consider any mitigation measures for public health and specifically does not consider measures to reduce impacts from noise and light pollution. In order to mitigate impacts to public health, BLM must – at a minimum – apply its ¼ mile setback to all wells in the Project area. BLM must also consider additional mitigation measures to reduce noise and light pollution, such as barrier walls and locating wells and oil and gas infrastructure in places that make use of natural barriers like hills and trees. This is critical to mitigate the unhealthy levels of noise from construction and drilling activity disclosed in the DEIS (see DEIS at 4.1-27).	The setback for wells from occupied residences, per WOGCC stipulation is 500 feet, as disclosed in Section 4.4.1.3. BLM Approved Resource Management Plan Amendment required design features for noise impacts are disclosed in Section 4.7.2.1, and visual mitigation measures, including facility lighting, are disclosed in Section 4.15.2.2.
N11	23		Impacts to Water Resources BLM's impacts analysis related to groundwater is fundamentally flawed. While the agency discloses significant water needs for the project (see, e.g. DEIS at 2-12), BLM downplays the impacts to regional water sources by claiming that the "estimated consumption of groundwater by development under Alternative B would represent a small portion (0.08 percent) of the groundwater resource. Therefore, consumption under Alternative B would have a negligible impact on groundwater resources." (DEIS at 4.16-15). BLM does not conduct its impacts analysis at the appropriate scale, anticipating drawdown in both local and regional aquifers and assessing the significance of that drawdown in the short and long-term timeframes.	Thank you for expressing your concerns. While statements of opinion do not require specific responses or text revisions under the NEPA regulations, they will be considered by the BLM and documented in the administrative record associated with this EIS.
N11	24		BLM must consider the robust body of research and analysis on water impacts from fossil fuel development in Wyoming and around the region5 and must evaluate direct, indirect, and cumulative impacts to water resources, especially the Fort Union Formation. BLM must also evaluate and adopt mitigation measures to reduce reasonably foreseeable impacts. We have attached some of these resources to these comments, but there is a wide variety of analysis available to BLM.	Thank you for your comment. The BLM is aware of this body of research and considered those resources that are pertinent to the CCPA.
N11	25		BLM discloses that there will be violations of health-based ambient air quality standards if the Project is allowed. Therefore, this Project fails to comply with BLM's and the USFS's obligations under their management plans and FLPMA to maintain compliance with air quality standards.	As is the purpose of an EIS, the DEIS discloses the possible impacts of the project. An EIS does not approve a proposed action or an alternative action, rather it provides the necessary information to support an informed decision. Further, the Record of Decision can stipulate required mitigations to achieve compliance. As outlined in Section 3.1.2, the air quality permitting process administered by WDEQ-AQD is designed to be protective of the ambient air quality standards. The WDEQ-AQD is responsible for regulating emissions from oil and gas sources through their Oil and Gas Permitting Guidance. Air quality construction permits would need to be obtained in order to proceed prior to site-specific construction. Oil and gas developments must comply with EPA regulations and standards as well as WDEQ regulations and standards.

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Powder River Basin Resource Council (letter) (Continued)				
N11	26		Additionally, BLM's analysis for air quality impacts is concerning and flawed in the following ways: 1) The greatest air quality risk posed by the Project is ozone impact. Appendix A of the DEIS, the Air Quality Technical Support Document (TSD) presents several combinations of models, bias corrections, and adjustments to agree with area monitors. These scenarios introduce more confusion than clarity. One version of the analysis shows a maximum additional impact of 0.039 ppm (4th high 8-hour average) in the Project area. Recent monitoring in Converse and Campbell Counties shows ozone values ranging from 0.06 ppb to 0.068 ppb. At the high end of the monitored values, an additional 0.039 ppb would lead to an exceedance of the 0.070 ppm standard.	The various modeling and analysis strategies are conducted to capture the maximum project-only impacts. Each analysis technique has a slightly different approach, which can result in slightly different impacts. An analysis using several techniques provides a complete picture of the possible impacts including the maximum project-only impact. The maximum modeled project-only ozone value from all techniques corresponds to a cumulative modeled value that would be below the ozone standard.
N11	27		2) More importantly, the model results do not instill confidence given monitored ozone impacts in other heavily developed regions. Added to current oil and gas impacts, the predicted 10,000 tons per year of Project NOx and 15,000 tons per year of Project VOC emissions – both ozone precursors – are on the order of those in the Uintah Basin and the Jonah-Pinedale area. Both of those areas are in non-attainment due to oil and gas development. Indeed, the modeling done for the Converse County DEIS confirms high predicted values of 0.089 ppm in the High Uintas Wilderness Area and 0.076 ppm at the Boulder ozone monitor – both due to nearby ozone precursor emissions from oil and gas development. It is likely that the difference in model-predicted ozone concentrations between existing high-density developments and the proposed Project is not because of safe levels of ozone precursors but more as a result of the scarcity of representative monitoring data to calibrate the ozone model for Converse County.	The high ozone values in the Uintah Basin and Jonah-Pinedale area are primarily due to wintertime ozone occurring when there is snow cover, stagnant air conditions with calm wind, and availability of ozone precursors. The conditions in Converse County are different than in the Uintah Basin and Jonah-Pinedale area as weather systems regularly pass through the area and wind is rarely calm. Additionally, monitor values in and near Converse County have not measured wintertime ozone.
N11	28		3) Maximum modeled 24-hour PM10 concentrations from the Project exceed the standard by up to 300%, as presented in Table 3.3-31 of the TSD. They are attributed to the ongoing field development phase, but not meaningfully incorporated into the conclusion of air quality impacts (limited to one very brief and qualitative sentence in Section 9.1 of the TSD). The DEIS minimizes the significance of modeled exceedances and provides for no mitigation measures. In fact, Section 4.1.3.8 states that "no mechanism exists to provide for compensatory mitigation of residual impacts associated with PM10 air quality impacts." The DEIS instead defers to the state and federal regulatory framework as a safety net to prevent what the model predicts to be excessive impacts. This logic implies that in those instances where the Project air quality analysis predicts unacceptable impacts, there is no need to worry because such impacts could never actually be permitted. This provides an end run around meaningful analysis and consideration of mitigation measures because BLM is assuming that the air quality standards are the safety net yet fully acknowledges that the standards will be exceeded.	The modeling scenario in Table 3.3-31 is for a representative combined scenario including construction, drilling, and production modeling scenarios. The impacts were derived from the maximum modeled concentrations of those three individual scenarios. The high 24-hour PM10 concentration is from the construction scenario; however, the construction sources are temporary and transient and would not be likely to result in long-term impacts.
N11	29		4) The DEIS does not present modeling results for Alternative C. Given the predicted PM10 exceedances discussed above, and the reduced surface activity inherent in Alternative C, this alternative should be modeled for PM10 impacts.	Given that the maximum number of wells per well pad and the development methods are the same between Alternatives B and C, the PM10 impacts model for Alternative B would be representative of Alternative C.
N11	30		5) The DEIS minimizes visibility impacts despite the admission that critical thresholds are exceeded. Section 9.2 of the TSD states that "the only Class I areas that would have impacts over the 0.5 delta deciview (dv) level are Badlands NP and Northern Cheyenne IR." This statement implies that either the impacted areas are not important enough to warrant concern, or that the change in deciviews is not high enough. But the 0.5 threshold was established by federal land managers for a good reason: for most humans it is the minimum perceptible reduction in visibility. Table 6.4-1 of the TSD shows that for Badlands NP, the modeled 98th percentile impact is 0.64 dv, the maximum impact is 1.44 dv, and visibility would be impaired (greater than 0.5 dv) for 9 days per year. These are not insignificant impacts. Moreover, the model shows the Converse County Project would impair visibility at Fort Laramie National Historic Site, a sensitive Class II area, for 25 days per year.	Section 4.1.3.5 of the EIS presents a high-level summary of the visibility project-only impacts including a table with the number of days with impacts over 0.5 delta dv. The full visibility analysis and impacts are presented in the Appendix A Chapter 6. However, the sentence in Section 9.2 of the TSD has been corrected to include the additional Class I areas with impacts at or above 0.5 delta deciview.
N11	31		6) Mitigation measures are referenced throughout the DEIS, but inadequately specified. Mitigation measure AQ-1 establishes a minimum setback (to residences) of 2,000 meters for gas plants and compressor stations, but in general mitigation is characterized as "site-specific." BLM should ensure that all air quality mitigation measures are uniformly applied and enforceable.	Mitigation measures based on air quality impacts are presented in Sections 4.1 for each alternative and in Section 6.5.1. BLM can only enforce mitigation on BLM-managed lands.

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Powder River Basin Resource Council (letter) (Continued)				
N11	32		7) In Table 3.4-17 of the TSD, AERMOD predicts significant formaldehyde impacts. For a gas plant and two 16-well pads the maximum impact is over 50% of the USEPA reference exposure level. Yet, the DEIS offers no discussion of what these impacts mean for human health, or how they could be mitigated.	As presented in Section 4.1.3.4 and Appendix A Section 3.4, HAPS impacts were below applicable USEPA Dose-Response Reference Exposure Level (the threshold where potential health effects would be considered).
N11	33		8) Analysis of impacts from hazardous air pollutants was limited to discussing increased cancer risk. Other impacts, including economic impacts and public health impacts, of HAPs were not disclosed. (See DEIS at 4.1-18; 4.1-35). HAPs contribute to a variety of health impacts as shown in the table below, and not all HAPs are carcinogens.	Please see response to comment N11-32.
N11	34		Given the serious level of impacts to air quality – and the full acknowledgement in BLM's analysis that the Project will contribute to violations of air quality standards – BLM must consider a full range of enforceable mitigation measures demonstrated to reduce air pollution to acceptable levels. Converse County residents should not have to wait for nonattainment status before well-established control technologies are applied to oil and gas activities in their area.	Please see response to comment F02-26.
N11	35		For instance, BLM must apply measures to reduce air pollution that the oil and gas industry is already using in the Upper Green River Basin. The Jonah Infill EIS contains considerable detail on mitigation measures and sets alternative levels of emission reductions (20%, 40%, 60%, and 80%). Measures specified in the Jonah Infill EIS and other regional planning documents include: - Engine tier levels and SCR control for reducing NOx emissions from drilling engines, compressors, and generators - Green completions (flareless), or limitations on the amount of gas that can be flared prior to 100% capture and utilization - Combustion and vapor recovery units to minimize VOC emissions from flashing, dehydration systems, storage tanks, and truck loading - Using closed storage tanks (crude and produced water) with 98% VOC emission controls - Using no-bleed pneumatic controllers to minimize VOC and methane emissions - Limitations on the number of crude-hauling trucks that can be used before pipelines are in place - Enforceable leak detection and repair (LDAR) program to minimize fugitive VOC and methane emissions These mitigation measures have been shown to be reasonable for other BLM oil and gas projects and must be considered for this one.	Please see response to comment F02-26. The optional measures list in Appendix L of the Casper RMP will be considered.
N11	36		BLM should also require additional air quality monitoring as part of its adaptive management for the Project.	WDEQ-AQD has an air quality monitor nearly in the middle of the CCPA.
N11	37		Flaring & Venting BLM fails to disclose the anticipated amount of gas that will be flared and vented under the Project.	Section A3.5 in Appendix A, Attachment A states the total volume of flared gas during a well completion is estimated to be 0.8 million standard cubic feet per well. Additionally, Section A4.2 in Appendix A, Attachment A states a total of 1,870,000 mcf per year of gas is flared at wells with no infrastructure.
N11	38		BLM also fails to disclose anticipated revenue losses from lost royalties and taxes as a result of flaring and venting, analysis that was called for through our scoping comments.	See the response to Comment N20-B-26 above. Text has been added to note that some gas will be lost due to flaring and venting and that such losses are inherent in oil and gas development. At the same time, the magnitude of the losses and the implications on royalties and tax receipts would be minor relative to the overall value of production and associated royalties and taxes.
N11	39		Notably, BLM contradicts itself in the DEIS by first claiming that flaring would only occur during well production testing and emergencies (DEIS at 2-12) but later claiming that approximately 10% of the wells will flare gas for the first six months of production. (DEIS at 4.1-2).	The 10 percent of wells flared during the first six months of production would occur during well production testing at well without infrastructure to support capturing. Operators will follow all guidelines and regulations during flaring operations.
N11	40		BLM's analysis fails to consider the recent history of flaring at oil and gas wells in the Powder River Basin. BLM could easily take data from the WOGCC (or its own internal data) and reasonably estimate the likely amount of flaring that would occur under the Project. BLM must provide this estimate in its DEIS, along with an impacts analysis of public health consequences, air pollution, climate change, and lost revenue. BLM must also consider – and adopt – mitigation measures related to flaring and venting.	Venting, flaring and flashing emissions from well development and production activities were accounted for in the emissions inventory developed for the Proposed action as listed in Table 4.1-1.

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Powder River Basin Resource Council (letter) (Continued)				
N11	41		Climate Change BLM violated NEPA by failing to provide both a quantitative and qualitative assessment of greenhouse gas emissions and impacts within the DEIS. Notably, BLM claims that "it is not possible to assign a 'significance' value or impact to these numbers, the emissions estimates themselves are presented as a proxy for potential climate effects." (DEIS at 4.1-16). Later the DEIS says: While it is generally agreed upon that human activities are changing the composition of Earth's atmosphere, questions remain about how much warming will occur, how fast it will occur, and how it will affect the rest of the climate system. Neither Alternative B nor Alternative C would be expected to produce detectable effects to global climate resources. However, it is not possible to quantify any effect (positive or negative) of the Project-only GHG emissions on climate with any degree of certainty. (DEIS at 4.1-37). 7 7 The DEIS also states: "However, Project related GHG emissions would become well-mixed throughout the global atmosphere, and GHG-related climate change effects would be due to contributions from a multitude of both manmade and naturally occurring global GHG emissions. Therefore, the effects of climate change due to GHG emissions from any particular source (such as the Project) are not possible to determine." (DEIS at 5-23).	Please see response comment N06-07.
N11	42		The Wilderness Society analysis finds that emissions associated with federal lands energy development need to be reduced from 1.52 billion tons carbon dioxide equivalent (CO_2e) per year to between 1.16 billion and 1.13 billion tons CO_2e per year by 2025 to be in-line with economy-wide reductions needed to climate goals. The analysis concludes that CO_2e emissions from federal lands is on pace to exceed these targets by roughly 300 million tons or 25%. While this Project is but a part of the problem, it is clearly a part that must be fully acknowledged by BLM. Since the scientific literature shows that greenhouse gas emissions at current levels are already unsustainable, any emissions from this Project will contribute to catastrophic climate change impacts.	Please see response to comment N06-07.
N11	43		BLM also failed to uphold its duty to consider alternatives and mitigation measures to reduce greenhouse gas emissions and associated climate change impacts. Please do so as part of this NEPA process.	Many control strategies and mitigation measures that reduce criteria pollutants and hazardous pollutants also reduce greenhouse gas emissions. The controls outlined and agreed upon by the Operator Group were incorporated into the air quality analysis and are presented in Table 4.1-1 and Section 6.4.1. Additional mitigation measures based on the air quality impacts are presented in Section 6.5.1.
N11	44		Sage-grouse As shown in the table copied below, BLM's analysis fully discloses that the Project will contribute to exceedances of disturbance thresholds for core areas and BLM designated PHMAs, in violation of BLM's and the USFS's planning documents – and in violation of Wyoming's core areas protection framework. BLM concludes that "The programmatic nature of this document details that the current 5 percent disturbance cap is 1 exceeded in four of the PHMA (Bill, Douglas, North Glenrock, and Thunder Basin)." For the fifth, the disturbance level is dangerously close to the cap at 4.4%. BLM must do more to protect sage-grouse habitat and populations, both inside and outside of core areas.	Not necessarily, the programmatic nature of this document details that the current 5 percent disturbance cap is exceeded in four of the PHMA (Bill, Douglas, North Glenrock, and Thunder Basin). However, under Alternative B, development could be approved on a site-specific basis consistent with the DDCT process if found to be under the 5 percent cap. Any new surface disturbance in PHMAs and Core Areas within the CCPA would be subject to current WGFD, BLM, and USFS management regulations that would restrict surface disturbance and disruption in important sage-grouse habitats, including restrictions on surface disturbance exceeding the 5 percent disturbance threshold and 1 oil and gas or mining facility and associated infrastructure per 640 acres, on average (WY EO 2019-3, Attachment 4 to BLM 2015b, Attachment B to USFS 2015b).

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Powder River Basin Resource Council (letter) (Continued)				
N11	45		Cumulative Impacts BLM appears to be underestimating the level of reasonably foreseeable cumulative impacts in and adjacent to the project area. BLM's analysis focuses on "past and present" cumulative activity but ignores reasonably foreseeable future activity. Of note, there are over 8,000 APDs approved by the WOGCC in Converse County at this time, and over 4,000 approved in adjacent Campbell County These wells are reasonably foreseeable as they are permitted by the WOGCC. The impacts of the wells and associated development must be considered within the scope of BLM's EIS.	While there may be over 8,000 APDs listed on the WOGCC website, it should be noted that not all of these 8,000 APDs resulted in wells that have been drilled, will be drilled, or are within the portions of Converse or Campbell counties that fall within the cumulative impact study area. The analysis conducted for this EIS was based on this same WOGCC data, which was then filtered for these parameters. Therefore, the applicable APDs listed on the WOGCC website in relevant portions of Converse and Campbell counties are accounted for in the cumulative assessment as part of three "projects" on Table 5.2-1 as discussed below. First, many of these wells have already been drilled and are reflected in existing well data identified as part of the existing oil and gas infrastructure under Alternative A - No Action Alternative discussed in Section 2.3.1 and presented on Table 2.3-1. These wells within the CCPA and accounted for under Alternative A, existing disturbance (i.e., past projects) were included in the cumulative assessment (Section 5.2 and Table 5.2-1). Second, as discussed in Section 2.3.2, the analysis of Alternative A - No Action Alternative also accounts for new development anticipated within the CCPA by including wells that have been approved but may not have been drilled (based on data downloaded from WOGCC website on as of January 9, 2015). The value used for new wells under Alternative A (i.e., 1,663 wells) also took into account wells disclosed in NEPA documents for previously approved development projects, additional wells from the Powder River Basin EIS (2003), as well as analysis of historic drilling data from WOGCC for the area to determine a conservative drilling rate of approximately 110 wells per year. These wells accounted for under Alternative A, new disturbance (i.e., present and future projects) were included in the cumulative assessment (Section 5.2 and Table 5.2-1). Third, an additional 2,410 existing and future wells within Campbell County (i.e., outside the CCPA) that fall within the cumulative impact study area are identified on Table 5.2-1 as "BLM Buffalo Field Office Active Coalbed Natural Gas Projects." It is acknowledged that it is difficult to distinguish between "present" or "reasonably foreseeable future" well development for these items; therefore, these subheaders have been removed from Table 5.2-1 to avoid confusion.
N11	46		Additionally, BLM does not consider the pending West Antelope III coal lease application9 since the BLM merely considers past and present coal mining activity. (DEIS at 5-11). Please revise the cumulative impacts analysis to include consideration of all pending coal lease applications. In particular, BLM should coordinate its climate analysis with the pending NEPA analysis of climate impacts for the Wright Area Coal Leases EIS remand.10 9 https://eplanning.blm.gov/epl-front-office/projects/nepa/67310/105368/158583/WestAntelope3LBA.pdf 10 See DOI-BLM-WY-P000-2018-0002-EA. Although we disagree that the analysis required by the remand should be done in this manner, the coal leases are cumulative impacts that should be considered within the scope of this EIS.	As noted in Section 5.2.2 and in footnote 2 to Table 5.2.3, disturbance for all coal mines, including the Antelope Coal Mine, was conservatively calculated to include the entire lease area (even portions that have not yet been mined out) plus 20 percent of the lease area for disturbance beyond the coal lease boundary. Mines on this table are represented as past and present because they are existing mines; however, future expansion within their existing lease area (i.e., what may be considered future development) is accounted for by using the conservative estimate described in footnote 2. As of December 31, 2015 (the cut-off date for cumulative projects), there were no new pending coal leases within the cumulative impact study area. However, it should be noted that the West Antelope III coal lease application noted was for 3,508 acres. The use of an additional 20 percent of the lease area for a disturbance estimate for the coal mines assumed in the current analysis in the EIS added 3,226 acres for the Antelope Mine alone and an additional 17,308 acres for other mines for a total additional 20,606 acres beyond the current lease boundaries. As such, the additional acreage noted in the West Antelope III coal lease application dated January 27, 2017 is more than adequately accounted for in the EIS analysis.

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Powder River Basin Resource Council (letter) (Continued)				
N11	47		Subsequent NEPA Process & Relationship to the APD Stage In many places in the DEIS, BLM defers critical environmental impacts analysis, based on the assumption that there will be future NEPA analysis at the APD stage. For instance, the DEIS says: Prior to drilling on BLM- or USFS-administered surface and mineral estate, the project proponent must submit an APD to the BLM or USFS, as appropriate, which would include a Surface Use Plan of Operation and a Drilling Plan. At that time, the BLM/USFS would conduct a site-specific NEPA review and attach appropriate measures to the permit to protect natural and human resources. (DEIS at 1-5). Later the DEIS states: Due to the size of the area of potential effects and inability to perform analyses at the appropriate level to determine specific impacts, a programmatic analysis followed by subsequent tiered NEPA is appropriate for the proposed development in the CCPA. (DEIS at 4-1). First, even assuming there will be “a site-specific NEPA review” at the APD stage, that subsequent analysis does not abdicate BLM from conducting a full environmental impacts analysis at this programmatic stage. NEPA requires analysis of environmental and socioeconomic impacts at the earliest possible point: now.	Thank you for your comment. Given the programmatic nature of the proposed development a full environmental review of the site-specific impacts is not possible. Therefore, the BLM would conduct additional environmental review, including a NEPA review, upon receipt of site-specific development plans. This analysis would tier off this EIS.
N11	48		Second, these statements underscore the need for BLM to commit to subsequent NEPA analysis at the APD level. Too often BLM approves new oil and gas wells in the Powder River Basin through categorical exclusions or determinations of NEPA adequacy (DNAs). Given how the agency defers critical analysis of Project impacts to the APD stage, BLM must require all APDs under the Project to be approved through an EA, with a draft open to public notice and comment (not merely a 30 day “posting” period as is commonly used by the agency). A site-specific level EA tiered to this programmatic analysis would be akin to the NEPA framework approved in the 2003 coalbed methane EIS. Please include the commitment for site-specific NEPA in the final EIS/ROD.	As stated in the EIS, the BLM would conduct additional site-specific environmental analysis, including NEPA review tiered to this EIS, upon receipt of site-specific development proposals.
N11	49		Need for Management Plan Amendments Remarkably, the DEIS fails to disclose why the BLM and USFS have abandoned the previous commitment for plan amendments along with Project approval. (See DEIS at 1-6, discussing conformance with management plans). It appears that the agencies are arbitrarily reversing their previous determination that the Project exceeds the scope of the management plans. The current management plans did not anticipate this level of development and the Project therefore exceeds the scope of the RFD for the plans.	Please see the response to Comment N20-B-08.
N11	50		At the very least – should BLM proceed with the selection of its flawed Alternative B – the agency must include proposed plan amendments to allow the waiver of timing stipulations and BLM setback requirements as those stipulations are requirements of the current management plan (carried forward in oil and gas leases for the Project area) and cannot be altered absent a plan amendment.	The BLM would grant exceptions to timing stipulations using criteria in Appendix F of the Casper RMP rather than waiving timing stipulations. Please see the response to Comment B11-024.
N11	51		BLM should re-notice the draft DEIS and include a proposal for management plan amendments, as originally contemplated by the agency.11 11 https://eplanning.blm.gov/epl frontoffice/projects/nepa/66551/113795/139032/NOI_Fed_Reg_May_16,2014.pdf	The NOI does not require that the agency amend the RMP. Please see the response to Comment B11-024.
N11	52		Need for Stakeholder Engagement in Adaptive Management BLM must establish a framework to monitor impacts stemming from the Project through enforceable commitments in the ROD. We ask BLM to establish a stakeholder working group with participation from conservation groups and local landowners. This working group should meet at least annually to review research and analysis conducted by a variety of state and federal agencies. The adaptive management plan should also provide operator provided financial commitments for scientific research, monitoring, and other needs.	Thank you for your comment. Note that an adaptive management approach has been included in land use plan amendment Option 6 which is part of the agency's preferred alternative.

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Thunder Basin Grasslands Prairie Ecosystem Association				
N12	01		We are very concerned with the conclusion found in the cumulative impacts assessment that indicates that ongoing and future well development will “cumulatively and incrementally reduce the ability of wildlife habitats to support wildlife and special status species at their current levels for the lifetime of the proposed project.” This project, coupled with other industrial development (such as wind energy, other oil and gas projects, disposal facilities, scoria/aggregate mine pits, etc.), will reduce the project area’s carrying capacity for all grazers (both domestic and wildlife) along with reducing habitat for raptors, songbirds, and other species of local concern. This loss of carrying capacity due to actual disturbance along with avoidance of high traffic and other disturbed areas by grazers should be offset by a robust strategy including avoidance, minimization, and mitigation (where necessary).	Comment noted. See Chapter 6.0.
N12	02		Invasive Species Control The Association is concerned about the spread of invasive species (such as cheatgrass, which is already prevalent throughout the project area) and other noxious weeds due to the proposed development. Cheatgrass, in particular, is extremely adaptive and thrives in disturbed areas. Not only does cheatgrass reduce production from desirable native grasses, it also increases fine fuel loading which increases the probability of more severe wildfires. Noxious weeds are also a concern, particularly along roads and pipeline rights-of-way. We encourage the BLM to work with the proponents to utilize existing best management practices (such as an aggressive herbicide control program) and develop additional methods to reduce the spread of invasive plants and noxious weeds.	Comment noted. See Mitigation Measure VEG-2 and Sections 6.3 and 6.4.
N12	03		Local Collaboration Existing management objectives emphasize collaboration with local, state, federal and private entities. The Association has been working in partnership with the BLM in northeast Wyoming and the USFS in the Thunder Basin National Grassland for over a decade. While we recognize that the split estate situation in Converse County makes collaborative planning efforts difficult, we encourage both the BLM and the proponents to facilitate and actively pursue opportunities to involve the local community in site-specific planning discussions.	Thank you for your comment. Note that the Final EIS includes additional mitigation to facilitate annual planning meetings.
N12	04		Preferred Alternative Comments The BLM has selected Alterative B - the Proposed Action as the preferred alternative. We strongly support the utilization of surface disturbance measures whenever possible. In addition, we would encourage the BLM to consider including the following techniques from Alternative C along with other best management practices to help further reduce impacts and protect habitat and resources within the project area. · Fugitive dust control - Both livestock and wildlife will avoid dust coated vegetation, increasing the impact of roads far beyond the road footprint. We support the operator proposed measures in Chapter 6.4.1 and encourage BLM and the proponents to consider additional means to reduce dust from project activities including minimizing truck traffic through best management practices such as piped vs. trucked water (both produced and frac supply).	Thank you for your comment. The BLM has considered your input in revising the agency's preferred alternative.
N12	05		· Light pollution - The proposed level of development will result in significant light pollution in the project area and we are concerned that impacts from light pollution may not have been adequately addressed. While human health and safety is of critical importance, we encourage the use of down- and focused-lighting wherever possible in order to minimize light pollution.	Light pollution is addressed in Section 4.15.2.1 of the EIS and a mitigation measure to address light pollution is presented in Section 4.15.2.2.
N12	06		In addition, flaring of gas should be minimized as much as possible.	Thank you for this comment. Please see response to N11-39.
N12	07		Noise abatement - Increase in noise and activity levels can have a detrimental impact on livestock and wildlife. In addition, although the project area is sparsely settled, impacts from noise on human habitation should be avoided or minimized whenever possible.	Comment noted. Section 4.7 discloses impacts from noise, and Section 4.18 discloses noise impacts to wildlife resources.
N12	08		· Reducing well pad and ancillary facilities - We appreciate the efforts of BLM and the proponents to increase the number of wells per pad while decreasing the total number of well pads. In addition to these efforts, we would encourage co-location on existing well pads or other disturbances and would strongly encourage the individual proponents to engage in joint planning in order to minimize the disturbance from ancillary facilities such as roads and pipelines. We would also encourage the use of consolidated production facilities for both federal and non-federal minerals.	Thank you for your comment. Co-location of new facilities on existing disturbance can be addressed during environmental review of site-specific development proposals.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Western Energy Alliance				
N13	02		The project will only reach its full potential if drilling is allowed to take place year-round. Halting operations and removing all equipment periodically in order to comply with timing stipulations placed on certain habitat buffers has severe economic and environmental consequences. Re-deployment of rigs and associated equipment mid-job creates lengthy delays which cost time, money and other resources. Environmentally, having to move equipment on and off site is a large endeavor, and requires several heavy truckloads. Each additional trip increases emissions, increases wear and tear on local roads, and causes more surface disturbance. Delays created by the timing stipulations will not only impact production but delay reclamation for weeks or even months as well. This is a very serious issue, as more than half the proposed well pads are located within the effected habitat buffers. Year-round drilling will solve these issues and increase the probability of bringing the project to fruition, while minimizing environmental impacts and maximizing economic benefits.	Please note that the Proposed Action (Alternative B) includes the granting of timing stipulation relief and is identified in the Draft EIS as the BLM's preferred alternative (see the second page of the cover letter). Also see the response to Comment B11-024 for information on clarification of the process for granting exceptions to timing stipulations.
N13	04		While the Proposed Action contemplates the potential for year-round drilling, it unfortunately does not go far enough. The Final EIS needs to clearly outline the exemption request procedure, something that is currently lacking.	Please see the response to Comment B11-024.
N13	05		BLM should refer to the Migratory Bird Conservation Plan being developed in conjunction with the U.S. Fish and Wildlife Service and the operator group for guidance on how to permit drilling to occur year-round while still providing ample protection for Greater Sage Grouse (GrSG) leks and raptor nesting sites.	The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.
N13	07		Furthermore, the DEIS imposes surface use restrictions on Priority Habitat Management Areas in the Douglas GrSG area using outdated versions of the State of Wyoming's GrSG boundary maps. Version 3 was used for the DEIS, even though Version 4 was released in October 2017. BLM should update these restrictions in the Final EIS.	Under Alternative B, Version 3 Core Area Maps were used based on direction from the BLM 2015 ARMPA. Alternative C analyzes impacts based on the Version 4 Core Area Maps.
N13	08		Similarly, The DEIS includes a number of overly burdensome compensatory mitigation requirements which have been rescinded as a matter of policy by the current administration. The DEIS features compensatory mitigation, particularly the concepts of "additionality" and "no net loss or measurable net gain," despite DOI's and the President's review and withdrawal of policies and directives that promote compensatory mitigation. It also includes language from a mitigation manual that DOI rescinded via Secretarial Order.	The text has been revised in the resource-specific mitigation sections of Chapter 4 and in Chapter 6 to be consistent with recent BLM guidance with regard to compensatory mitigation. The recently released guidance (IM 2019-018) states that the BLM cannot require compensatory mitigation.
N13	10		The application of National Historic Preservation Act (NHPA) requirements on private lands is another concern that should be addressed in the Final EIS. BLM has limited authority to require NHPA compliance on private lands, and the Final EIS should specify that BLM must request access to private surface and must comply with any conditions and limits of access set by the surface owner with respect to the permission granted. BLM cannot require access to, or impose substantive requirements on, surface that is privately owned, and the NHPA does not require BLM to access private property or conduct cultural surveys.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface and would develop a Programmatic Agreement to address alternative strategies for complying with NHPA.
N13	11		Similarly, BLM cannot impose restrictions on private property owners, including delaying permits until access is granted for National Environmental Policy Act (NEPA) analysis or requiring private property owners to comply with mitigation measures. The Final EIS should make clear that the scope of NEPA analysis on private land is limited to approval of the downhole operations, and is not required for the surface disturbance, including the well pad, access roads, or pipelines.	Please see the response to Comment B11-059.

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Western Watershed Project (letter)				
N15-B	01		However, the DEIS states that site-specific NEPA will be deferred to the Application for Permit to Drill (APD) stage.1 This is inadequate because in our experience, deferring site-specific NEPA analysis to a later date often results in it never occurring at all. Instead, BLM frequently refers back to prior lease sale or Resource Management Plan (RMP) NEPA analyses and claims that further analysis at the APD stage is unnecessary. 1 For example, "Construction of individual pads would be requested through subsequent APDs and analyzed in site-specific NEPA." DEIS at 2-7.	Comment noted. As stated in Section 1.4.1, the BLM would conduct NEPA review of site-specific development proposals. This review could include tiering from this EIS.
N15-B	03		How will BLM and Forest Service guarantee that future site-specific NEPA analysis will occur?	See the response to Comment N15-B-01.
N15-B	04		How will BLM and Forest Service guarantee that the public can comment in future site-specific NEPA analysis?	See the response to Comment N15-B-02.
N15-B	05		How will BLM and Forest Service guarantee that the public is notified of future site-specific NEPA public comment opportunities in time to respond to them?	The BLM will follow established procedures for implementing NEPA and associated public notification requirements for future site-specific approvals.
N15-B	06		The DEIS fails to analyze reasonable alternatives that were suggested during scoping. Molvar's 2014 scoping comment letter asked that a range of alternatives be analyzed, but BLM and Forest Service did not include them in the DEIS. In order for BLM and Forest Service to fulfill their responsibilities to protect air quality, water quality, human health, and wildlife, we again ask that these alternatives be developed and analyzed in the EIS. These include • "[A]t least one action alternative under which the project moves forward will full recovery of fluid mineral resources with the lowest possible impact on all aspects of the human environment (including wildlife, air and water quality, human health and safety, and climate change), and at least one action alternative that requires the cessation of activities if and when Clean Air Act violation(s) occur." Molvar at 2.	Comment noted. The BLM considered input obtained during scoping as well as input from cooperators in developing the alternatives described and analyzed in Chapter 2 of the EIS.
N15-B	07		• Higher numbers of wells on the wellpads. "In the context of this project, Operators propose wellpads with between 1 and 16 wells. Why only 16? On the Pinedale Anticline, operators have already clustered as many as 72 wells on a single pad." Molvar at 13. The DEIS describes 8 and 16 well scenarios.	Alternative C, which is analyzed in detail in the EIS, includes an assumption of a greater number of wells drilled on fewer well pads than Alternative B, the Proposed Action. The number of wells per pad on the Pinedale Anticline is not directly applicable to Converse County due to differences in geology and hydrocarbon target zones.
N15-B	08		• "[A]t least one alternative that requires the use of closed-loop drilling. This obviates the need for reserve pits, which expand the surface footprint of wellpads unnecessarily, and represent a health and safety hazard for avian and terrestrial wildlife. In addition, Operators report that wellpads will be up to 12 acres in size; it is our understanding that wellpads already approach or exceed 20 acres in size in the Project Area." Molvar at 14. The current Plan of Development states that "OG members will generally use closed or semi-closed loop systems." POD at 21. The DEIS states, "[i]n general, semi-closed loop systems would be used" and "[a]lthough not specifically proposed or anticipated, reserve pits could be constructed, as appropriate based on site-specific conditions." DEIS at 2-27. Therefore, we again ask that at least one alternative that requires the use of closed-loop drilling and no reserve pits be analyzed.	Closed loop drilling with no reserve pits is included in Alternative C (see Section 2.5.2.5).
N15-B	09		• "[A]t least one alternative that forbids the venting or flaring of methane or other products. Venting of methane unnecessarily contributes to climate change, as methane is 23 times as potent a greenhouse gas as carbon dioxide, degrades into carbon dioxide over time, and thus makes an immediate and long-term contribution to climate change without any human benefit in the form of energy." Molvar at 14. We again request an alternative without venting or flaring of methane or other products.	The BLM considered an alternative that would not include flaring in Section 2.6.5. As noted in the response to Comment N03-20, the text has been revised in this section to clarify that this alternative was to completely eliminate flaring from the drilling and completion process. The Proposed Action includes technologies and practices to limit flaring to short durations mainly during production testing and emergency situations for safety purposes.
N15-B	10		At least one alternative that analyzes "comprehensive moratoria for project-related vehicle traffic and human activities (except in emergencies) in sensitive wildlife habitat such as sage grouse seasonal habitats, big game crucial winter ranges or migration corridors, and within 2 miles of ferruginous hawk nests or one mile of other raptor nests, during their key season of use for the wildlife species in question. The Bill Barrett Corporation committed to similar measures for their Big Porcupine Coalbed Methane Project on the Thunder Basin National Grassland, adjacent to the current Project Area, therefore demonstrating that such an alternative is reasonable. See Exhibit 5. BLM should consider at least one alternative that requires these measures to be applied, without exception, for this project." Molvar at 15. We again request that this alternative be analyzed.	Thank you for your comment. The BLM conducted a thorough analysis of reasonable alternatives and presented the basis for eliminating alternatives from detailed analysis in Section 2.6.

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Western Watershed Project (letter) (Continued)				
N15-B	11		Impacts to wildlife in general require additional analysis. The DEIS states, “Potential direct and indirect impacts to wildlife species include those that would eliminate, reduce, compromise, or fragment associated habitat, avoidance of areas by wildlife due to noise and human activity, and activity that causes stress, injury, or death to wildlife.” DEIS at 4.18-1. This list omits impacts to reproductive success and energetic impacts, which should be analyzed in the EIS.	Please refer to Types of Impacts Common to All Species in Section 4.8.1.1, pp. 4.18-3 to 4.18-4 where these impacts are disclosed.
N15-B	12		The wildlife potential occurrence criteria in the DEIS should also be revised. The DEIS states, “Wildlife and aquatic species were considered as having potential to occur within the analysis area if: − Occurrence has been documented for the species; − The species predicted distribution currently exists within the analysis area; and − Suitable habitat is present.” DEIS at 4.18-2. This three-part test is a high bar that will result in underestimating potential occurrence and thus underestimating impacts to wildlife. For example, species can fail to meet the second part of the test (“the species predicted distribution currently exists within the analysis area”) if current distribution data are unavailable. The DEIS acknowledges this is the case for some species occurring on private land in the Project Area. For instance, “There is no population estimate for this herd because access to perform ground surveys is inconsistent and highly variable from year-to-year as most white-tailed deer inhabit private lands (WGFD 2013c).” DEIS at 3.18-12. Also, “[Threatened Preble’s meadow jumping mouse] Population estimate studies have occurred at a few sites in Colorado; however, no long-term trapping studies have been conducted in Wyoming, which limits the understanding of population densities in this state (78 FR 31680).” DEIS 3.18-39.2 Furthermore, some wildlife species are difficult to detect even if present. For instance, “A 2011 mist-net survey of bats in eastern Wyoming did not capture any Townsend’s big-eared bats within the CCPA [Converse County Project Area]; however, Townsend’s big-eared bats are adept at avoiding capture in nets (WGFD 2012a).” DEIS at 3.18-43. In addition, suitable habitat may have been missed since this DEIS relies on habitat estimates rather than ground-truthed data. For example, “Wetlands in the CCPA have not been field-verified” and “Size and extent of riparian habitat also has not been field-verified.” DEIS at 3.17-3. In regard to Preble’s meadow jumping mouse, the DEIS states that any impacts to the species from Project development could result in extirpation from the Project Area: “Similarly for the Preble’s meadow jumping mouse, due to the apparent rarity this species in the analysis area and the decline in the extent and quality of its habitat throughout is geographic range (69 FR 17 29101), any impact from Project development to the species potentially would lead to extirpation from the CCPA.” DEIS at 4.18-72. If the mouse if extirpated from the Project Area, how will its representation, resiliency, and redundancy be affected? In addition, because Converse County is at the northern end of the mouse’s range (see USFWS Recovery Plan at 3), extirpation from the Project Area would result in decreasing the mouse’s range. How will BLM and Forest Service ensure that the mouse is not extirpated from the Project Area and that its range is not decreased?	Comment noted. However, the comment does not identify if any species was not considered based on these criteria. Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N15-B	13		It is important to note that the presence of private lands in this Project is not a valid excuse for failing to conduct site-specific surveys for ESA-listed wildlife. The BLM has the right to request these surveys and the Federal mineral lessee has the right to enter private property to conduct them. Onshore Oil and Gas Order Number One states: As provided in the oil and gas lease, the BLM may request that the applicant conduct surveys or otherwise provide information needed for the BLM’s National Historic Preservation Act consultation with the State Historic Preservation Officer or Indian tribe or its Endangered Species Act consultation with the relevant fisheries agency. The Federal mineral lessee has the right to enter the property for this purpose, since it is a necessary prerequisite to development of the dominant mineral estate. Nevertheless, the lessee or operator should seek to reach agreement with the surface owner about the time and method by which any survey would be conducted.” Onshore Oil and Gas Order Number One, Part VI, emphasis added. However, in the absence of full wildlife data for the entire Project Area, we suggest modifying the test of wildlife potential occurrence to meeting any two of the three criteria rather than all three.	Comment noted. However, the comment does not identify if any species was not considered based on these criteria. Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.

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Western Watershed Project (letter) (Continued)				
N15-B	14		"We expect BLM to assess the cumulative impacts of all BLM-permitted (and other) human activities on sensitive resources such as sage grouse habitats or human-induced climate change, including coal mining, livestock grazing, existing vehicle traffic and road networks, existing fences, and existing and reasonably foreseeable patterns of human habitation and subdivision across the project area. BLM must consider and disclose alternatives for getting product produced to market, including potential impacts to the environment for spills, train derailments, and other reasonably foreseeable events. In order to perform this legally required analysis, it will be critical to gather comprehensive baseline information on each and all of these, for both public and private lands."	Please see response to comment L05-025.
N15-B	15		Currently, the DEIS lists existing sources of impacts to wildlife and calculates surface disturbance as a proxy for cumulative impacts. The DEIS states: While surface disturbance generally corresponds to associated wildlife habitat loss, accurate calculations of the full extent of cumulative wildlife habitat loss cannot be determined because the direct impacts of habitat disturbance are species-specific and dependent upon the following factors: •The status and condition of the population(s) or individual animals being affected; •Seasonal timing of the disturbances (exceptions to timing limit stipulations allowing for year-round development would result in greater impacts to wildlife resources including occupied raptor and other migratory bird nests and seasonal wildlife habitats under Alternative B); •The value or quality of the disturbed sites; •The physical parameters of the affected and nearby habitats (e.g., extent of topographical relief and vegetative cover); •The value or quality of adjacent habitats; the type of surface disturbance; and •Indirect impacts that are difficult to quantify, such as increased noise and human presence. DEIS at 5-58. However, this list of what has been omitted from the DEIS is exactly what needs to be analyzed for this NEPA analysis to be meaningful. These factors should be analyzed in the Final EIS.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N15-B	16		The DEIS inadequately analyzes impacts to greater sage-grouse and is not consistent with the Approved Resource Management Plan for Greater Sage-grouse (WY ARMPA).	Comment noted. The DEIS is consistent with the BLM ARMPA (2015). The Final EIS has been updated to reflect the plan amendment for Greater Sage-grouse currently in force.
N15-B	18		It is unclear whether the DEIS's many references to 20-24 dBA are intended as the upper maximum for noise at the Project or intended to represent 10 dBA under the allowable maximum for noise at the Project.3 This distinction is important because sage-grouse noise researchers suggest that sage-grouse lek losses occur just over that range. For example, Ambrose et al's 2015 Review of Wyoming Governor's Order 2011-5 discusses problems with using 10 dBA over ambient as a fixed threshold. Ambrose recommends using 25 dBA as a threshold and the median of hourly L50 values as a monitoring standard. Ambrose et al 2015 at 2 and 1. BLM itself recently noted concerns about the noise threshold in a 2017 Environmental Assessment for a geothermal project in Nevada: However, some research suggests that elevated noise at leks may cause behavioral and physiological impacts to greater sage-grouse that could occur at or below the 10 dB threshold (Patricelli et al. 2013a and 2013b) and that further research is needed to determine if the 10 dB threshold is adequate to protect greater sage-grouse. Additionally, preliminary data provided by NDOW [Nevada Department of Wildlife] as personal communication with Gail Patricelli, suggests that greater sage-grouse lek trends decline after noise levels exceed 25 L50 dBA (NDOW 2017c). BLM, McGinness Hills 3 Environmental Assessment at 114. 3 See for example, DEIS at 4.7-4: "Limit noise to less than 10 decibels above ambient measures (20 to 24 dBA) at sunrise at the18 perimeter of a lek during active lek season"	The text has been revised to remove reference to 20 to 24 dBA.
N15-B	19		How will BLM and Forest Service ensure that the noise level at leks in the Project Area remains below 25 L50 dBA?	Due to the programmatic nature of the document, this level of impact analysis and enforcement would be conducted through subsequent NEPA at the site-specific level.

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Western Watershed Project (letter) (Continued)				
N15-B	20		• The Proposed Action (Alternative B) does not follow the WY ARMPA's timing limitation stipulations. See WY ARMPA at 36. Instead, the Proposed Action would allow year-round development except in the Thunder Basin National Grassland and sage-grouse core areas. DEIS at 2-25. See also DEIS at 4.18-27: ("Under Alternative B, exceptions to timing stipulations would be requested in the vicinity of raptor nests and greater sage-grouse leks outside PHMAs. To the extent possible, drilling and development operations within the CCPA would be conducted on a year-round basis").	Text in Section 2.4.1 states that exceptions would be granted outside of core areas.
N15-B	21		• None of the Project alternatives follow Management Objective 2: "Maintain and enhance quality/suitable habitat to support the expansion of sage-grouse populations on federally-administered lands within the planning area." WY ARMPA at 23. Instead, the Project will result in the functional loss of sage-grouse habitat through habitat destruction, fragmentation and abandonment.	Not necessarily. Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level. Common to all alternatives, all new development must comply with the Casper RMP (BLM 2007b), the TBNG LRMP (USFS 2002, 2001), and the Required Design Features provided in Appendix C of the Approved Resource Management Plan Amendment for Greater Sage-grouse (BLM 2015b). All appropriate COAs, mitigations, and ROW stipulations from all resources would be applied as dictated in the appropriate land use plans.
N15-B	22		• None of the Project alternatives follow Management Objective 3: "Manage sage-grouse seasonal habitats and maintain habitat connectivity to support population objectives set by the State of Wyoming in cooperation with the agencies." WY ARMPA at 23. Although the DEIS asserts that habitat connectivity corridors have been identified within Wyoming (DEIS at 3.18-47), the DEIS does not discuss how the Project will avoid, minimize, and mitigate impacts to them.	Not necessarily. Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level. Designated connectivity areas are included in PHMAs with management and mitigation requirements being the same for PHMA identified within the Project.
N15-B	23		• None of the Project alternatives follow Management Objective 4: "Identify and prioritize opportunities for habitat enhancement and conservation within sage-grouse core habitat areas based on threats and the ability to manage sage-grouse habitat." WY ARMPA at 24. The Converse County DEIS does not identify nor prioritize these opportunities, which are necessary in order to avoid, minimize, and mitigate impacts.	Common to all alternatives, all new development must comply with the Casper RMP (BLM 2007b), the TBNG LRMP (USFS 2002, 2001), and the Required Design Features provided in Appendix C of the Approved Resource Management Plan Amendment for Greater Sage-grouse (BLM 2015b). All appropriate COAs, mitigations, and ROW stipulations from all resources would be applied as dictated in the appropriate land use plans. Due to the programmatic nature of the document, the level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N15-B	24		• None of the Project alternatives follow Management Objective 13: "Protect PHMAs and GHMAs from anthropogenic disturbance that will reduce distribution or abundance of GRSG." WY ARMPA at 24. The DEIS states that even the No Action Alternative (which will itself result in development, just at a lower level than the other Project alternatives) could result in the loss of all 54 leks in the Project Area. See DEIS at 4.14-48. Greater sage-grouse in the Project Area are already experiencing population loss: "As discussed under Alternative A and shown on Table 4.18-27, the 54 leks within the CCPA and the 22 2-mile buffer around the CCPA have experienced a reduction in peak male attendance of 83.9 percent between 2006 and 2016." DEIS at 4.18-63. "Despite the recent upward trend in peak male attendance, all greater sage-13 grouse leks in the analysis area are at risk of being abandoned as development continues to increase." DEIS at 3.18-57. See also DEIS at 4.18-78.	Common to all alternatives, all new development must comply with the Casper RMP (BLM 2007b), the TBNG LRMP (USFS 2002, 2001), and the Required Design Features provided in Appendix C of the Approved Resource Management Plan Amendment for Greater Sage-grouse (BLM 2015b). All appropriate COAs, mitigations, and ROW stipulations from all resources would be applied as dictated in the appropriate land use plans.
N15-B	25		It is not enough for the DEIS to simply disclose that sage-grouse in this Project Area are in trouble under all of the alternatives the agencies have chosen to develop in this DEIS. To fulfill their public-trust responsibilities, BLM and Forest Service must actively protect sage-grouse, including developing a Project alternative that does not potentially result in the loss of all 54 leks.	Common to all alternatives, all new development must comply with the Casper RMP (BLM 2007b), the TBNG LRMP (USFS 2002, 2001), and the Required Design Features provided in Appendix C of the Approved Resource Management Plan Amendment for Greater Sage-grouse (BLM 2015b). All appropriate COAs, mitigations, and ROW stipulations from all resources would be applied as dictated in the appropriate land use plans. Due to the programmatic nature of the document, the level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N15-B	26		Similarly, instead of proposing to reduce sage-grouse protections in the Project Area as Alternative B does, BLM and Forest Service should be doing everything they can to reduce threats to sage-grouse in this area and protect sage-grouse. Indeed, given ongoing sage-grouse population declines in the area, why have BLM and Forest Service not already implemented adaptive management under MD SSS13 of the Wyoming ARMPA?	Common to all alternatives, all new development must comply with the Casper RMP (BLM 2007b), the TBNG LRMP (USFS 2002, 2001), and the Required Design Features provided in Appendix C of the Approved Resource Management Plan Amendment for Greater Sage-grouse (BLM 2015b). All appropriate COAs, mitigations, and ROW stipulations from all resources would be applied as dictated in the appropriate land use plans.

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Western Watershed Project (letter) (Continued)				
N15-B	27		Furthermore, how will allowing this Project in an area that already has decreasing greater sage-grouse population affect the species' representation, resilience, and redundancy?4 This is all the more important given that the DEIS states, "Four of the five DDCT assessment areas have existing disturbance totaling greater than 5 percent." DEIS at 3.18-51. See also DEIS at 4.9-6. 4 The DEIS states that the Project Area contains 199,281 acres of PHMA and 284,375 acres of PHMA within the greater sage-grouse analysis area. It also states that the Project Area contains 1,287,429 acres of GHMA and 1,752,212 acres of GHMA within the greater sage-grouse analysis area. 3.18-47.	The programmatic nature of this document details that the current 5 percent disturbance cap is exceeded in four of the PHMA (Bill, Douglas, North Glenrock, and Thunder Basin). However, under Alternative B, development could be approved on a site-specific basis consistent with the DDCT process if found to be under the 5 percent cap.
N15-B	28		• None of the Project alternatives follow Management Objective 14: "Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMAs and GHMAs. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMAs and GHMAs, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG." WY ARMPA at 24. The DEIS provides no evidence of any prioritization having been undertaken to site development outside of sage-grouse habitat. Following Management Objective 14 is necessary in order to avoid and minimize impacts, as well as to decrease the need for compensatory mitigation.	Common to all alternatives, all new development must comply with the Casper RMP (BLM 2007b), the TBNG LRMP (USFS 2002, 2001), and the Required Design Features provided in Appendix C of the Approved Resource Management Plan Amendment for Greater Sage-grouse (BLM 2015b). All appropriate COAs, mitigations, and ROW stipulations from all resources would be applied as dictated in the appropriate land use plans. Due to the programmatic nature of the document, the level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N15-B	29		In addition, the DEIS states that compensatory mitigation is warranted for sage-grouse under Alternative B (Proposed Alternative): Compensatory mitigation would be warranted for greater sage-grouse because avoidance and minimization of residual impacts to the species and its habitat may be inadequate or impossible based on the amount of existing disturbance within PHMA. This concept of utilizing compensatory mitigation is based on EO 2015-4 and the BLM and USFS complementary strategy for which, subject to valid existing rights and consistent with applicable law, land management agencies require mitigation that provides a no net loss or a net conservation gain to the species, including accounting for any uncertainty associated with the effectiveness of such mitigation. DEIS at 4.18-72. However, the DEIS states that compensatory mitigation would not be warranted for sage-grouse under Alternative C. DEIS at 4.18-84. This seems imprudent since the DEIS says that all sage-grouse leks are at risk of loss under Alternative C.	The risk of loss under Alternative C would be minimized or avoided by restricting development within PHMA.
N15-B	30		Furthermore, we would like to know: • How will the Project's sage-grouse compensatory mitigation be constructed to be durable and timely?	See Section 6.6.2.2.
N15-B	31		• How will BLM and Forest Service ensure the Project's sage-grouse compensatory mitigation takes place, and how will the agencies monitor its effectiveness?	See Section 6.6.2.2.
N15-B	32		• How will BLM and Forest Service ensure that the Project's sage-grouse compensatory mitigation is in addition to any other mitigation that would take place? (In other words, how will the agencies know that it is truly compensatory?)	See Section 6.6.2.2.
N15-B	33		The DEIS fails to take a hard look at impacts to ungulate species and inadequately analyzes impacts to them. The DEIS fails to take a hard look at significant new research showing adverse effects to mule deer and pronghorn5 habitat use, migration corridors, and ultimately survival and abundance resulting from indirect effects energy development. 5 See Beckmann, Jon P., et al. Human-mediated shifts in animal habitat use: Sequential changes in pronghorn use of a natural gas field in Greater Yellowstone. Biological Conservation 147 (2012) 222–233.	Comment noted. The WGFD (2010) studies assess similar impacts to those identified in the comment and the BLM considers the WGFD and their research to be a very creditable source. Also see Types of Impacts Common to All Species.
N15-B	34		It further fails to justify BLM's refusal to engage in actual site-specific assessment of effects on particular deer subpopulations, winter use areas, and/or migration corridors. Merely describing the "the category of impacts anticipated from oil and gas development" fails to meet NEPA's hard look requirement when it is reasonable for BLM to do more. See New Mexico ex rel Richardson v. BLM, 565 F.3d 683, 707 (10th Cir. 2009) (emphasis in original). "NEPA does not permit an agency to remain oblivious to differing environmental impacts, or hide these from the public, simply because it understands the general type of impact likely to occur. Such a state of affairs would be anathema to NEPA's 'twin aims' of informed agency decision-making and public access to information." Id.	Due to the programmatic nature of the document, the level of impact analysis would be conducted through subsequent NEPA at the site-specific level.

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Western Watershed Project (letter) (Continued)				
N15-B	35		The DEIS acknowledges that "the increase in densities of project components would result in the habitat becoming progressively less effective until most animals would no longer use these areas or be subjected to increased physiological stress." DEIS at 4.18-7. It fails completely, however, to acknowledge recent, peer-reviewed research showing that these displacement and stress effects cause significant, measurable decreases in not just habitat use, but in population abundance.	Comment noted. The WGFD (2010) studies assess similar impacts to those identified in the comment and the BLM considers the WGFD and their research to be a very creditable source. Also see Types of Impacts Common to All Species.
N15-B	36		Moreover, the DEIS attempts to obscure the magnitude of differences in impact between Alternative A (no action) and the proposed alternative, by asserting that a difference of approximately 1500 pads and 3500 miles of roads, see DEIS at Tables 4.18-2, 4.18-5, means only that "big game species would be subject to indirect disturbance in most of the CCPA and at a comparatively greater degree than under Alternative A." DEIS at 4.18-11. Given reasonably available, high-quality scientific information regarding impacts on mule deer and pronghorn from oil and gas development, the meaningless assertion, without more, that the impact of 1500 wells and 3500 miles of roads would be "comparatively greater," fails to meet BLM's obligation to take a hard look at the foreseeable consequences of development.	However, the extent of indirect impacts would vary geographically across the CCPA and would depend on the exact locations of well pads and roads. Due to the programmatic nature of the document, the level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N15-B	37		Although an earlier lack of high-quality, long-term, and controlled studies made it difficult to evaluate with precision the role of oil and gas development in mule deer habitat and population decline,10 newer studies show a clear link between oil and gas development, displacement from habitat, and population abundance. Although BLM cites only a 1979 study offering a wide range of possible displacement distances from roads, DEIS at 4.18-5, newer empirical data clearly shows mule deer avoid roads and oil and gas infrastructure by an average of 913 meters: "Mule deer consistently avoided energy infrastructure through the 15-year period of development and used habitats that were an average of 913 m further from well pads compared with predevelopment patterns of habitat use."11 Clearly, mule deer demonstrate avoidance of roads and oil and gas infrastructure, with as-yet inadequately-understood consequences for migration, energy budgets, adult and fawn survival, and population.12 10 Hebblewhite, Mark. 2011. Effects of Energy Development on Ungulates. Energy Development and Wildlife Conservation in Western North America 71-94. Island Press, Washington D.C. 11 Sawyer, Hall et al., Mule Deer and Energy Development—Long-term trends of habituation and abundance, Global Change Biology 2017:1-9, available at http://onlinelibrary.wiley.com/doi/10.1111/gcb.13711/epdf 12 Hebblewhite 2011; Sawyer, H., et al. 2013. A framework for understanding semi-permeable barrier effects on migratory ungulates. Journal of Applied Ecology 2013:50, doi:10.1111/1365-2664.12013; Lendrum, P.E. et al.. 2012. Habitat selection by mule deer during migration: effects of landscape structure and natural-gas development. Ecosphere 3(9):82.	The current analysis captures the 913-meter avoidance. Further, the literature cited detailed the 913-meter distance related to well pads, not roads. No change to text.
N15-B	38		Some of the best available long-term, controlled studies evaluate mule deer population density before and after oil and gas development in the Sublette mule deer herd.13 The Sublette mule deer study has compared mule deer density in control and development zones, and found mule deer densities declined 30% in the development area, as opposed to 10% in the control area.14 Sawyer and Strickland found that "the observed decline of mule deer in the treatment area was likely due to gas development, rather than drought or other environmental factors that have affected the entire Sublette Herd unit."15 14 The Sublette example is particularly important when considering energy development's effects on mule deer populations, their winter range, and their migration patterns in sagebrush habitats of the west. 13 Sawyer, H., R. Nielson, and D. Strickland. 2009. Sublette Mule Deer Study (Phase II): Final Report 2007. Western Ecosystems Technology, Inc. Cheyenne, Wyoming, USA. 14 Id. 15 Id.	Text has been revised to include the recommended study.
N15-B	40		It is demonstrated that oil and gas development affects mule deer habitat use and migration patterns by causing site avoidance, particularly in daytime,18 and creating "semi-permeable" barriers to migration routes.19 In addition, it is well-documented that human development causes direct habitat loss and fragmentation through the construction of infrastructure, and indirect habitat loss through deer avoidance of infrastructure and related activities; these consequences likely reduce the carrying capacity of the landscape.20	The types of impacts identified in the comment have been identified in the analysis in Types of Impacts Common to All Species and within Section 4.18.1.

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Western Watershed Project (letter) (Continued)				
N15-B	41		Additionally, mule deer may suffer higher mortality rates in developed landscapes because of increased vehicle collisions and accidents (i.e., entrapment in fences); moreover, increased road densities expose mule deer to more hunters, poachers and predatory domestic pets.22	The types of impacts identified in the comment have been identified in the analysis in Types of Impacts Common to All Species and within Section 4.18.1.
N15-B	42		The DEIS also fails completely to disclose any information regarding patterns of ungulate migration within the affected area. Absent disclosure and analysis of migration routes, BLM can neither take a hard look at the effects of proposed development on migration corridors, nor engage in effective mitigation of potential adverse effects.23	As stated in Section 3.18.1.5, “There are no designated big game migration corridors in the big game analysis area.”
N15-B	43		The EIS also makes conclusory and wholly unsubstantiated assertions to claim that “[t]hrough the application of avoidance and minimization mitigation, OG-committed design features, and the additional mitigation measures (Section 4.18.1.3), the level of residual impacts resulting from development under Alternative B would be low enough that compensatory mitigation would not be warranted.” DEIS at 4.18-15. This assertion is both unsupported by evidence and logically inconsistent. How can BLM determine what is the “level of residual impacts,” when it declines to quantify or describe impacts in the first place? What, if any, scientific basis does BLM have for either predicting or monitoring the effectiveness of its proposed mitigation measures? How did BLM determine what level of “residual impacts” is “low enough” to make compensatory mitigation “not warranted”? Will BLM monitor for population-level impacts from the project, and will the project be modified if “residual impacts” exceed its (apparently undisclosed) threshold?	Text has been revised to eliminate this statement.
N15-B	44		The presence of an American Bird Conservancy globally important bird area inside the Project Area, one Audubon Important Bird Area inside the Project Area and a second Audubon Important Bird Area near the Project Area (and inside the Project’s Analysis Area) shows all the more why site-specific NEPA analysis is necessary. The actual locations of this Project’s wells, roads, overhead powerlines, pipelines, compressor stations and other facilities will be the key factor in how much this Project will actually impact birds because some of those locations are a lot more important to birds than others, receiving different levels of use and types of use (e.g., breeding, nesting, brood rearing, foraging, roosting, winter concentration, migration passage). Without knowing those site-specific Project locations, BLM cannot adequately assess impacts and alternatives, including Project impacts to migratory bird survivorship and local populations of individual species such as ESA-listed species, eagles, agency and Wyoming sensitive species, and species that are the subject of government conservation efforts (e.g., North American Waterfowl Management Plan and Partners in Flight Landbird Conservation Plan species).	Due to the programmatic nature of the document, the level of impact analysis would be conducted through subsequent NEPA at the site-specific level.

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Western Watershed Project (letter) (Continued)				
N15-B	45		The presence of globally important and U.S. Important Bird Areas in and very near the Project Area is of concern because as the U.S. Fish and Wildlife Service has documented, oil and gas production facilities are full of hazards that can result in the deaths of migratory birds, such as dehydrator tanks, reserve pits, production skim pits, flare pits, emergency spill catchment pits, open-topped tanks, small containers containing exposed oil or hydrocarbons. In fact, the risk is so great that in 2013, USFWS recommended that multiple inspections should be conducted throughout the year, especially between the spring and fall, to document most bird mortality in oil and gas facilities. Inspections should not be limited to production skim pits, reserve pits, and open-topped tanks but should include all hazards such as leaking valves, pipes, and wellheads. Detailed field notes by oil and gas facility inspectors should include the specific location and probable cause of the mortality incident (i.e. reserve pit, production skim pit, dehydration tank, open-topped tank, etc.). USFWS Migratory Bird Oil and Gas Report at ii. Additional threats to birds include surfactants and other chemicals in evaporation ponds (can result in drowning)28 gas flaring at any time (can burn birds),29 and night-time gas flaring. Moreover, this Project's impacts on birds in the Platte River need to be analyzed in detail at this stage, in this EIS, not later at the individual APD stage. The DEIS acknowledges that that this Project, by taking water from the North Platte River systems, has potential to affect birds on the Platte River, but the DEIS does not provide detailed analysis of those impacts: "Migratory bird species occurring in downstream riparian habitats of the Platte River in Nebraska could be affected by water depletions in the North Platte River systems resulting from Project-related activities." DEIS at 3.18-23. This statement in the DEIS also does not take into account the enormous importance of the Platte River for birds. American Bird Conservancy has identified the Central Platte River Valley and Rainwater Basin Area as a globally important bird area. The Platte River and Rainwater Basin form a staging area during spring migration for millions of waterfowl and hundreds of thousands of cranes and shorebirds. . . . . the Platte River and the Rainwater Basin marshes form a wetland complex of inestimable value to waterfowl. No other stopover area between wintering grounds and nesting grounds can replace the combination of wetlands and grain fields found in close proximity in south-central Nebraska. American Bird Conservancy at 164.	The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review. The level of impacts will be determined during subsequent NEPA when site specific details have been determined. In addition, Mitigation measures WLF-2 and WLF-3 would be applied to reduce or eliminate these impacts. Impacts to birds as a result of flaring and contaminants have been identified in Section 4.18.2.1.
N15-B	46		It is important to note that impacts to migratory birds caused by Project-related water depletion in the Platte River will have an impact on international bird conservation, not just U.S. bird conservation. Migratory birds using the Platte River and Rainwater Basin during spring migration include • More than ten million waterfowl, 500,000 cranes, and 200,000 to 300,000 shorebirds of 30 species, including white-rumped sandpiper, Baird's sandpiper, buff-breasted sandpiper, and pectoral sandpiper. • Most of the midcontinent population of approximately 300,000 white-fronted geese, as well as 500,000 Canada geese, more than two million snow geese • About half of the midcontinent population of mallard and a third of the continental population of northern pintail ducks • Breeding species include least tern, piping plover, red-headed woodpecker, Bell's vireo, dickcissel, bobolink American Bird Conservancy at 164-165.	Text has been revised to include the identification of water depletion impacts in within Section 4.18.2, Impacts to Migratory Birds.
N15-B	47		Project activities that result in less water in the Platte River could not only impact birds, marshlands and riparian areas, but also the people who travel to this globally important bird area to see them. In addition, some of the waterfowl species that use the Platte River are hunted species, so impacts to them could impact hunting, not just along the Platte River, but in other locations along the Central Flyway. How will Project-related water reductions in the Platte River impact hunters and birdwatchers? How will the Project avoid, minimize and mitigate for those impacts?	Text has been revised to include water depletion analysis on waterfowl. Please refer to Section 4.10, Recreation for impacts to these species as related to those described for wildlife watching and hunting.

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Western Watershed Project (letter) (Continued)				
N15-B	48		Additional clarification in the EIS is needed. The EIS should clarify road reclamation requirements on private land because they are unclear in the DEIS, which states, “However, development of new roads could create conveniences for livestock operators, so it is not uncommon for landowners to request that roads remain un-reclaimed on their lands.” DEIS at 4-9.3. If BLM does not plan to require the Project Proponents to reclaim all roads on private land, then the EIS needs to spell out the additional mitigation measures that will be added to benefit wildlife in general and the additional compensatory mitigation measures that will be added for greater sage-grouse when roads on private land are not reclaimed. Roads cause habitat fragmentation, noise, greater human access that can result in unwanted events such as wildfires and edge effects such as the spread of invasive nonnative plants.	As stated in Section 2.2, Interim and final reclamation activities for all road disturbances would be consistent with the guidance contained in Chapter 6 (Reclamation and Abandonment) of the Gold Book (USDOI-USDA 2007) and the BLM Wyoming IM 2012-032. Reclamation activities related to roads within greater sage-grouse habitat are included in the ARMPA Required Design Features listed in Table 2.2-1.
Wild Earth Guardians				
N16	01		Here, the BLM presents three alternatives: a no action alternative and two very similar “action” alternatives which propose development of same number of wells. See DEIS at 2-1 (“[Alternative C] would provide for drilling the same number of wells (5,000) under the same drilling rate (500 wells per year) as Alternative B.”). The BLM’s approach poses a problem because BLM is required to analyze a reasonable range of alternatives. It is questionable whether BLM meets this standard here. For example, in numerous places throughout the DEIS, the BLM admits that its Preferred Alternative (B) is essentially the same as Alternative C. See, e.g., DEIS at ES-8 (“Air Quality: . . . Alternative C was not modeled but would vary only slightly from Alternative B.”); DEIS at 2-35 (“This alternative [C] would not include changes to any of the proposed construction/production facilities discussed under Alternative B except that under Alternative C there would be separate gathering pipelines for oil, and water supply/disposal pipelines would be buried.”); DEIS at 4.3-6 (“Under Alternative C, impacts to geological resources and impacts from geological hazards would be same as under Alternative B.”) The only difference between the two action alternatives is a slightly smaller number of well pads, 1,500 to 938, and the allowance of year-round, as opposed to seasonal, drilling. DEIS at 2-1.	Comment noted. The impact analysis for Alternative C has been revised to address comments on the Draft EIS.
N16	04		B. The BLM Improperly Defers Its Site-Specific NEPA Analyses to the Application Permit to Drill Stage. “NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.” 40 C.F.R. § 1500.1(b) (emphasis added); see also U.S. Bureau of Land Mgmt. v. Kern, 284 F.3d 1062, 107 2 (9th Cir. 2002) (“NEPA is not designed to postpone analysis of an environmental consequence to the last possible moment.”). Unfortunately, throughout the DEIS, the BLM ignores this mandate and postpones any analysis of site-specific impacts from the project to the Application Permit to Drill (“APD”) stage. See, e.g., DEIS at 2-25 (“Each site-specific request for year-round development [under Alternative B] would require an environmental assessment to be completed that would allow the BLM to analyze the effects of development on wildlife within the site-specific project area.”); DEIS at 4.14-11 (“Species requiring surveys will be identified by the BLM and USFS during the APD process.”); DEIS at 2-28 (“The specific source of the freshwater used in drilling operations for each well would be identified at the time of APD submittal.”). But, based on the BLM’s current practices in Wyoming, BLM’s deferral of site-specific analyses to the APD stage essentially allows the agency to completely avoid analyzing site-specific impacts at any stage.	Comment noted. As clearly stated in the EIS, due to the programmatic nature of the proposal under analysis, site-specific impacts cannot be analyzed until site-specific development proposals are submitted for approval.
N16	05		This approach is particularly egregious when one looks at BLM’s allowance of year-round drilling in the vicinity of raptor nests and greater sage-grouse leks under the proposed alternative. BLM is clear that year-round drilling would be allowed. See, e.g., DEIS at 2-25 (“To the extent possible, drilling and development operations within the CCPA would be conducted on a year-round basis to maximize the use of horizontal development from multi-well pads.”). BLM is also clear that exceptions to wildlife timing stipulations “would be granted on a case-by-case basis,” at the APD stage. DEIS at 4.18-10; 2-25. Thus, even though BLM has the opportunity to analyze the impacts of the preferred alternative on raptors and greater sage grouse at the DEIS stage, the agency is instead deciding to postpone meaningful analysis to the APD stage and on a “case-by-case basis.” This piecemeal approach leaves no doubt that a broad analysis of the impacts of the project on wildlife will never occur despite the fact that 20% of the project area is protected by timing stipulations. See DEIS at 4.11-45. Under NEPA, the BLM cannot narrow its review so that it is impossible to find significant impacts. Unfortunately, that is precisely what BLM seems poised to do.	Comment noted. Please see the response to Comment B11-024.

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Wild Earth Guardians (Continued)				
N16	07		C. The BLM Fails to Fully Analyze and Assess the Direct and Indirect Impacts from the Release of Additional Greenhouse Gases from the Project. Although Guardians appreciates the fact that the BLM assesses the direct and indirect greenhouse gas emissions that will result from the project, the BLM fails to in turn assess the significance of these impacts on the ground. To start, BLM concludes that "[n]either Alternative B nor Alternative C would be expected to produce detectable effects to global climate resources. It is not possible to quantify any effect (positive or negative) of the Project-only GHG emissions on climate with any degree of certainty." DEIS at 4.1-37. There are a number of flaws with this statement. First, as demonstrated by BLM's quantification of GHG emissions for the project, it is possible to assess the project-specific climate emissions. From there, BLM could include a qualitative discussion on the impacts.	Please see response to comment N06-07.
N16	08		The CEQ has issued guidance to federal agencies directly addressing this issue. Exhibit 1, Executive Office of the President: CEQ, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews (Aug. 1, 2016), available at: https://ceq.doe.gov/docs/ceqregulations-andguidance/nepa_final_ghg_guidance.pdf. Although the current administration has revoked this guidance, the logic and science behind it still stands, and BLM cannot ignore this. In the guidance the CEQ recommends that agencies provide quantitative emissions estimates in conjunction with qualitative summary of the impacts from climate change. Exhibit 1 at 10. The BLM does this first step but fails to complete this second step and instead includes a general, national discussion of climate change which provides information on the uncertainties around climate change but nothing about the potential impacts to Wyoming. A quick google search reveals a number of scientific studies assessing the impacts from climate change on Wyoming, in particular. See, e.g., Exhibit 2, EPA, What Climate Change Means for Wyoming (August 2016), https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climatechange-wy.pdf.	Given the global and complex nature of climate change, it is not possible to attribute a particular climate impact in any given region to GHG emissions from a particular source or project. A description of researched climate change impacts for the Rocky Mountain Region and Wyoming is presented in Section 3.1.5.2.
N16	09		BLM could also put the GHG emissions in context using the social cost of carbon protocol, as discussed in more depth in Section E. Although the protocol focuses on the economic damages of climate change, there is no doubt that it would be useful to assess whether the BLM should move forward with the proposed action.	Please see response to comment N16-13.
N16	10		Finally, the CEQ guidance also recommends that agencies use quantitative and qualitative climate change data to guide the alternatives analysis. Exhibit 1 at 14 ("Considering alternatives, including alternatives that mitigate GHG emissions, is fundamental to the NEPA process and accords with NEPA Sections 102(2)(C) and 102(2)(E)."). Unfortunately, here, the BLM summarily dismisses such an alternative, stating that "[t]his alternative was eliminated from further detailed analysis because it is not technically feasible to conduct full carbon neutral processes." DEIS at 2-45. But this all or nothing statement is patently absurd. BLM does not have accept a completely carbon neutral alternative. BLM could easily impose some GHG reduction measures but not others. Instead, BLM simply chooses to dismiss this alternative for some unexplained reason, and thus, misses another opportunity to assess the significance of climate change within the context of the project.	Please see responses to comments N02-05 and N11-43.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wild Earth Guardians (Continued)				
N16	11		D. The BLM Fails to Fully Analyze and Assess the Cumulative Impacts from the Release of Greenhouse Gas Emissions from the Project and Surrounding Development. Pursuant to NEPA, agency must analyze the impacts of "similar" and "cumulative" actions in the same NEPA document in order to adequately disclose impacts in an EIS. See 40 C.F.R. §§ 1508.25(a)(2) and (3). Unfortunately, BLM's analysis of the cumulative impacts from the project, including the greenhouse gas emissions, fails to meet the former requirement. First, although Guardians appreciates the fact that the BLM provides a list of projects in the area, nothing in the EIS gives the reader the ability to assess cumulative impacts of the CCOG Project within the context of these other projects because BLM fails to quantify cumulative emissions from the project in conjunction with emissions from surrounding projects. Instead, BLM summarily concludes that "the effects of climate change due to the GHG emissions from any particular source (such as the Project) are not possible to determine." DEIS at 5-23.	Please see response to comment N6-08.
N16	12		Second, BLM fails to include potential greenhouse gas emissions that will result from reasonably foreseeable federal oil and gas lease sales. As shown by the map below, there are a number of leases proposed for the March and June 2018 lease sales. BLM must disclose these potential sources of emissions to fully comply with NEPA.	The emission inventory for Alternative A, which includes greenhouse gas emissions, is presented in Section 4.1.2.2. The Alternative A emission inventory represents existing emissions and new sources of development within the CCPA.
N16	13		E. The BLM Fails to Analyze the Costs of Reasonably Foreseeable Carbon Emissions Using Well-Accepted, Valid, Credible, GAO-Endorsed, Interagency Methods for Assessing Carbon Costs in Violation of NEPA. On a related note, it is particularly disconcerting that the BLM omits a discussion on the social cost of carbon protocol, a valid, well-accepted, credible, and interagency-endorsed method of calculating the costs of greenhouse gas emissions and understanding the potential significance of such emissions while simultaneously touting the monetary benefits from the project. See, e.g., DEIS, Table ES-2 at ES-14 to ES-15 (quantifying the proposed total number of jobs and taxes generated by each alternative); DEIS at 3.11-52 to 3.11-55 (assessing local tax revenue), 3.11-59 to 3.11-60 (assessing federal mineral royalties). Clearly, the social cost of carbon provides a useful, valid, and meaningful tool for assessing the climate consequences of the proposed leasing, and the BLM's complete failure to discuss it or otherwise explain its omission while touting the economic benefits of the project is arbitrary and capricious.	Please see response to Comment N06-01.
N16	14		II. The BLM Fails to Comply with FLPMA and the Clean Air Act. Pursuant to the FLPMA, BLM also has a duty to ensure that its land use plans [or resource management plans] comply with federal air quality standards. See 43 U.S.C. § 1712(c)(8); see also 43 C.F.R. § 2920.7(b)(3). Thus, BLM is generally obligated to comply with the Clean Air Act through its RMP. In the executive summary for the DEIS, the BLM summarily concludes that "the proposed project in in conformance with the BLM and USFS management plans and policies." DEIS at ES-2. But, as discussed in more depth below, this statement contradicts the scoping record and is unsupported by the record for the DEIS.	Please see response to comment N11-25.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wild Earth Guardians (Continued)				
N16	15		A. The BLM Must Amend the Underlying RMP The CCOG Project DEIS tiers to the BLM Casper RMP and Final EIS (2007) ("Casper RMP"), the U.S. Forest Service's Thunder Basin National Grassland Land and Resources Management Plan (2001) ("TBNG LRMP"), and the Wyoming Greater Sage-grouse Proposed Land Use Plan Amendment and Final EIS (2015), among other documents. DEIS at 1-6. During scoping, the BLM noted that "authorization of this proposal may require amendments of the 2007 Casper RMP or the 2001 Thunder Basin National Grassland's (TBNG) Land and Resources Management Plan (LRMP) because resource impacts could possibly exceed those analyzed in the existing plans." BLM, Converse County Gas and Oil Development Project Environmental Impact Statement Final Scoping Summary Report 2-1 (August 2014).3 More specifically, the BLM noted that "[t]he Project impacts may exceed the analysis for surface disturbance, wildlife, cultural resources, air quality and water quality." Scoping Report, App'x C, Display Boards. But, in the DEIS, the BLM seems to ignore this statement and proceeds to recommend approval of the CCOG Project without an amendment to the underlying planning documents 3 Available online at https://eplanning.blm.gov/epl-frontoffice/projects/nepa/66551/105286/139021/CC_EIS_Scoping_Report.pdf..	Please see response to Comment B11-024.
N16	16		In a complete about face, BLM openly admits that Alternative B which allows year-round drilling, directly conflicts with the Casper RMP and TBNG LRMP. Compare DEIS at 2-25 (discussing Alternative B) with DEIS at 2-36 ("Under Alternative C, timing stipulations would continue to be required as outlined in the BLM Casper RMP and USFS TBNG LRMP, only allowing for exceptions to timing stipulations as currently specified in the Casper Field Office for short-term uses for emergencies or to finish tasks."). Yet, the agency fails to even mention the possibility of an RMP amendment. Put simply, the allowance of year-round drilling is blatant violation of the underlying RMP/LRMP. Thus, BLM is required to amend the underlying RMP before moving forward.	Please see response to Comment B11-024. Also note that the DEIS stated on page 2-25 (Line 13) that under Alternative B the Thunder Basin National Grassland stipulations for wildlife would be followed. Therefore, Alternative B is in compliance with the Land and Resource Management Plan for the TBNG, as are the other alternatives.
N16	17		B. The BLM Fails to Ensure Compliance with the Clean Air Act. BLM has a duty under FLPMA to ensure that its land use plans [resource management plans] comply with federal air quality standards. See 43 U.S.C. § 1712(c)(8); see also 43 C.F.R. § 2920.7(b)(3). Thus, BLM is generally obligated to provide for compliance with the Clean Air Act through its RMPs. Unfortunately, BLM's proposed action (Alternative B) results in a violation of this provision. In various spots throughout the DEIS, BLM admits that its preferred alternative (B) would exceed the National Ambient Air Quality Standards ("NAAQS") for the 24-hour standards for PM10 and PM2.5. DEIS at ES-13, 2-50, 4.1-18. But, BLM fails to address any actions it will take to remedy these proposed violations. Instead, BLM lamely concludes that "[c]onstruction activities frequently are predicted to exceed the NAAQS/WAAQS but the sources are transient and temporary; therefore, impacts would be expected to be localized in the immediate vicinity of the construction activities and after construction activities stops the impacts would end and concentrations would return to background levels." DEIS at 4.1-18. This is unacceptable. Neither FLPMA nor the Clean Air Act allow for air quality violations if impacts are localized. Therefore, unless and until BLM amends the underlying RMP, the agency cannot move forward with a project that will exceed the NAAQS.	Please see response to comment N08-5.

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Wyoming Association of Professional Archaeologists				
N18	01	4.2.2.3	Section 4.2.2.3, Proposed Action Impacts to Resources of Native American Concern language indicates “a piecemeal approach to Alternative B regarding tribal involvement…which would lead to incremental impacts and loss of the integrity of these resources of Native American concern.” This language and approach is concerning. Can an alternative approach to consultation be presented for the Proposed Action rather than something described as piecemeal? Additionally, there does not appear to be adequate discussion in the mitigation section regarding how to address these incremental impacts. There is indication that compensatory mitigation to offset impacts to the Pine Ridge area would be developed through Section 106 consultation (Section 6.6). How can cumulative/incremental impacts be addressed at this level?	The term “piecemeal” and text concerning compensatory mitigation has been removed from Section 4.2. Section 4.2.3.3 presents an alternative, more proactive approach to consultation and avoidance of impacts to resources of Native American concern under the preferred alternative (Alternative C).
N18	02	4.2.2.4	Section 4.2.2.4, Mitigation and Mitigation Effectiveness, mitigation measures focus on monitoring but do not appear to address surface resources and resources of Native American Concern. We encourage further development of mitigation measures related to these resources. Further, there is a lack of discussion concerning mitigating indirect impacts to tribally sensitive sites.	Text has been added in Sections 4.2 and 4.2.2.4 to emphasize that the BLM would attempt to avoid or minimize impacts as the first priority. The BLM would use mitigation as a final measure. Furthermore, federal regulations and the Wyoming State Protocol emphasize the importance of on-going tribal consultation for determining appropriate mitigation measures for resources of Native American concern.
N18	03		Resources of Native American Concern, this discussion has copy/paste errors related to trails.	Text has been modified in Section 4.2.2.4 to correct copy and paste errors.
N18	04	4.2.2.5	• Section 4.2.2.5, Residual Impacts, there is discussion of compensatory mitigation to historic trails but there is lack of discussion concerning residual impacts to prehistoric resources.	Discussion of compensatory mitigation for historic trails has been removed from Section 4.2.2.5. Compensatory mitigation is addressed in Chapter 6.
N18	05		Under discussion of residual impacts, “reclamation is required only on federal surface (i.e., 10 percent of CCPA); therefore, residual visual impacts would more likely occur on non-federal surface”; this statement does not appear to consider the visual impacts introduced from non-federal wells to those resources on federal surface.	Text has been modified in Section 4.2.2.5 to add a statement about potential residual visual impacts on federal surface located adjacent to developed non-federal surface.
N18	06		In general, WAPA has deep concerns regarding cumulative impacts to cultural resources. Based on the large area analyzed for the Converse County EIS and the complexity of resources, WAPA feels effects, particularly indirect and cumulative, can only be properly addressed through a Programmatic Agreement with the invested parties. We urge the agency to consider this approach.	Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts.
Wyoming Business Alliance				
N19	02		Economic stability is very important to our member businesses and to Wyoming's local communities. To support this stability, and to even out the peaks and valleys of seasonal employment driven by timing stipulations around raptors and other species, we hope the BLM will identify a clear exception process to provide meaningful relief to operators to support year-round drilling. Year-round drilling will smooth out the employment curves, reduce heavy truck traffic, dust and noise associated with rig moves, and allow interim reclamation work to begin sooner.	Thank you for your comment. Please see the response to Comment B11-024.
Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society				
N20-B	01		The analysis assumes an even spacing of wells and infrastructure across the landscape when in reality surface features, characteristics of oil and gas bearing formations, landowner surface agreements, and environmental constraints will play a major role in dictating the location of wells, pipelines, roads, overhead powerlines and other infrastructure. To get a better picture of the actual on the- ground impacts, we recommend that BLM prepare additional environmental analyses on a finer scale, for example, on a watershed level, and prepare Master Development Plans that would analyze impacts from specific, multi-well projects when locations of well pads, access roads, pipelines, powerlines, and other facilities are known. Because the BLM typically categorically excludes individual drilling permits from NEPA review under Section 390 of the Energy Policy Act, no further public review or comment opportunity will be provided for most of the wells proposed by the operator group.	As noted in Section 1.4.1 the BLM anticipates further, site-specific environmental review of the proposed development in Converse County.
N20-B	02		The DEIS makes numerous references throughout the document to additional site-specific NEPA reviews. In reality, and as noted above, the vast majority of wells in the project area will be approved without any further NEPA review under Section 390 of the Energy Policy Act. The DEIS should acknowledge this point, and explain how and when it will provide the “hard look” at site-specific environmental impacts that NEPA requires. In limited circumstances where the BLM decides to prepare an environmental assessment (EA) for a project related action, the public typically is not invited to review or comment on the document; these are known as internal EAs.	Thank you for your comment. The BLM will conduct the additional site-specific environmental reviews consistent with NEPA guidance and agency policy and by tiering to this EIS.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	03		The DEIS' analysis of impacts to greater sage-grouse should explain how a "net conservation gain" will be achieved in priority habitat management areas (PHMA), and how the predicted abandonment of 54 sage-grouse leks comports with the conservation goals mandated by the 2015 Approved Resource Management Plan Amendments (ARMPA) for Greater sage-grouse and Wyoming Executive Order 2015-4.	See Section 6.6.2.2.
N20-B	04		The DEIS fails to disclose or discuss the agencies' ability to inspect facilities, monitor activities and enforce rules, regulations, and the terms and conditions under which this project will be governed.	The BLM has added a subsection to Section 1.4 that provides detail on the extent of the agency's authority in the CCPA.
N20-B	05		What assurances does the public have that BLM will actually carry out the duties assigned to it in the DEIS? For example, the DEIS notes that speed limits will be enforced, and that dust will be applied during "dry periods." Will the BLM have inspectors in the field continuously monitoring project activities who will enforce speed limits and make decisions about the need for dust control measures? These problems have been the subject of investigations and reports prepared by the Government Accountability Office – they should be addressed in the DEIS.	The impact analysis in this EIS assumes that BLM will follow all laws, regulations, policy and guidance in force at the time the analysis is conducted. It is beyond the scope of analysis in this EIS to analyze the past issues with enforcement noted in the comment.
N20-B	06		Additionally, the conditions of approval (COA) that will be applied at the application for permit to drill (APD) stage are not discussed or provided for, and this is a concern given the likely use of categorical exclusions subsequent to this EIS.	COAs are not applied until a site-specific development proposal is received and on-site inspections have been conducted.
N20-B	07		The DEIS fails to analyze a reasonable range of alternatives to the proposed action. The draft impact statement eliminates from further consideration reasonable and practical conservation measures that would avoid and reduce environmental impacts and come closer to achieving compliance with applicable federal land use plans. Many such measures are included in Alternative C, while others were improperly eliminated from detailed analysis. For example, incorporating flareless drilling completion and production is eminently technically feasible (e.g., see the EISs for the Jonah and Pinedale Anticline fields), and such measures would advance "basic policy objectives for the management of the area" which expressly require BLM (under the Casper RMP) to take steps to reduce air pollution. If achieving 100% flareless drilling is not feasible, the BLM should consider whether a lesser amount of emissions is achievable rather than rejecting the alternative outright. The same is true for the greenhouse gas reduction alternative. Eliminating all greenhouse gases from project-related activities may not be feasible; but reducing some greenhouse gas emissions is feasible, and those opportunities should be explored in the DEIS. The same goes for burying electrical distribution lines. Of course, it may not be feasible to bury all lines, but it may be feasible to bury some. The fact that all lines cannot be buried is not a valid reason for not analyzing whether some lines can be buried. The same is true for the surface disturbance cap alternative rejected by BLM. A project-wide limit on surface disturbance may be impracticable, but a disturbance cap in certain areas of the CCPA may make sense to respond to resource concerns. For example, an upper disturbance limit may be appropriate in areas where sensitive soils are present, or to protect viable sage-grouse leks in general habitat management areas (GHMA) to mitigate the development effects in PHMA. Likewise, limiting development on BLM surface was rejected "because it does not address a specific issue or resource concern" when in fact, limiting surface disturbance on federal surface would help mitigate and offset many of the environmental impacts identified in the DEIS such as loss of open space, degraded wildlife habitat and diminished recreational opportunities.	Comment noted. The BLM's rationale for the development of the range of alternatives analyzed in the EIS is presented in Chapter 2.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	08		The DEIS claims that the project conforms to the Casper RMP and Thunder Basin National Grassland (TBNG) plan. It does not. The Casper RMP and the Thunder Basin LRMP must be amended to address the accelerated level of development and anticipated environmental impacts from proposed oil and gas projects. The analyses presented in the environmental impact statements supporting those plans was based on reasonably foreseeable development scenarios developed over a decade ago. Massive oil and gas projects like the Converse County and Crossbow projects were neither anticipated nor studied. The level of energy development and therefore the degree and severity of impacts from the proposed developments have greatly exceeded the levels and effects anticipated in the underlying plans. Further, the goals, objectives and decisions set forth in the underlying land use plans were based on analyses that are no longer accurate or reliable. It is clear that many of the goals, objectives and individual management decisions set forth in the BLM's and Forest Service's land use plans are neither relevant nor attainable in light of proposed developments being analyzed in the Converse County and Greater Crossbow EISs. The projects and effects described in the Converse County and Crossbow DEISs require plan amendments, and the BLM and Forest Service should immediately initiate the process for plan amendments under their respective planning regulations.	The BLM determined that the proposed project would not exceed the impacts disclosed in the Casper RMP thus not requiring a land use plan amendment to address the level of development. However, please see the response to Comment B11-024 which notes that the BLM has analyzed potential land use plan amendments to address relief from non-eagle raptor timing stipulations. The reasonably foreseeable development scenario is used for planning purposes and is not a development cap; therefore, both agencies maintain that the project conforms to their respective land use plans. An updated reasonably foreseeable development scenario has been applied to this analysis to determine compliance with existing land use plans. If, in the course of future development, this scenario is exceeded, then the decision and associated analysis would be reviewed and updated. The Forest Service believes that the goals, objectives, and management decisions of the Land and Resource Management Plan for the Thunder Basin National Grassland are attainable. At this point in time, the Forest Service expects to be able to implement the LRMP in its entirety.
N20-B	09		Part and parcel of the need for plan amendments is a companion need for the BLM to prepare a supplemental DEIS analyzing the impacts of the Converse County project based on the issues raised in these and numerous other comments. The BLM should initiate the supplemental DEIS for this project and provide additional opportunities for public comment before approving the project. Such an analysis is needed to provide the "hard look" at environmental impacts that NEPA requires, and to ensure the need for a reasonable range of alternatives is considered.	Thank you for your comment. A robust analysis of impacts from the proposed development is presented in Chapters 4 and 5 of the EIS and a description of alternatives considered in the analysis is presented in Chapter 2, including alternatives eliminated from analysis (see Section 2.6.). Also see the response to Comment N20-B-08 and Comment B11-024 which notes that the BLM issued a Supplemental Draft EIS to analyze potential land use plan amendments to address relief from non-eagle raptor timing stipulations.
N20-B	10	2.2	Chapter 2.0 Proposed Action and Alternatives 2.2 Common to All Alternatives The DEIS should clarify that full compliance with the 2015 BLM and Forest Service conservation plans for Greater sage-grouse is required in all respects. Although the DEIS states that new development must comply with the Required Design Features (RDF) included in the 2015 Approved Resource Plan Amendments for Greater sage-grouse (ARMPA), this is only partially correct. In addition to implementing the RDFs, the BLM and Forest Service must also comply with all required conservation measured outlined in the ARMPA/Record of Decision, including density and disturbance limits and applicable controlled surface use and timing stipulations.	See Sections 1.4 and 1.5.
N20-B	12	2.2.2.1	2.2.2.1 Well Pad Layout and Construction The DEIS correctly points out the Casper RMP limits total surface disturbance to 80 acres per square mile. The DEIS should include more information, analysis and figures displaying general well field layout that clearly demonstrates how the surface disturbance limit will be achieved. This should be displayed at multiple scales, perhaps by sub-watersheds, and by section, township, and project-wide. Has the limit been exceeded with respect to existing oil and gas development in the CCPA? Without proper analysis and planning, disturbance caused by the construction of well pads, production pads, pipeline ROW, access roads, and other facilities described in the Proposed Action could exceed the 80-acre limit.	The 80-acres per square mile (640 acres) surface disturbance limit works out to a disturbance percentage of 12.5. As noted in Table 2.3-1 existing oil and gas development disturbance is 0.9 percent of the CCPA. New oil and gas development under Alternative A (1.6 percent of the CCPA from Table 2.3-3) plus new oil and gas development under Alternative B (5.1 percent of the CCPA from Table 2.4-1) would result in total surface disturbance in the CCPA of 7.6 percent of the CCPA, considerably less than the RMP limit. Hence, the BLM does not have a concern that the limit would be exceeded.
N20-B	13	2.2.2.1	The DEIS states that "construction of individual pads would be requested through subsequent APDs and analyzed in site-specific NEPA." As discussed elsewhere in these comments, site-specific NEPA analysis rarely occurs, and even if it does, NEPA documents are prepared for individual APDs, road and pipeline ROW, etc., and not necessarily on a scale that would be useful for ensuring compliance with the surface disturbance limits.	See the response to Comment N20-B-12.
N20-B	14		We emphasize that BLM is required to abide by the provisions in an RMP. See 43 U.S.C. § 1732(a) (stating BLM must manage the public lands "in accordance with the land use plans").	Thank you for your comment. As stated in Section 1.5.2 the proposed development is in conformance with land management plans.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	15	2.2.2.2	2.2.2.2 Well Drilling Protection of useable groundwater. The DEIS states that the "casing and cementing program would be designed to isolate and protect shallower formations encountered during drilling …" We have two concerns: First, the DEIS should state the applicable legal requirement imposed by Onshore Order No. 2, which is to construct wells to isolate and protect aquifers containing "usable water," defined as having up to 10,000 ppm total dissolved solids (TDS). 53 Fed. Reg. 46,798, 46,801, 46,805 (Nov.18, 1988). Second, the proposed action should be revised to reflect this legal requirement. Merely stating that shallower formations or "freshwater" formations will be protected does not comply with the onshore order.	The text in Section 2.2.2.2 has been amended to add the definition of "useable water". The text was also revised to provide more information about surface casing, the primary barrier for the protection of aquifers. Useable water was also previously defined in Section 4.16.1.2 of the DEIS, under the subheading Contamination of Useable Aquifers from Hydraulic Fracturing.
N20-B	16	2.4.1	2.4.1 Development Overview Year-round drilling. The DEIS states that "[to the extent possible, drilling and development operations within the CCPA would be conducted on a year-round basis to maximize the use of horizontal development from multi-well pads." To accomplish this, the DEIS notes that "the operators would request exceptions to timing limitations for raptor nests and greater sage-grouse leks in non-core areas…" These requests "would require an environmental assessment to be completed that would allow the BLM to analyze the effects of development on wildlife within the site-specific project area." As discussed elsewhere, due to the increased potential for significant environmental effects, we do not support the grant of exceptions or waivers of stipulations. However, if the BLM considers such requests, the site-specific EAs must address the environmental impacts at the proper scales (including the consideration of cumulative impacts) and provide meaningful opportunities for public review and comment.	The BLM issued a Supplemental Draft EIS for public review addressing the issue of exceptions from timing stipulations. Public input was considered in revising the text in the Final EIS. Also please see the response to Comment B11-024.
N20-B	17	2.4.3.2	2.4.3.2 Well Drilling Drilling fluids. The DEIS states that "Drilling fluids containing oil-based muds would not be used in formations that contain water with total dissolved solids of 10,000 or less." Since all of the water bearing formations above the oil and gas target formation (Dakota Sandstone) contain "useable water" (less than 10,000 mg/L TDS), the DEIS should state that drilling fluids containing oil-based muds shall not be used in the Quaternary/Alluvial, Lower Tertiary Wasatch/Fort Union, and Fox Hills/Hell Creek aquifer systems because these formations contain less than 10,000 mg/L TDS. See DEIS at 3.16-9 to 3.16-12.	There are several target formations, of which the Dakota is only one, but it is the deepest. There may be as many as 5 potential hydrocarbon target formations between the Dakota Formation and the base of the Fox Hills Sandstone. When an APD is considered, the BLM will determine how much surface casing would be adequate to protect useable groundwater.
N20-B	18	Table 2.2-1	Closed loop systems. The DEIS states that "in general, semi-closed loop systems would be used." Note, however, that Required Design Features specified in the BLM's 2015 ARMPA for greater sage-grouse state that "Use only closed-loop systems for drilling operations, with no reserve pits." DEIS at Table 2.2-1. The DEIS should clarify that only closed-loop systems will be used in Priority Habitat Management Areas (PHMA) for greater sage-grouse.	Table 2.2-1 currently shows the cited requirement under the heading of Priority Habit Management Area Required Design Features - Construction and Operational Activities.
N20-B	19		Reserve pits. The DEIS indicates that although reserve pits are "not specifically proposed or anticipated, reserve pits could be constructed, as appropriate based on site-specific conditions. "It is not reasonably foreseeable at this time to predict when or under what conditions reserve pits would be necessary; therefore, additional NEPA analysis may be required at the site-specific stage if reserve pits are to be constructed." We have two concerns regarding this statement. First, we question why it is not "reasonably foreseeable at this time to predict" whether reserve pits will be constructed. According to the DEIS, the Wyoming BLM has prepared six environmental assessments (EA) for 914 wells on 205 well pads in the CCPA. DEIS at 2-18. The DEIS further reveals that as of January 9, 2015, "1,520 existing wells … have been drilled and are in operation." DEIS at 2-15. The BLM should review its files for information that will undoubtedly shed light on "when or under what conditions reserve pits would be necessary." How many of the existing wells in the CCPA utilized reserve pits? Under what conditions were the pits deemed necessary? We suspect the answers can be found there. Second, although the DEIS claims that additional NEPA analysis may be required at the site-specific stage if reserve pits are to be constructed," the reality is that the BLM will categorically exclude most APDs from further NEPA review under Section 390 of the Energy Policy Act. The DEIS should acknowledge this important fact and not mislead the public into believing that additional site-specific NEPA analysis may take place—in the vast majority of cases, it probably will not. The DEIS should specify the conditions under which a Section 390 categorical exclusion will be used, and when additional NEPA analysis will be prepared. Because additional site-specific NEPA analysis will likely not be done for wells approved in the CCPA, we recommend that the DEIS be revised to provide the appropriate level of site-specific analysis.	Due to the programmatic nature of the proposed oil and gas development in the CCPA and the rapid development of drilling technology, the BLM is not able to project the use of reserve pits. As stated in your comment, the EIS text notes that further environmental review of reserve pits would be conducted during site-specific permitting.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	20		3.11.11 Social Conditions and Trends The DEIS identifies conditions that will inevitably create significant and widespread conflict between various community sectors (e.g., private landowners, residents, recreational users, etc.) and oil and gas interests, yet offers only a single mitigation measure, SOC-1, with a narrow and limited focus: responding to the needs of local governments for information required to plan for infrastructure and services. To address the broader range of anticipated conflicts, we recommend that the BLM, oil and gas operators, and local government design and offer to the community a formal structure and process for dispute resolution. Affected landowners, in particular, should have an ability to bring concerns forward with assurances that good faith efforts will be made to address them. Similarly, NGOs that focus on human health and environmental concerns should be invited to participate in periodic discussions and processes to ensure that public health and safety requirements and conservation measures set forth in the Record of Decision are met.	The socioeconomic mitigation strategies in Section 4.11.2 and 4.11.3 have been revised to include mitigation proposed by Converse County and a commitment by the Operator Group to meet annually with county commissioners.
N20-B	21		Additionally, a significant concern of landowners related to real estate values appears not to be addressed in the DEIS. Real estate property values in other parts of the state that have experienced intensive oil and gas development have fallen, in some cases significantly (e.g., Pavillion) yet the DEIS fails to identify or address this concern.	Additional information about potential effects on property values has been added under each alternative in Section 4.11.
N20-B	22	4.11.5	Intensive development creates a spider web of roads, pipelines, overhead power lines and all manner of oil and gas infrastructure, resulting in significant, long-term impacts to ranch operations including maintaining productive hay fields and pasture lands. The loss of healthy and productive ranchland is clearly an adverse residual impact (DEIS 4.11.22) as well as an irretrievable commitment of resources. See DEIS at 4.11.5.	Section 4.9 describes potential impacts to rangeland from road development and use. As noted in Section 4.9.1, the OG has committed to applying water or chemicals for dust abatement during dry periods. Additionally, speed limit signage, with a 25-mile per hour limit, would be posted along access roads and enforced during construction, operation, and maintenance activities. This measure also would reduce the potential for livestock/vehicle collisions, frightened livestock, and calf/lamb separation from their mothers. The OG also has committed to recognizing on and off-road travel restrictions and communicating those restrictions with their employees and contractors. Mitigation measure RANGE-4: states: Where deemed necessary, the oil and gas operator will install signage and gates to notify of trespass and secure privately owned lands. These measures would protect public and private lands from unintended use. The installation of signage and gates that can be locked would prevent unintentional trespass and deter intentional trespass. As noted in Section 3.11.11, landowners receive surface damage payments for development of roads and facilities on private lands. For some landowners, payments associated with surface use and damage agreements provide an additional source of income, which has been helpful in light of economic hardships associated with the recent drought. Some large landowners have negotiated surface agreements that include such conditions as speed limits on private roads, dust control, limitations on times of use, and fines for livestock and wildlife mortality. These operator commitments, mitigation measures, and surface agreements can help alleviate the issues raised in the comment.
N20-B	23		The BLM estimates that approximately 5.9 trillion cubic feet of natural gas can be recovered (Table 2.7-2) from the Converse County EIS project area. We understand that not all of the wells analyzed will be under BLM jurisdiction. However, the Converse County EIS analyzes all of the impacted resources affected within the entire project area. We believe that this EIS should also disclose the economic revenue lost through venting, flaring and leaks as part of the socio-economic analysis.	See the response to N20-B, comment 26 below.
N20-B	24		The Wyoming Oil and Gas Conservation Commission has detailed data to determine the expected estimated loss due to venting and flaring and the reasons why the gas was vented or flared. Most of the vented and flared gas that the WOGCC approved was released due to safety issues, but there were situations where the gas was vented and/or flared because there was no mechanism to take it to market. Both the safety releases and lack of market losses should be disclosed.	See the response to N20-B, comment 26 below.
N20-B	25		There will likely be substantial amounts of gas vented and flared from oil wells during the early portion of their production. We don't have the data to address this loss, however the WOGCC should be able to provide estimates. Again, the vented and flared volumes for oil wells, should be differentiated by safety needs and lack of production collection system.	Comment noted. Text has been added to address the potential magnitude of overall losses due to flaring and venting. The information available for the programmatic assessment does not support the differentiation of losses due to safety concerns or lack of a collection system. The lack of differentiation does not alter the fundamental assessment of alternatives.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	26		The BLM has recently rescinded its methane rule which would have required Leak Detection and Repair as part of the development process. Leak Detection and Repair is an important practice to identify and repair leaks where there is loss of product. Leaks account for an estimated 1%-2% loss of product via leaks – this is a significant effect in terms lost revenue to the affected counties and the State of Wyoming. Below is an estimate of lost revenue for the 5.9 trillion cubic feet of recoverable natural gas prorated from 2015 production and leaked gas volumes. The Converse County EIS mineral ownership percentages were used to separate royalties and taxes. The table reflects the anticipated loss of revenue for lost gas associated with the natural gas wells.	Text has been added disclosing that some gas will be lost due to flaring and venting, both to address safety concerns and due to a way to deliver gas to market. Some such losses are inherent in oil and gas development. Assumption regarding the magnitude and value of such losses and the implications on royalties and tax receipts are included for all alternative. Relative to the overall production and royalty values, the losses would be minor.
N20-B	27		Air Quality (DEIS sections 3.1 and 4.1) The BLM's Proposed Action (Alternative B) for the Converse County Oil and Gas Project presents a number of grave air quality concerns which, because of the project's scale and the inadequacy of proposed monitoring and mitigation measures, pose significant risks to Wyoming's environment, human health, and residents' and visitors' quality of life. Among these concerns are BLM's failure to ensure compliance with the Clean Air Act and state air quality standards, the troubling lack of risk analysis and mitigation for Volatile Organic Compounds, inadequate assessment of concerns related to flaring, setbacks, and bonding, a cursory environmental review of greenhouse gas emissions and their contribution to climate change, and an anemic discussion of monitoring which, according to government documents, press releases, and the scoping comments of several residents, is inadequate for existing oil and gas wells. NEPA requires a hard look at these issues, and disclosure of risks in plain English so that the average reader can understand the potential effects on public and environmental health. The Converse County Project's DEIS does not rise to NEPA's mandate relative to air quality issues. The Outdoor Council and its partners suggest deeper analysis of each of these issues and implementation of appropriate control technologies and mitigation measures to address environmental and health concerns.	The DEIS presents the possible air quality impacts using methods that have been reviewed and approved by the BLM and cooperating agencies. Additionally, the controls outlined and agreed upon by the Operator Group were incorporated into the air quality analysis and are presented in Table 4.1-1 and Section 6.4.1. Mitigation measures based on the air quality impacts are presented in Sections 4.1 and 6.5.1.
N20-B	29		A. BLM Must Reduce Air Pollution from the Converse County Oil and Gas Project and Ensure Compliance with the Clean Air Act and Wyoming Ambient Air Quality Standards. The BLM must reduce air pollution from the Converse County Oil and Gas Project to comply with the Clean Air Act's ("CAA") National Ambient Air Quality Standards ("NAAQS"), and the state's Wyoming Ambient Air Quality Standards ("WAAQS").	Please see response to comment F02-26.
N20-B	30		The BLM has entered into a memorandum of understanding ("MOU") with the Forest Service ("USFS") and the Environmental Protection Agency ("EPA") to guide the agencies' environmental analysis of air quality impacts, and must carefully ensure compliance with that MOU. Per the MOU's provisions, BLM must "provide for compliance with applicable state and Federal pollution control laws," and as the Lead Agency must conduct thorough modeling of impacts to air quality, identify reasonable mitigation and control measures to address adverse impacts including cumulative impacts, and consider monitoring and enforcement programs to verify those measures are working as intended. The BLM has yet to comply with this mandate. Particularly, the agency must do more to ensure compliance with NAAQS and WAAQS for ozone. EPA reduced the NAAQS for ozone from 0.075 ppm to 0.07 ppm on October 1, 2015 citing "extensive scientific evidence regarding ozone effects on public health and welfare." The Wyoming Ambient Air Quality Standards ("WAAQS") also apply a 0.07 ppm threshold for ozone. As BLM notes in the Converse County DEIS, the statutory deadline for EPA's final area designations is October 1, 2018, and the new, lower standard could change the attainment designation of some Air Quality Control Regions ("AQCRs") within the project area. Nonetheless, BLM claims that "as of fall 2016, the areas potentially impacted by the Project currently are in attainment for all criteria pollutants; therefore, Nonattainment New Source Review ["NSR"] does not apply."	The BLM has complied with the MOU by engaging the signatories to the MOU throughout the creation of the Converse County EIS. The CCPA is in attainment for all criteria pollutants. If the area is determined to be in nonattainment at some point in the future, then oil and gas operators will compile nonattainment requirements. Additionally, the MOU was terminated by all signatory parties on July 25, 2019.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	31		BLM's assessment is shortsighted. By the agency's own analysis of monitoring data obtained from the USEPA Air Quality System for six WDEQ monitoring stations, portions of the CCPA will exceed ozone thresholds and be in non-compliance with both NAAQS and WAAQS upon the October 1, 2018 deadline—little more than a year from now. BLM suggests USEPA's attainment designation will be based on "future air quality data," and implies ozone levels for 2014, 2015, and 2016 will be lower than the new threshold, but fails to support this contention with data.	Please see response to comment N20-B-30.
N20-B	32		For industry, nonattainment of ozone NAAQS triggers Nonattainment NSR, a concern BLM has discounted in the DEIS. Nonattainment NSR applies to new major sources or major modifications to existing sources when the AQCR in which the source is located is not in attainment for a particular criteria pollutant. If EPA's October 1, 2018 designation finds AQCRs within the Project area are in nonattainment for ozone NAAQS, major sources and modifications within the county will require (1) installation of lowest achievable emission rate ("LAER") technology, (2) emissions offsets, and (3) public participation in NSR permitting. Existing sources will require Reasonably Available Control Technology ("RACT") rather than the less onerous Prevention of Significant Deterioration ("PSD") standard that would apply in attainment areas. These requirements are stringent and costly, and should not be lightly ignored.	Please see response to comment N20-B-30.
N20-B	33		The BLM's assumption of continued ozone attainment designation throughout the CCPA is even more troubling given the lack of analysis of volatile organic compounds ("VOC") in the Project Area. Tropospheric, or ground level ozone, is a threat to human and environmental health, as opposed to stratospheric, or "good ozone," which shields the planet from the sun's ultraviolet rays. Tropospheric ozone is formed when Nitrogen oxides (NOx) interact with VOC. While BLM does well to consider Nitrogen dioxide (NO2) in its analysis of criteria pollutants, the DIES does not address concentrations of nitric oxide, which combines with oxygen to form NO2, nor does it address VOC. Road transport and energy production are major sources of nitric oxide, and the risks associated with nitric oxide and its contribution to ozone must be evaluated. Risks from VOC are even more concerning, because of their insidious and devastating effects on human health.	NOx and VOC emissions from the Project and regional sources are modeled and analyzed as part the DEIS Section 4.1.3.3. A detailed analysis of all of the air quality impacts including ozone and ozone precursors is found in the Air Quality Technical Support Document (Appendix A).
N20-B	34		To fulfill its mandate under NEPA and the aforementioned MOU, BLM should fully consider air quality impacts and conduct careful, quantitative modeling thereof. The anticipated scale of the project, 5,000 new wells, is vast. This degree of development constitutes a significant new source of potentially damaging emissions, in the portion of Wyoming with the state's least stringent air quality rules. Accordingly, BLM must accurately forecast emissions from leaks, venting and flaring of natural gas from wells and equipment used to produce, process, store, or transport oil or gas, wastewater disposal, and operational truck traffic, and fully evaluate effective mitigation and reductions measures in a supplemental DEIS.	A comprehensive emission inventory was estimated using standard techniques reviewed and approved by the BLM and cooperating agencies. Details of the emission inventory calculations are presented in Appendix A, Attachment A - Proposed Action Emission Inventory.
N20-B	35		BLM should also consider emissions from sources on new and existing leases and rights-of-ways used and permitted to facilitate infill under FLPMA and MLA authority.	The emission inventory was developed with consideration of existing regulations that would impact the magnitude of the emissions. The oil and gas operators will be required to follow these regulations through the permitting process. The WDEQ-AQD is responsible for regulating emissions from oil and gas sources through their Oil and Gas Permitting Guidance. Oil and gas developments must comply with USEPA regulations and standards as well as WDEQ regulations and standards.
N20-B	36		The NEPA analysis should consider and install as required lease stipulations, COAs, or BMP measures that will mitigate emissions from oil and gas development.	The emission inventory was developed with consideration of existing regulations that would impact the magnitude of the emissions. The oil and gas operators will be required to follow these regulations through the permitting process. The WDEQ-AQD is responsible for regulating emissions from oil and gas sources through their Oil and Gas Permitting Guidance. Oil and gas development must comply with USEPA and WDEQ regulations and standards as well as WDEQ regulations and standards.
N20-B	37		"Green Completion" should be required for all wells. Green Completion is both technologically feasible and cost effective as evidenced by other Wyoming oil and gas projects. WDEQ's Air Quality Division describes Green Completion as the appropriate BMP for reducing emissions of regulated pollutants to the extent practicable and provides a sample permit application form on its website outlining appropriate compliance technologies and procedures.	The Operator Group has stated that gas would be captured or undergo a green completion from 80 percent of the new wells. Within the CCPA, there is not a requirement from the WDEQ for all wells to undergo green completion.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	38		Finally, the risk of well blowouts must be acknowledged, considered in assessment of cumulative impacts, and mitigated. Well blowouts occur regularly, venting large quantities of gas, and have caused evacuations of residents in the state.	Well blowouts are not reasonably foreseeable, and cannot be accurately portrayed in any air quality assessment.
N20-B	39		VOC concentrations already exceeded health-based risk levels in over two dozen samples collected in Wyoming in 2014. Residents who live near the proposed CCPA have voiced concerns about increased cancer risks associated with VOCs.	As part of the air quality analysis, the health impacts of hazardous pollutants, a subset of VOCs, were modeled to assess the human health impacts. The results of this assessment are presented in Section 4.1.3.5. A more thorough analysis is presented in Appendix A, Section 3.4.
N20-B	40		The Converse County DEIS acknowledges that "HAPs can cause serious health effects or adverse environmental or ecological effects," and that "these HAPs are associated with anthropogenic (human caused) emissions sources," but continues to say "concentrations of HAPs are not measured in the region and there is no data available to assess the current concentrations or trends." This lack of data, coupled with the serious risk posed to the environment and public health, is unacceptable. Concentrations of HAPs must be monitored, and industry must apply Maximum Achievable Control Technology for each pollutant. BLM must evaluate the cumulative impact of HAPs and VOC emissions to ensure development can comply with the Act.	It is generally assumed that background HAPs concentrations are very small, especially in areas where there are few current sources of HAPs emissions such as the CCPA. The HAPS assessment approach was reviewed and approved by the BLM and cooperating agencies. Similar approaches are routinely used in other NEPA assessments.
N20-B	41		To address these concerns, BLM should implement robust monitoring at both on and off-well sites for VOC, accounting for the risks of accumulation and long-term exposure, and mitigate risks to the environment and human health using best management practices. Leak detection and repair (LDAR) and infrared technology are time tested, cost effective technologies for detecting and measuring VOC emissions and should be required. BLM must monitor and cumulatively consider VOC emissions from venting, flaring, and leaks, and effects of wind, terrain, and the microclimate on VOC emissions.	Please see response to comment F02-26.
N20-B	42		C. BLM Must Ensure Compliance with Wyoming's Flaring, Setbacks, and Bonding Rules In February of 2016, the Wyoming Oil and Gas Conservation Commission ("WOGCC") voted unanimously to impose new rules reducing flaring and venting in the state, requiring operators to disclose what is being admitted or flared, and requiring data collection on methane emissions from oil wells. The new rules also lower the daily venting limit from 60,000 cubic feet of gas to 20,000 cubic feet. Under the new rules, venting and flaring is considered waste unless it is authorized by the Commission. This authorization is limited to "Emergencies or upset conditions, and for safety purposes during necessary maintenance or upgrades" and to a limited number of enumerated "temporary emergency situations." BLM must ensure development proceeds in accordance with these rules.	Please see response to comment N08-05.
N20-B	43		In the Converse County DEIS, BLM considered an alternative titled "Flareless drilling, Completion, and Production," but excluded the alternative from detailed analysis on the grounds that it was "not technically feasible" and was inconsistent with policy objectives because the WOGCC rules permit flaring. While it is true that WOGCC rules permit flaring in some limited circumstances for safety reasons, those rules generally restrict flaring, and should not be used to dismiss proposals to reduce flaring by implementing appropriate control technologies.	The infrastructure must be in place in order to have flareless drilling, completion, and production. Additionally, flaring is needed in times of emergencies. The Operator Group has stated flareless completions would be done for 80 percent of the new wells.
N20-B	44		BLM claims installation of gas gathering pipelines to all wells prior to completion, which would eliminate flaring during operations "may not be feasible" but fails to conduct any analysis of feasibility. BLM must do more to evaluate risks from flaring and to assess the feasibility of control technologies. WOGCC rules restricting flaring to emergency situations do not suggest that BLM may abdicate its duty to evaluate those technologies.	Due to the fact that the specific locations of well pads are not currently known the feasibility of installing gas gathering lines cannot be fully evaluated. Note however, that flareless drilling would be conducted for 80 percent of the proposed well pads. Also see the response to Comment N20-B-43.
N20-B	45		Additionally, the new WOGCC rules impose new setback requirements for wells and facilities, which must be at least five hundred feet from existing occupied structures, and bonding requirements of $50,000, to be approved by the WOGCC, and in compliance with the Wyoming Conservation Act. BLM must ensure development proceeds in compliance with these new rules. BLM's consideration is particularly important given public concerns about setback distances, bonding, and flaring. Historically, citizens have demonstrated concern about the proximity of oil and gas development to their homes, the volume of gas flared from wells, and bonds that were insufficient to properly plug and abandon wells. These concerns are particularly poignant given the scale of the Converse County Oil and Gas Project.	Please see response to comment N08-05.

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N20-B	46		D. BLM Must Adequately Address Climate Change and Mitigate Greenhouse Gas Emission BLM acknowledges that greenhouse gases ("GHGs") "play an important role in determining the earth's climate," that fossil fuel development and activities using combustion engines contribute to climate change, and that these activities will occur as part of the Converse County Oil and Gas Project. The DEIS notes that studies suggest significant adverse impacts to Wyoming resulting from climate change, including "at least a 5 degree Fahrenheit to 6 degree Fahrenheit temperature increase over the next century, and an increase in the maximum number of dry days and extreme events, such as exacerbated flooding and extended droughts." These climate changes mean that "ozone concentrations are likely to increase in the region," and "precipitation patterns also are expected to change." Due to these foreseeable risks, and pursuant to Council on Environmental Quality ("CEQ") guidance and Executive Order 13514, the EPA recommended in its scoping comments that BLM include in its EIS an analysis of GHG emissions in CO2 equivalent terms and translated into equivalencies to facilitate public understanding, an assessment of measures to reduce GHG emissions, a description of existing state, regional, and tribal climate change plans or goals, and an evaluation of potential impacts from emissions. BLM's assessment of climate change and its impacts in the DEIS emphasized uncertainty, saying "it is difficult to assess whether additional mitigation strategies would be implemented, and to what extent current mitigation strategies ultimately would curb climate change." While the CEQ's "Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews" was withdrawn in 2017, the longstanding NEPA principles undergirding that document remain, and mandate that agencies thoroughly consider the potential effects of federal actions on climate change, and the effects of climate change on proposed actions. To that end, the BLM should quantify proposed direct and indirect GHG emissions, use those projected emissions to assess potential climate change effects, analyze methods to reduce emissions and impacts, and thoroughly consider alternatives that would reduce GHG emissions.	Please see response to comment N06-07.
N20-B	47		BLM eliminated a proposed alternative from detailed analysis entitled "Greenhouse Gas Reduction Alternative," which proposed carbon neutral processes, on the grounds that the proposed alternative was not technically feasible. While a completely carbon neutral project may be infeasible, BLM should thoroughly evaluate the feasibility of the alternative's proposed control technologies and measures, and implement those that are feasible. For instance, many common-sense and cost-effective technologies are available to reduce methane emissions across the oil and gas supply chain, and many of these technologies would actually save the industry money over time. A 2014 report that the Environmental Defense Fund commissioned from the independent consulting firm ICF International shows that approximately 40 percent of methane emissions from the nation's oil and gas sector could have been eliminated by 2018 at a total cost of just one penny per thousand cubic feet of produced gas. Nearly all of the measures identified in the ICF Report could be feasibly applied to thousands of well sites, gathering and processing facilities, and transmission compressor stations on Federal leases and rights-of-way under BLM's jurisdiction in the CCPA. The dramatic pollution reduction potential of these controls, and their extreme cost-effectiveness, should be considered as BLM continues its environmental analysis.	Please see responses to Comments N02-05 and N11-43.

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N20-B	48		E. BLM Must Ensure Adequate Inspection of Oil and Gas Wells BLM must respond to public concern regarding inadequate inspection of oil and gas wells, and ensure the 5,000 wells the that agency intends to permit through the Converse County Oil and Gas Project are appropriately inspected. The Government Accountability Office has prepared a report that documents that 57 percent of "high priority" wells needing inspections at drilling sites were not inspected during this stage of development. Between 2009 and 2012, 3,486 wells were drilled on Federal and Indian lands, but many wells at high risk for pollution were not inspected. Forty-five percent of new, high priority wells were not inspected in Wyoming during that time period. As of 2014, Wyoming led the nation in percentage of uninspected wells. It is critical that inspections occur during well drilling, not subsequently, if potential environmental and safety problems are to be detected. Once wells are drilled, retroactive inspection is difficult or impossible. The BLM must ensure that similar problems are not repeated as the 5,000 wells anticipated to be drilled in Converse County are developed. The agency has identified inadequate staffing and budgetary constraints as hurdles to proper inspection. BLM must ensure that adequate personnel are in place to inspect all wells during drilling. If adequate staffing is not available to do timely inspections, BLM must adjust the pace of development in the CCPA accordingly. BLM must comply with its regulatory mandate, and may not use a lack of resources to justify abdicating its regulatory responsibilities.	Questions regarding the adequacy of oil and gas well inspections is beyond the scope of this EIS.
N20-B	49		F. BLM Must Provide for Dust Abatement and Mitigate Road Impacts on Air Quality Dust generated from truck traffic, the construction of facilities, drilling wells and other operations poses a significant risk to the health of humans, stock, and crops. Dust from intensive development also present visibility issues, increasing risk of traffic accidents. In scoping comments, the EPA, Converse County, and numerous local residents expressed concerns about fugitive dusts. BLM must appropriately mitigate these risks through dust abatement. In following the mitigation hierarchy, BLM should first avoid impacts where possible by concentrating development, limiting the number of well pads, and reducing truck traffic where possible. BLM should then mitigate the remaining effects through watering, erosion control, planting of appropriate ground cover, revegetation of disturbed areas, and other appropriate management practices. Borrow or fill sites within the project shall be graded to an un-compacted finished condition, with natural transitions to surrounding existing grades, prior to re-vegetation.	Please see response to comment F02-29.
N20-B	50		G. Miscellaneous air quality comments The DEIS (4.1) presents highly technical information that is of little use to the average lay person, including people who reside inside or near the project area. Scoping comments submitted by local residents complained of dust, atmospheric haze, smoke plumes, toxic chemicals, odors, noise and night lights. The technical discussion accompanied by various figures, tables, and graphs do not clearly convey to the average reader an accurate picture of air quality impacts from this project. The DEIS should be revised to include a plain-English discussion of the anticipated impacts to local residents caused by the development of 5,000 new wells.	The DEIS provides technical analysis of scientific results, but also strives to provide a scientific explanation capable for the public consumption. A high-level summary of the air quality impacts are outlined in the Executive Summary Cumulative Impacts Section and Table ES-2.
N20-B	51		We are most concerned by the near absence in the DEIS of an analysis of mitigation measures to reduce air quality impacts. A single mitigation measure is proposed in the DEIS: “AQ-1 If located on BLM surface, gas plants and compressor stations will be located at least 2,000 meters from residences or other occupied dwellings.” DEIS 4.1.3.7. Chapter 6 of the DEIS describes a “mitigation strategy” that includes three “OG-Committed Design Features” – 1) dust control measures, 2) speed limits, and 3) Tier 2 drill rigs (excludes all other rig types). This is an insufficient range of mitigation measures.	Please see response to comment F02-26.

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N20-B	52		Most glaring is the DEIS' failure to consider mitigation measures recommended in the Casper RMP, Appendix L - Air Quality Mitigation Matrix. Appendix L "outlines options for air quality mitigation in the planning area" and includes such measures as: Nitrogen Oxide (NOX) and Carbon Monoxide (CO) Mitigation Measures • Utilize selective catalytic reduction (SCR) on drill rig engines and compressors. • Application of nonselective catalytic reduction on drill rig engines and compressors • Utilize compressors driven by electrical motors. • Increased diameter of sales pipelines • Centralization of dehydrator units • Reduce number of vehicle miles driven and unnecessary idling. • Utilize wind-generated electricity to power compressors. • Increased emissions monitoring • Increased ambient pollutant monitoring • Reduced rate of development Particulate Matter (PM) Mitigation Measures • Increase water application rate to achieve greater than 50% fugitive dust control. • Unpaved road dust suppressant treatments • Administrative control of speed limits • Installation of remote telemetry • Gravel roads • Paved roads Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants Mitigation Measures • Flareless ("green") completion • Condensate tank vents, carbon canisters or other VOC capture to the vent discharge See Casper RMP Table L-1. Potential Mitigation Measures for Air Quality Impacts Associated with the Proposed Casper Resource Management Plan Notwithstanding a clear responsibility under the Casper RMP to evaluate reasonable mitigation measures, the DEIS ignores this mitigation matrix altogether, and discusses/adopts one or possibly two the potential mitigation measures listed above. This laissez-faire approach to the protection of air quality is unacceptable.	Please see response to comment F02-26. The optional measures list in Appendix L of the Casper RMP will be considered.
N20-B	53		The DEIS also fails to consider/implement the specific management decisions contained in the Casper RMP for air resources, several of which are directly applicable to monitoring and reducing emissions from oil and gas development project. See Table 1-1. Goals, Objectives, and Decisions/Management Actions at pages 2-10, 2-11, Decision numbers 1001 to 1015. The DEIS should explain the status of efforts to accomplish each of the specific air quality decisions noted in the RMP. We recommend that the DEIS be revised to address a full range of air quality mitigation measures outlined in the Casper RMP. The discussion should include an analysis of leak detection and repair (LDAR); installation of additional air quality monitoring stations; adoption of air quality controls measures currently in use in the Jonah and Pinedale Anticline fields; and use of Tier 4 drilling rigs.	Please see response to N20-B.

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N20-B	57		Our concerns are underscored by recent research showing that it is very common in this region for hydraulic fracturing and oil and gas production to occur in shallow formations that have only limited vertical separation from underground sources of drinking water. Fracturing and production also sometimes occur within an aquifer that represents an underground source of drinking water. For example, EPA's 2016 report found that "hydraulic fracturing within a drinking water resource" is "concentrated in some areas in the western United States" that include "the Wind River Basin near Pavillion, Wyoming, and the Powder River Basin of Montana and Wyoming."3 Where that occurs, EPA explained that: . . . hydraulic fracturing within drinking water resources introduces hydraulic fracturing fluid into formations that may currently serve, or in the future could serve, as a drinking water source for public or private use. This is of concern in the short-term if people are currently using these formations as a drinking water supply. It is also of concern in the long- term, because drought or other conditions may necessitate the future use of these formations for drinking water. Id. Other recent studies have made similar findings. Researchers investigating the oil and gas-related contamination in Pavillion, Wyoming reported that shallow fracturing also occurs in New Mexico, Colorado, Utah and Montana. Gayathri Vaidyanathan, Fracking Can Contaminate Drinking Water at 8, Sci. Am. (Apr. 4, 2016) (Sci. Am. Article), attached. The researchers concluded that "it is unlikely that impact to [underground sources of drinking water] is limited to the Pavillion Field… " Dominic C. DiGiulio & Robert A. Jackson, Impact to Underground Sources of Drinking Water and Domestic Wells from Production Well Stimulation and Completion Practices in the Pavillion, Wyoming Field, 50 Am. Chem. Society, Envtl. Sci. & Tech. 4524, 4532 (Mar. 29, 2016), attached to these comments. Another study found that approximately three quarters of all hydraulic fracturing in California occur in shallow wells less than 2,000 feet deep.4 3 EPA Study at ES-27; see also id. at 6-44 to 6-50. 4 California Council on Science and Technology, An Independent Scientific Assessment of Well Stimulation in California at Executive Summary 10 (2015), http://ccst.us/publications/2015/2015SB4-v2ES.pdf ; see also Sci. Am. Article at 8 (similar finding about California).	Thank you for your comment. The potential target zones in the CCPA would not be considered shallow and generally range in true vertical depth from 7,000 to 12,000 feet below ground surface.
N20-B	60		Noise Impacts (DEIS sections 3.7 and 4.7) The DEIS (at 3.7.2) states that "Ambient noise levels in rural rangeland areas of Wyoming typically are near 24dBA (Ambrose and MacDonald 2015)." This statement is not correct. Ambrose reported much lower ambient noise levels: Results of these measurements demonstrate that ambient sound levels in sage habitats in rural Wyoming during hours critical to lekking activity of greater sage-grouse are likely between 10- 15 dBA, depending on terrain, vegetation, and meteorological conditions. Ambient sound levels for all hours of the day are likely between 15-20 dBA. While the 1800-0800 hours are important relative to lek activity, all hours of the day are important for female grouse-chick communication, and, overall, may be equally important to greater sage-grouse populations. For this reason, it is important to measure sound levels near leks as well as in areas used for nesting and brood rearing. Executive Summary, Ambient Sound Levels in Sage Habitats in Wyoming, April 2014. We have attached this report for your information. The DEIS should be corrected to accurately reflect the findings and conclusions set forth in the Ambrose report. To be consistent with the SGEO, ambient measurements should reflect the best estimate of ambient levels during lekking hours (6:00pm – 8:00am), which in this case was recommended in Ambrose et al. 2014 to be 10-15 dBA.	Please see the response to Comment L01-12. The BLM agrees that measuring of sound levels in the vicinity of sage grouse habitat is important.
N20-B	61		Noise is also an issue for humans, particularly for those who work and live in the project area. The DEIS, citing the USEPA Noise Control Act, suggests that noise levels above 55 dBA will cause activity interference and annoyance. DEIS at 3.7.1. The study upon which this number is based addressed urban areas; the "annoyance" level for rural locations within the CCPA is likely much lower. Studies investigating noise tolerances in rural setting should be reviewed.	Outdoor noise levels of 55 decibels are commonly used in NEPA analysis, per federal guidance, for both rural and urban projects as the threshold for annoyance.

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N20-B	62		The DEIS also indicates that a 3dBA change of noise level is detectable while a 5dBA change is "readily noticeable by most people." A 10dBA change is perceived to be a doubling (or halving) of sound or noise and would cause "an adverse community response." DEIS Table 3.7.1 and text on lines 11-15. However, given the low ambient noise levels recorded in rural Wyoming, one can assume that noise impacts will be moderate to severe at much lower levels than the 70dBA threshold suggested in the DEIS. See 4.7.2.1. In particular, residents living within close proximity of oil and gas construction activities (the minimum setback is 500'), drilling and fracking operations, and noise-creating infrastructure, could be exposed to noise levels several hundred times greater than ambient levels.	Section 4.7.1 discloses that noise impacts would be more pronounced in the northern portion of the CCPA where ambient noise is more rural in nature. The analysis also discloses that some portions of the CCPA, although rural in nature, are prone to higher levels of noise associated with agricultural and scattered industrial uses (e.g. mining and railroads).
N20-B	63		The DEIS suggests that noise impacts, even if significant, will be short term, but neglects to consider that the construction of multiple wells on multiple pads in the vicinity of a single residence could take place for many weeks if not months.	Construction of multiple wells on a well pad would still be short-term, when taking into consideration that operational impacts are measured in multiple years.
N20-B	64		Despite these likely impacts, the DEIS fails to analyze or adopt any measures to mitigate the effects of noise on sensitive receptors. DEIS at 4.7.2.2. The DEIS should be revised to consider a range of mitigation measures to reduce noise impacts. Those measures could include prohibiting the use of "jake brakes" in occupied areas, greater setback distances, sound barriers around drilling and completion rigs, limits on nighttime drilling and well completion operations, and mufflers on engines.	Although mitigation measures have not been proposed for noise impacts, the project would adhere to BLM Approved Resource Management Plan Amendment required design features for noise as disclosed in Section 4.7.2.1.
N20-B	65		Impacts from Outdoor Lighting High intensity outdoor lights are used to illuminate drill rigs, gas plants, compressor stations, and other project-related infrastructure. The DEIS fails to include an analysis of the impacts of outdoor lighting on sensitive receptors, including humans and wildlife. The adverse effects of light pollution effects are well documented, and they can be significant. An extensive body of scientific literature assessing the impacts of light pollution is readily available to EIS-preparers using basic Google searches. The BLM should analyze the effects of light pollution, and consider a range of measures to mitigate the harmful effects to wildlife and to the people who reside in the CCPA. Dark nighttime skies are clearly an important resource that should be protected to the extent possible in order to meet BLM's multiple use obligations under FLPMA.	Impacts from project related lighting are disclosed in Section 4.15. Visual mitigation measures, including facility lighting, are disclosed in Section 4.15.2.2.
N20-B	66		Wetland and Riparian Areas (DEIS sections 3.17 and 4.17) The DEIS (at 3.17.1) references an outdated Wyoming State Wildlife Action Plan. The plan was revised and updated in 2017 and is available on the WGFD website. The current 2017 plan should be reviewed, and new information should be incorporated into the DEIS.	Text revised to include reference to the 2017 plan in Section 3.17.
N20-B	67		The DEIS discloses a variety of impacts to wetland and riparian areas from the proposed oil and gas development. The DEIS estimates that "of the 9,108 acres of wetland and riparian areas within the CCPA, an estimated 345 acres could be disturbed under Alternative B." DEIS at 4.17.2.1. Despite the significant loss of wetland and riparian areas from project-related activities, the DEIS recommends a single mitigation measure, GW-1, that only addresses water table drawdown impacts. Specifically, GW-1 requires that "all new water supply wells be located 2,000 feet or more from existing water wells, springs, wetlands, and riparian areas." DEIS at 4.16.2.3. While important, this mitigation measure fails to address the numerous other impacts to wetland and riparian features identified in the DEIS on page 4.17-2. We recommend that the BLM identify and analyze a broader range of mitigation options to lessen the severity of the impacts. Measures could include increased setbacks from these features, consolidation of linear features and facilities, master development plans, and generally, more attention paid to finding opportunities to avoid these features altogether.	The BLM Casper Office RMP (BLM 2007b) and the TBNG LRMP (USFS 2001) have several standards, guidelines, objectives, and management decisions that would reduce impacts to wetland and riparian communities. See Section 6.3.

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N20-B	68		The Casper RMP states that "[a]ll practicable means to avoid or minimize environmental harm are encompassed in the alternatives as described in Table 2-3 and the appendices of the Proposed RMP/Final EIS." See Casper RMP Section 1.3.1 Mitigation Measures. Specific measures that fulfill the BLM's duty to utilize all practicable means to avoid or minimize impacts are provided in Table 2-3, which includes goals, objectives and decisions for water resources. The DEIS should explain how the goals, objectives and specific decisions outlined in the Casper RMP can be achieved in light of this massive development.	Please refer to Section 1.5.2 of the EIS for a discussion of conformance of the proposed project with BLM and USFS land management plans.
N20-B	69		It should also investigate and analyze in a comprehensive way opportunity to avoid, minimize and compensate the loss of these critically important natural resources.	Please refer to Section 4.16, Water Resources for a discussion of impacts and proposed mitigation for water resources.
N20-B	70		Because Clean Water Action section 404(b)(1) requires an analysis of least environmentally damaging practical alternatives, oil and gas wells that may have an adverse impact on wetlands must receive an adequate project level analysis. The analysis of means to achieve the least environmentally damaging practical alternative should be done in the context of a NEPA analysis with opportunities for public review and comment, or if not a NEPA analysis per se, under the 404 regulations there still must be adequately opportunities for public review of the alternatives.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N20-B	71		Land Use (DEIS sections 3.5 and 4.5) The DEIS (at 3.5-6) indicates that 2,006 acres of the Sand Hills Management Area is located within the CCPA. This section of the DEIS does not disclose whether this area is open for oil and gas leasing and development, nor does it disclose whether any wells or project infrastructure will be constructed in this area.	Section 4.10 discloses that the Sand Hills Management Area is closed to oil and gas leasing. Potential impacts to the management area would occur from adjacent development activities outside of the management area boundary.
N20-B	72		The DEIS indicates that "the Sand Hills Management Area is designated a ROW exclusion area and therefore is administratively unavailable for oil and gas leasing." DEIS at page 4.5-2. Are there any existing or grandfathered leases within this area that could be developed as part of the Converse County project, or is the area completely unencumbered by oil and gas leases and therefore "off limits" to development?	Please see the response to Comment N20-B-71.
N20-B	73		Lands and Realty (DEIS sections 3.6 and 4.6) The DEIS (3.6.2.1) provides examples of BLM land use authorizations, which include development of oil and gas leases "subject to terms and conditions incorporated into the approved APD or ROW grant by BLM." Many of the requirements incorporated into the APD derive from terms and conditions contained in the federal oil and gas lease as well as stipulations attached to the lease, such as timing limitations, controlled surface use, and no surface occupancy restrictions, all of which are intended to protect sensitive resources such as wildlife, wetlands, cultural properties and rare plants. The DEIS should display specific lease information in a table and figures (e.g., map or series of maps) in order to allow the reader to better understand and analyze surface constraints, and the authority for those constraints.	As disclosed in Section 2.2.2.1, construction of wells through the APD process would undergo a site-specific NEPA review, allowing for analysis of specific environmental concerns associated with development of a lease.
N20-B	74		The BLM's failure to include specific oil and gas lease information in the DEIS is a glaring omission that must be corrected in order to provide for an adequate disclosure of impacts. For example, a lease located in a location with overlapping resource concerns such as steep slopes/sensitive soils, wetlands, and wildlife concerns will likely have stipulations that limit or restrict surface occupancy which in turn will influence siting decisions for roads, pipelines, well pads and other infrastructure. This information is critical for analyzing specific environmental concerns associated with development on the lease, which the BLM is required to do to fulfill the legally required "hard look" under NEPA. The absence of this information in the DEIS makes it impossible to assess site-specific impacts, compounded by the fact that this level of analysis will likely not happen later given the BLM's common practice of excluding well approvals from NEPA review under the Energy Policy Act. If site-specific environmental impacts from development activities on the lease are not analyzed in this DEIS, when will they be analyzed under NEPA? All environmental impacts must be considered in an EIS. Baltimore Gas & Elec. Co. v. Nat.Res. Def. Council, 462 U.S. 87, 97 (1983) (requiring that agencies "consider every significant aspect of the environmental impact of a proposed action" and inform the public of the environmental impacts of agency proposals).	As disclosed in Section 2.2.2.1, construction of wells through the APD process would undergo a site-specific NEPA review, allowing for analysis of specific environmental concerns associated with development of a lease.

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N20-B	75		The DEIS is unclear as to whether surface occupancy will be permitted on formerly used defense sites. DEIS at 3.6-2. If surface occupancy is to be permitted, the BLM should disclose measures that will be taken to ensure public safety and protection of the environment.	Comment noted. Sections 4.6.2 and 4.6.3 disclose that lands and realty authorizations on formerly used defense sites would be allowed with notification of the risk and a requirement to submit a safety plan prior to use.
N20-B	76		The DEIS assumes that "APDs would address potential conflicts between oil and gas development and other land uses." DEIS at 4.6-1. The DEIS should provide a specific reference to the regulatory requirement that supports this assumption, and provide provisions that ensure it is achieved. How exactly are conflicts resolved (or for that matter, even identified) when wells are categorically excluded from NEPA review?	Comment noted. Construction of wells through the APD process would undergo a site-specific NEPA review, as stated in Section 2.2.2.1, allowing for impact review by the public.
N20-B	77		Range Resources (DEIS section 4.9) The DEIS states that the "OG has committed to applying water or chemicals for dust abatement during dry periods." DEIS at page 4.9-4 (emphasis added). Since "dry periods" in this area of Wyoming can and do extend for several continuous months at a time, we suggest that greater clarity is required to specify exactly when dust suppressants will be applied. Obviously, dust suppressants should be applied when necessary, (i.e., at the first sign that dust is being generated by wind or vehicle traffic). To be effective, water will likely need to be applied on a daily basis throughout the summer months and perhaps more frequently depending on conditions. In our experience, dust is never controlled to the degree claimed in BLM's environmental documents. Who will be responsible for monitoring compliance and reporting problems? If a local landowner is experiencing dust problems, will that problem be addressed by a single call to the local BLM office?	Thank you for your comment. As noted in Section 6.4.1 the Operator Group has committed to more specific dust control measures in response to comments on the Draft EIS.
N20-B	78		The DEIS states (at 4.9-4) that speed limits will be enforced. By whom? Will the operators and their various contractors voluntarily comply? Or is enforcement expected to be performed by county law enforcement? The concern is that despite posted speed limits, the actual speeds in oil and gas fields, particularly during the construction phases, tend to be higher than assumed, which results in impacts greater than disclosed in the EIS.	The Operator Group has committed to the posting and enforcement of speed limits (see Section 6.4.1).
N20-B	79		Hazardous Materials, Solid Waste, and Public Health and Safety (DEIS sections 3.4 and 4.4) To reduce the risk to shallow groundwater in alluvial aquifers, we recommend that closed loop systems be used for oil and water-based mud systems. DEIS at 4.4-5. The Casper RMP, in Decision # 1034, states that: "On BLM-authorized drilling activities, require use of pitless drilling technology where there is potential for adverse impact to surface water, groundwater, or soils." Since there is almost always a potential for adverse impacts to surface water, groundwater, or soils from the disposal of drill cuttings, we encourage the BLM to require the operators to utilize closed-loop (pitless) systems.	The use of drilling reserve pits would be considered during site-specific permitting based on-site conditions and other factors considered in the APD process.
N20-B	80		In all cases, the BLM should absolutely prohibit onsite disposal (burial) of drill cuttings generated through the use of oil-based drilling fluids. This requirement should be specified in the Record of Decision.	Thank you for the recommendation. The BLM believes that sufficient regulations and guidance are in place (WOGCC regulations; BLM Onshore Orders) to ensure the safe management and disposal of oil-based drilling fluids and cuttings.
N20-B	81		Cultural Resources, Historic Trails, and Resources of Native American Concern (DEIS sections 3.2 and 4.2) The DEIS discloses that important cultural resources are present within the CCPA including two NRHP-eligible Traditional Cultural Properties, and three nationally-important historic trails. The DEIS also discloses potentially significant impacts to these resources. However, because the DEIS has not identified the specific location of well pads, access roads, overhead powerlines, pipelines, and other project infrastructure, analyzing the precise impacts to cultural resources is claimed to be impossible. The challenge of properly assessing impacts to cultural properties is complicated further by the BLM's extensive use of categorical exclusions under Section 390 of the Energy Policy Act that results in no further NEPA analysis prior to the approval of proposed oil and gas wells. This situation can result in unmitigated impacts to heritage resources that have not been disclosed in a NEPA document. The BLM must provide a process that ensures proper consideration of cultural resources, historic trails and resources of Native American concern. Categorically excluding wells from further NEPA review is not that process.	To clarify, if there are unmitigated impacts to cultural resources, a categorical exclusion would not be appropriate. Text has been added in Section 4.2 to state that NHPA would be conducted regardless of the type of NEPA process that would be followed.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	82		The DEIS (at 4.2.2.5) identifies residual impacts to historic trails that will require compensatory mitigation and directs the reader to Section 6.6.2 for more information. Importantly, Section 6.6.1, states that "the degree of impact would be analyzed … during future site-specific NEPA during the APD stage of development." Because site-specific NEPA analysis is rarely prepared for APD approvals, the entire process outlined in the DEIS for compensatory mitigation is illusory.	Comment noted. The EIS text has been revised to reflect current agency guidance and policy with regard to mitigation, including the removal of requirements for compensatory mitigation.
N20-B	83		The DEIS proposes mitigation measures that include the following: "SOIL - 2: To the maximum extent possible, disturbance to soils with limiting characteristics will be avoided." The DEIS claims that this mitigation measure "would reduce damage to soils with limiting characteristics through avoidance. This also would result in reduced erosion, runoff and sediment loading." Since the DEIS indicates that a substantial percentage of the CCPA contains soils with limiting characteristics, the effectiveness of this mitigation measure should be scrutinized and subjected to further analysis. See Table 3.12-1. The DEIS discloses that approximately: • 14 percent of the soils within the CCPA are highly water erodible; • 19 percent of the soils within the CCPA are wind erodible; • 44 percent of the soils within the CCPA are droughty; • 4 percent of the soils within the CCPA are hydric; and • 30 percent of the soils in the CCPA are compaction prone. Given the high percentage of soils with limitations in the CCPA, the BLM should explain and demonstrate through NEPA analyses exactly how sensitive soils will be avoided. In the abstract, avoidance of soils with limiting characteristics could be a highly effective mitigation measure, but as applied to this project, the on-the ground implementation of this measure may be extremely difficult due to the pervasiveness of sensitive soils and level of proposed development in the project area. The supplemental DEIS should identify specific areas and locations where this mitigation measure will be applied, and incorporate the specifics into the ROD.	SOIL-2 states that limited characteristic soils will be avoided to the extent practicable but impacts to these soils are still expected as shown in table 4.12-2. SOIL-1 through SOIL-7 provide additional measures that will be utilized on all soils including those with limiting characteristics.
N20-B	84		The Casper RMP contains numerous provisions addressing soils and soil health that are not adequately addressed in the DEIS. For example, Decision # 1020; Goal/Obj. PR:4.2 states that the BLM will: "Minimize the disturbance to highly erosive soils (575,788 acres of BLM federal mineral estate of which 256,240 acres are BLM surface). Proposed surface-disturbing activities will be modified (located) to avoid areas of highly erosive soils to the greatest extent practicable." The BLM has not explained how it can accomplish this decision and still accommodate the level of development proposed by the OG.	BLM RMP and USFS LRMP will address reclamation measures in addition to mitigation measures SOIL-1 though SOIL-7.
N20-B	85		Decision # 1017; Goal/Obj. PR:4.1 provides that: "On BLM-administered surface, conduct onsite soil investigations on highly controversial projects, or in areas of highly erosive soils, to evaluate the impacts of surface-disturbing activities. Onsite soil investigations may include mapping the soils to a series level, evaluating current erosion conditions, and prescribing mitigation and reclamation practices." The BLM should specify that this decision will be implemented at the APD and ROW approval stage, with full opportunities for public review and comment.	SOIL-1 mitigation includes a soil analysis by a qualified soil scientist prior to disturbance to evaluate soil characteristics, vegetation, amendments where needed, and seed mixtures.
N20-B	86		Decision #10.22; Goal/Obj. PR:4.2 states that: "Surface disturbance or development on slopes greater than 25 percent is prohibited, unless individual site plans are submitted to and approved by the authorized officer meeting the following requirements. Engineered drawings for construction, site drainage design, and final rehabilitation contours with a written rationale describing how the proposed controls will prevent slope failure and erosion, while maintaining viable site topsoil for final reclamation. This plan should also include a timeline identifying the actions that will be applied during the construction, production and rehabilitation phases of the plan so appropriate monitoring protocols can be developed by the BLM to ensure that the plan is meeting the objectives described in its rationale." The BLM should outline and provide a process that ensure compliance with this management decision. We recommend that the BLM prepare site-specific EAs, with opportunity for public review and comment, for projects proposed on steep slopes exceeding 25 percent. This RMP provisions constitutes a "rebuttable presumption" under Section 390 of the Energy Policy Act that would otherwise allow a proposal to be categorically excluded from NEPA review.	BLM RMP and USFS LRMP will address reclamation measures in addition to mitigation measures SOIL-1 though SOIL-7.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	87		Decision #1028; Goal/Obj. PR:4.2 requires BLM to: "Limit total long-term surface disturbance from all BLM-authorized activities to no more than 80 acres per square mile. Applies to BLM surface only." The DEIS failed to adequately analyze, discuss or apply this decision.	BLM RMP and USFS LRMP will address reclamation measures in addition to mitigation measures SOIL-1 though SOIL-7.
N20-B	88		Decision #1029; Goal/Obj. PR:4.2 states that: "Evaluate existing road and trail use in the planning area. Close and reclaim all roads and trails on BLM-administered surface that are in areas designated as highly erosive soils and that are not being utilized to meet public demand." We suggest that the BLM evaluate and potentially apply this decision as partial mitigation for soils that will be impacted by project development.	RMP requirements are already incorporated into the document. See Section 6.3.
N20-B	89		Finally, the BLM should explain how it intends to achieve rangeland heath standards set forth in its regulations while also accommodating the OG's proposal to develop 5,000 new oil and gas wells in the project area: On lands administered by the BLM, soil resources primarily are addressed through BLM Handbook 21 H-4810 - 1, Rangeland Health Standards, which are based on 43 CFR 4180.1, Fundamentals of Rangeland Health. This regulation directs the BLM to ensure that "watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian - wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow. DEIS 3.12.1. Simply claiming the standard will be met is not sufficient; NEPA requires some level of objective analysis to demonstrate that compliance will be achieved.	Mitigation SOIL-1 identifies vegetation composition and proposes appropriate seed mixes. SOIL-3 mitigation states that the upper 12 inches of soil will be separated and used when revegetating disturbed areas. Compaction of soils due to project activities will be decompacted in SOIL-6. These efforts support soil and plant condition infiltration, soil moisture storage and natural water movement.
N20-B	90		DEIS Chapter 6 - Mitigation The BLM should carefully review for accuracy the list in Section 6.2.1 identifying resources that will be protected by avoidance. The list contains numerous errors. For example, the bullet for Class 1 and Class 2 waters is incorrect. Decision # 1035 of the Casper RMP requires NSO within 500 feet, and CSU from 500 feet to ¼-mile. Within the CSU area, the RMP says the BLM will use best available technology and/or BMPs to minimize impacts. Waters other than Class 1 and Class 2 will be considered on a case-by-case basis. The forth bullet incorrectly states that "slopes greater than 40 percent and soils susceptible to mass failure" will be avoided. Casper RMP Decision # 1022 explicitly provides that: "Surface disturbance or development on slopes greater than 25 percent is prohibited, unless individual site plans are submitted to and approved by the authorized officer …" (emphasis added).	The cited text is paraphrased from the Casper RMP.
N20-B	91		Under the process outlined in Chapter 6, compensatory mitigation would be required only "if residual effects are to resources that are considered important, scarce, sensitive, or have a protective legal mandate identified through a NEPA process warranting compensatory mitigation." DEIS at 6.2.5.2. Obviously, the key to making mitigation effective and useful is the existence of a NEPA process. Unfortunately, as discussed elsewhere in these comments, the BLM routinely categorically excludes oil and gas wells from NEPA review under Section 390 of the Energy Policy Act, so there is no NEPA process that will identify the above-referenced resources. Consequently, given the absence of site-specific NEPA at the APD approval stage, the BLM should supplement this DEIS to provide a sufficient level of detail necessary to identify resources that warrant compensatory mitigation and to allow for identification of residual impacts.	Thank you for your comment. The EIS has been revised to remove requirements for compensatory mitigation consistent with current agency guidance and policy.
N20-B	92		Transportation and Access (DEIS sections 3.13 and 4.13) The construction and use of approximately 1,970 miles of new roads added to 2,978 miles of roads already in place in the project area will have a significant and long-term impact to the environment, including but not limited to widespread fragmentation of natural landscapes, destruction of heritage resources, spread of noxious weeds and invasive plant species, water and air quality impacts, wildlife collisions, and loss of open spaces. Despite these severe impacts, the DEIS proposes very few meaningful measures to mitigate the transportation impacts.	Comment noted. The DEIS does disclose mitigation measures as well as impacts from surface disturbance and road construction activities and subsequent operation. Section 4.13.2.2 details specific mitigation measures to reduce impacts to transportation resources and enhance public safety. Sections 4.2.2.4 and 4.2.3.4 detail specific mitigation measures that would be implemented to reduce impacts from surface disturbing activities to cultural resources. Sections 4.14.2.4 and 4.14.3.4 detail mitigation measures that would be implemented to reduce impacts from surface disturbing activities and noxious weeds. Sections 4.18.1.3 and 4.18.1.6 detail mitigation measures that would be implemented to reduce impacts from surface disturbing activities to wildlife resources. Section 4.1 details impacts to air resources from project development as well as existing rules, regulations, and OG-committed design features that would reduce air quality impacts. Lastly, Section 4.16 details impacts to water resources from road construction and use, as well as specific measures to reduce potential impacts.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	93		"There are no OG-committed design features for this resource." DEIS Chapter 6, Section 6.4.13. However, DEIS Section 6.5.13 identifies six actions the BLM may require, but none address the greatest environmental concern, which is the unplanned, rapid, and spontaneous development and expansion of an industrial road network across a vast rural landscape.	The comment is correct that there are no OG-committed design features for transportation resources; however, existing rules, regulations, and proposed mitigation measures would serve to reduce impacts on transportation resources.
N20-B	94		The Casper RMP makes the following provisions for transportation issues that should be incorporated into the DEIS: Casper RMP Decision # 6071: Exclusion areas for ROW contain 442,040 acres of public land. ROW avoidance areas comprise 539,799 acres of public land. Casper RMP Decision # 6072: When placement of a major facility within a designated corridor is not possible, and for smaller ROW facilities, placement will be adjacent to existing facilities or disturbances. Cross-country ROW placements will be allowed only when placement in a designated corridor or adjacent to an existing facility is not practical or feasible (from the ROD, resource management units, March 8, 2004 version). The Casper RMP Objective: LR:3.4 requires that BLM "Maintain a transportation management system to meet resource management needs." The DEIS should discuss these requirements, and along with that consider developing a transportation management plan or plans for the project area. A transportation plan could help reduce the number of new roads, and allow other roads that are no longer necessary to be decommissioned and reclaimed. The concern is that the construction of roads without advance planning and coordination among operators could lead to a proliferation of unnecessary roads in sensitive resource areas where they don't belong.	The DEIS discloses ROW exclusion and avoidance acreage within the CCPA in Section 3.6 as well as the authorization of ROW grants and the identification of designated ROW corridors. The operator group has drafted a transportation management plan which provides general road information and planning guidance that would serve as the basis for future siting-level transportation planning for the proposed project.
N20-B	95		The DEIS rejects the need for compensatory mitigation "due to the temporary and reversible nature of residual impacts." 4.14.2.5. Yet the DEIS discloses that: In some areas reclamation may be problematic, particularly in areas with soil reclamation constraints, low regional annual precipitation rates, and the invasion of noxious weeds and invasive plant species, successful reestablishment of native vegetation may take longer. Some plant communities may not return to pre-construction conditions due to alteration of soils, invasions of noxious weeds and invasive plant species, and loss of biological soil crust. The inability to revegetate disturbed areas with pre-disturbance or suitable native species would be a substantial impact. DEIS at 4.14-8. It is clear that some form of mitigation for these impacts must be pursued; at a minimum, the BLM must commit to fully documenting invasions of noxious weeds and invasive species and specifying the extent to which they have been controlled if possible and if the control has been ineffective that should be publicly documented.	See Section 4.14.2.4, mitigation measures VEG-1 and VEG-2.
N20-B	96		Wildlife (DEIS sections 3.18 and 4.18) Because the DEIS does not identify locations for roads, pipelines, overhead powerlines, stream crossings, well pads, and other project-related infrastructure, specific impacts to wildlife are not disclosed. The highly generalized and generic discussion of wildlife impacts is of little use to the decision maker and the public other than to convey the point that wildlife in the project area will be impacted, potentially very significantly, by the development of this project.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N20-B	97		Important Bird Areas (IBA). The DEIS indicates that under Alternative B, approximately 66.4 acres of surface disturbance would occur within the Rochelle Hills IBA. DEIS at 4.18-21. Because this area "provides critically important habitat for grassland, shrubland, and wetland/riparian avian species" we recommend that surface occupancy and use be prohibited in the IBA.	Comment noted. However, this is not required by Federal and State management policies within the project area.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	100		Residual Impacts – Alternative B. The DEIS contends that: "Due to the temporary nature of disturbance to migratory birds and the application of avoidance and minimization mitigation, OG-committed design features and the additional mitigation measures (Section 4.18.2.3), compensatory mitigation would not be warranted to offset the impacts resulting from development under Alternative B." DEIS 4.18-35. This claim is unsupportable. Indeed, the DEIS itself discloses that "long-term changes in migratory bird species occurrence and diversity could occur as a result of changes in habitat composition, quality, continuity, and breeding success." DEIS at 4.18-28. With respect to mitigation, the DEIS states: The proposed mitigation measure MIG-1 would protect migratory birds, including raptors, during the breeding season, exclusive of possible exceptions that may be granted for raptor nests. Raptor nests must be identified prior to surface disturbing activities for exceptions to be requested and granted. Natural areas would be maintained between human activity and around the active nest (landscape buffer). Spatial avoidance buffers and seasonal restrictions would be applied as required by applicable land and resource management plan stipulations unless exceptions are granted for raptor nests. DEIS at 4.18-34 (emphasis added). If stipulations included in the Casper RMP to protect raptors are not enforced, impacts from project activities to these species will be both significant and long-term, through the life of project if not longer. See DEIS at 4.18-60 ("Granting exceptions to timing limit stipulations could adversely impact sensitive wildlife species by causing nest abandonment for raptors or sensitive bird species …"). In this scenario, the severity of impacts that would occur to raptors clearly warrants compensatory mitigation to help offset development impacts. Some degree of compensatory mitigation could be achieved, for example, by deferring oil and gas development on federal lands/mineral estate that contain active raptor nests to provide refuge areas free from disturbance, at least for critical life-history periods.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level. Please note that Section 2.4.1 details the process of granting exceptions through the BLM and involves avoidance, minimization, and compensatory mitigation based on the identified impacts at the site-specific level.
N20-B	101		The remainder of the project area encompasses General Habitat Management Area (GHMA). Figure 3.18-12. This figure shows 17 occupied leks in GHMA, but for some reason male attendance numbers at the leks are not displayed in the DEIS. This omission should be corrected in a supplemental DEIS.	See Table 3.18-11.
N20-B	102		For these reasons, exceptions to timing stipulations should not be granted. Under Alternative B, the oil and gas operators group would seek exceptions to BLM timing stipulations for greater sage-grouse leks outside of PHMA. Because the DEIS discloses significant impacts from project activities to greater sage-grouse, we recommend that all stipulations, required design features, and other conservation measures included in the 2015 ARMPA designed to protect sage-grouse be honored and enforced in the project area: Due to the unnecessary or undue degradation that would result, we oppose any and all efforts to circumvent timing stipulations that apply to greater sage-grouse in general habitat management areas. The BLM's ARMPA and the Thunder Basin National Grassland plan should be fully complied with.	Comment noted. Please refer to Section 1.5.2.

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Wyoming Outdoor Council; also on behalf of National Audubon Society and The Wilderness Society (Continued)				
N20-B	103		Inside of PHMA, project activities would be subject to "core area" restrictions that include density and disturbance limits as well as timing and controlled use stipulations. The DEIS explains that: Any new surface disturbance in PHMAs and Core Areas within the CCPA would be subject to current BLM, USFS, and WGFD management regulations that would restrict surface disturbance and disruption in important sage-grouse habitats, including restrictions on surface disturbance exceeding the 5 percent disturbance threshold and 1 well pad and associated infrastructure per 640 acres, on average. DEIS at 4.18-62 (internal references omitted). On this point, the DEIS continues: The programmatic nature of this document details that the current 5 percent disturbance cap is exceeded in four of the PHMA (Bill, Douglas, North Glenrock, and Thunder Basin). However, under Alternative B, development could be approved on a site-specific basis consistent with the DDCT process if found to be under the 5 percent cap. DEIS at 4.18-63. We understand that the BLM, State of Wyoming, and perhaps the Forest Service intend to authorize oil and gas development inside PHMA (Wyoming core area) even in situations where density/disturbance "caps" have been exceeded when deemed necessary to "protect valid existing rights." The BLM should confirm in this DEIS if this is the case. If so, the BLM must examine and disclose in a supplemental DEIS the existence of pre-ARMPA oil and gas leases inside each of the PHMA that lack the greater sage-grouse stipulations imposed by the 2015 ARMPA. The DEIS assumes that no new oil and gas development will be authorized in the PHMA if density/ disturbance limits have been exceeded: "Based on existing disturbance in DDCT assessment areas that already exceed 5 percent disturbance for four of the five PHMAs, new surface disturbance could only be considered within the M Creek PHMA." DEIS at 4.18-66. And the disclosure of environmental impacts is based on this assumption. This assumption may not be correct, and it is incumbent on the BLM to clarify this issue, and prepare the proper environmental analysis that reflects on-the-ground reality.	Release of a supplemental EIS to analyze pre-ARMPA leases within PHMA is unnecessary to analyze and disclose the impacts of the proposed development within the CCPA. As stated in the text the current 5 percent disturbance cap is exceeded in four of the PHMA (Bill, Douglas, North Glenrock, and Thunder Basin). However, under Alternative B, development could be approved on a site-specific basis consistent with the DDCT process if found to be under the 5 percent cap. Finally, please refer to Section 6.6.2.2 for details on the determination of appropriate mitigation for development within PHMAs.
N20-B	104		Included herewith are comments of Dr. Matt Holloran, a noted expert on greater sage-grouse and sage-grouse conservation. We ask that his comments be fully considered in a supplemental DEIS. In these comments, he points out that "In order to achieve sage-grouse conservation goals, the BLM and USFS must manage sage-grouse habitats at landscape spatial scales." He engages in a detailed assessment of the qualitative and deductive analyses that are presented in the DEIS. "I provide evaluations of analyses pursued, suggestions for adjustments to analyses, and point out where the analyses could contribute to inaccurate conclusions given the framework of landscape-scale conservation." He focuses on Alternative B, the preferred alternative, but his comments also relate to Alternative C. In this detailed analysis, Dr. Holloran considers infrastructure and density issues, surface disturbance levels, fragmentation of habitats, development and planning issues, invasive plants, residual impacts, and cumulative effects to sage-grouse populations and habitats. This report should clearly be carefully considered by the BLM as it develops the CCPA oil and gas project.	Comment noted. Dr. Holloran's comments have been reviewed. Please see responses to comments from N03 where his comments have been addressed.
Wyoming Stock Growers Association				
N21	02		By allowing exceptions to restrictive timing stipulations, the Proposed Action can minimize the ongoing impacts of development on roads and ranching operations. However, it will necessitate close collaboration with private property owners and grazing permittees. There will be localized needs for accommodation of lambing, calving, shipping and other livestock movements. These will need to be determined on a case-specific basis. To this end, we urge you to clarify in the final EIS the procedures for developers to request exceptions to timing restrictions as well as the manner in which private landowners can be made aware of such requests and have appropriate input.	Please see the response to Comment B11-024. Also note that the BLM field office is required to post an APD for a 30-day public notification period before approving the APD.

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Wyoming Wildlife Federation				
N23	01		As the Bureau of Land Management drafts the Final Environmental Impact Statement WWF recommends the following: • Water o Identify an in-depth and clear plan for how the water will be developed, used, stored, and disposed of after use.	Given the programmatic nature of the proposed development and impact analysis in the EIS it is not possible to develop a detailed plan for management of water at this time. Water use, management and disposal are discussed in Section 2.4.3.4 and Section 2.4.4.3. More details on water management can be addressed at the site-specific permitting level.
N23	02		o Water is a finite resource that needs to be conserved and kept clean of pollutants. Identify the plans for maintaining a healthy water resource and how effectively or not effectively the water will be used.	See response to Comment N23-01.
N23	03		o This project notes three billion gallons of produced water will be disposed of every year. Where will they receive the water? How will it be disposed of exactly? How often will the water be tested for hydrocarbons and flow back fracking fluids? What is the process for testing the water? Who will monitor all of the water use and storage of?	Answers to the questions posed in this comment would be addressed at the site-specific permitting level. Information currently known regarding water management for this programmatic development proposal is presented in Section 2.4.3.4 and Section 2.4.4.3.
N23	05		o Use V.4 map of GSG core areas in the preferred alternative.	Impacts to PHMAs under Alternative B were assessed based on BLM and USFS PHMA and the WGFD Core Area Version 3 Map as directed by the Approved Resource Management Plan Amendment for the Wyoming Sage-grouse Sub-region (Attachment 4 to BLM 2015b).
N23	06		o Development in core and non-core areas need to comply with the Wyoming sage-grouse executive order and mitigation framework.	Comment noted. Any new surface disturbance in PHMAs and Core Areas within the CCPA would be subject to current BLM, USFS, and WGFD management regulations that would restrict surface disturbance and disruption in important sage-grouse habitats, including restrictions on surface disturbance exceeding the 5 percent disturbance threshold and 1 well pad and associated infrastructure per 640 acres, on average (WY EO 2019-3, Attachment 4 to BLM 2015b, Attachment B to USFS 2015b).
N23	07		Use phased development to avoid unnecessary wildlife habitat fragmentation.	Thank you for your comment. See Section 2.6.12 for BLM's rationale for eliminating phased development from detailed analysis in the EIS.
N23	08		o Enhance existing infrastructure and engineer the new road system so that the fewest number of new roads are needed. The more roads constructed the larger the surface disturbance footprint. Minimalize the footprint throughout the project area.	Thank you for your comment. The BLM has considered reduction in surface disturbance through analysis of Alternative C.
N23	09		o Gather baseline wildlife data prior to construction.	Comment noted. Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N23	10		Set a speed limit and travel use protocol to reduce vehicle/wildlife collisions.	See SSWS-1.
N23	11		• Invasive Species o Control the spread of invasive non-native plant species via an identified protocol to be used by each energy company and contractor. o The continued spread of invasive species is likely; therefore, a plan is necessary to reduce that spread.	Development of noxious and invasive weed control would be addressed at the site-specific permitting level.
N23	12		• Reclamation o Keep top soil that is removed for reclamation purposes after development stage and the final production stage.	Reclamation practices for top soil are addressed in SOIL-3.
N23	13		• Cumulative Impacts o The overall suggested cumulative impacts associated with this project, the other planned projects, and existing energy development in Converse County is concerning. Incorporate phased development to reduce the overall impact to wildlife, habitat, and other multiple-uses. Habitat fragmentation is going to occur with this project, however, the scale of that fragmentation needs to be determined by the BLM within the Environmental Impact Study.	Due to the programmatic nature of the document, this level of impact analysis would be conducted through subsequent NEPA at the site-specific level.
N23	14		o Site-specific analysis for development tiered with the EIS will be limited given the split estate ownership. Identify steps to reduce surface disturbance in the preferred alternative.	Thank you for your comment. Also please see new Section 1.4.3 which provides a describes the extent of BLM's authority within the CCPA.

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Wyoming Wool Growers Association				
N24	01		We believe the Draft EIS does not do enough to address the private property rights of landowners who will be involved in this project. It is our opinion that BLM needs to recognize the vast majority of this project will take place on private surface. In some cases operators and landowners have identified potential sites for several hundred wells with not a single well pad on federal surface. It is our opinion that the BLM plan should recognize the state and federal laws already on the books when it comes to private property, including those private property rights in relation to the NHPA (including ownership of artifacts), supposed view shed rights, and the like. Furthermore, there needs to be a general recognition that landowner's decisions on private surface should be prevailing (within reason) regarding surface decisions.	Comment noted. Potential impacts to private property owners are disclosed in Section 4.5. The project would comply with all state and federal laws pertaining to private property rights.
Barbara Craig - Wright, Wyoming				
P02	04		Even more important is the fact that Alternative C does not allow the possibility of granting timing stipulation exemptions, which will be critical to allow the operators to continue drilling all year. Around 50 percent of the proposed drilling sites are located in Greater Sage Grouse or other habitat buffers, which carry a timing stipulation requiring the removal of all equipment during certain times of the year. The costs, in terms of money, time, and efficiency, are obvious, but the potential for unnecessary environmental damage from repeated superfluous rig moves and delay of reclamation must be accounted for as well. Unfortunately, this analysis was not done in Alternative C.	Thank you for your comment. Note that the BLM has identified Alternative B, Proposed Action, as the agency's preferred alternative in the Draft EIS. The impact analysis for Alternative C has been updated to clarify the impacts from the increased number of rig moves.
Carin Derbonne - Wright, Wyoming				
P03	07		Alternative C, on the other hand, is quite simply insufficient for the needs of the project. It limits the number of wells per pad, which would result in greater surface disturbance from having to drill in more locations. It also places severe restrictions on the granting of timing exemptions, without analyzing the greater environmental impact that would result.	Thank you for your comment. Please note that Alternative C does not limit the number of wells per pad but assumes a reduced number of pads based on the knowledge that operators are typically drilling more wells on a single pad. By assuming fewer exemptions would be granted under Alternative C, the BLM provided a point of comparison of the environmental impact relative to Alternative B. Note that the BLM identified Alternative B as the Preferred Alternative in the Draft EIS.
Frank Earthorne - Douglas, Wyoming				
P04	02		I noticed that two energy impacted county roads were left off the list in the Transportation Plan. Both are impacted, but short in terms of mileage. They are Co Rd. 60 (Esau Road) and Co Rd. 55 Robinson Rd.	Comment noted. The Transportation Plan submitted by the Operator Group did not involve the level of detail necessary to include the referenced road segments.
Frank Earthorne - email				
P05	01		I wish to call to your attention the existence of an additional Evaporative disposal facility within the project area. It is located 1 mile east of WY Highway 59 on the south side of Esau Road (County Road #60) approximately 30 miles north of Douglas. It is operated by Oilfield Waste Disposal, who may be contacted at cell phone # 970-442-0192 (Doug Wheeler) or Office 970-270-6883. This facility should be included in the analysis.	Table 3.16-10 has been updated in response to this comment.
Maribel C. Frank - Glenrock, Wyoming				
P06	01		Consistency and conformity with high-level policy is critically important for any public land management document. Making sure that the guidance provided by the field offices comports with the directives issued from Washington D.C. prevents confusion on the ground, provides some certainty as to how policies are going to be enforced, and helps to keep development projects on track by providing clarity that will preclude legal challenges and delays.	Thank you for your comment. The BLM has updated the EIS text to be consistent with the most recent agency guidance and policy.
P06	02		We are strongly supportive of the Converse County Oil and Gas Development Project, and of the proposed action delineated in Alternative B, and correspondingly support the adoption of Alternative B in the final ROD, but we believe it is crucial to ensure that the plan comport fully with national policy before being finalized.	Thank you for your comment. The text has been updated to reflect the current agency and department guidance and policy.
P06	03		Your office has done a commendable job in preparing this DEIS, and a workable action plan for this important project in Alternative B, which we are pleased to see is your agency's preferred alternative. We are concerned that there remains language dotted throughout the document which comports more closely with policies from previous administrations, rather than with the current policy. We believe this oversight needs to be addressed and rectified prior to finalization in order to prevent delays and to provide some assurance to operators, local governments, the business community and other stakeholders.	The text has been updated to reflect current agency policy.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Maribel C. Frank - Glenrock, Wyoming (Continued)				
P06	04		In regard to Greater Sage Grouse Management, we would ask that your office ensure that the most recent policies and documents are used. The current RMP's referenced in the DEIS are currently under review, and we believe that it is prudent for the BLM to account for likely changes, based on expressed administration policy. We would further ask that the most recent habitat maps released by the state (version 4) be used in the planning process, rather than outdated version 3 maps.	The 2019 ARMPA has been placed on hold through a court challenge. As a result, the BLM will continue to utilize the 2015 ARMPA as guidance.
Owen A. Frank - Glenrock, Wyoming				
P07	05		While Alternative B is the only alternative to provide a mechanism to allow year-round activity, that mechanism is ill-defined. The EIS needs to clearly spell out the procedure that an operator would go through to request and receive an exception to the timing stipulation that would otherwise prevent year-round development. It is not enough to simply acknowledge that the process exists; it must be clear exactly how the process works for there to be any certainty.	Please see the response to Comment B11-024.
P07	06		I am asking that you adopt alternative B, but before finalizing the ROD, make sure that the details allowing year-round drilling are expressly spelled out. This project is too important to risk any delays that could come about from ambiguous language.	Thank you for your comment. Please see the response to Comment B11-024.
Evelyn Griffin - Pavillion, Wyoming				
P09	01		Please consider creating a broader range of alternatives as part of your environmental review. These should include a fewer number of wells, a greater setback distance from homes and do preventions that will prevent irreversible impacts to land, water, air, and wildlife.	The BLM considered a broad range of alternatives as discussed in Section 2.6.
Kevin and Nena Grilley -Glenrock, Wyoming				
P10	01		We live at 99 N. Monkey Rd., next to Rollings Hills, and have a 420' water well that supplies all our water. We are concerned of the impact on the groundwater in the project area.	Thank you for your comment. Impacts to groundwater are discussed in Section 4.16.
P10	02		There is a lot of arm waving in the EIS because "data is sparse". Uranium mines and Dave Johnson Coal Mine are required to monitor groundwater and have collected much data, yet it's not referred to much in the EIS.	Thank you for your comment. The groundwater data collected by uranium mines and the Dave Johnston coal mine would likely be too shallow to be of use in the analysis of deeper geologic units.
P10	03		We also think you could request the upper 1000' or so of seismic data of the area. That would give a much better framework for a model.	The purpose of the NEPA (EIS) process is to disclose potential project impacts. The BLM appreciates that you have identified your specific concerns regarding the impacts disclosed in the DEIS.
P10	04		Regarding transportation impact, figure 3.13-1 does not list the old Glenrock Hway (WY87, US20-26). This hway needs to be considered because it is well used!	Old Glenrock Highway is labelled as US Highway 87/20/26 on Figure 3.13-1. Text has been added to address this road and the intersection with WY 95 has been added to Table 3.13-1.
Taylor Harper - Casper, Wyoming				
P11	02		Predominantly, the DEIS, including Alternative B, contains language and provisions that do not reflect the current policy of the administration and the Department of the Interior, as revealed in a number of Presidential Executive Orders and Department Secretarial Orders. Specifically, Presidential EO 13783, "Promoting Energy Independence and Economic Growth" seems to conflict with the overall tone of the DEIS. I understand that this is largely a function of updating language that was previously in use to reflect policies of the past administration, but that language needs to be updated as policies change.	The text has been updated to reflect current agency and department guidance and policy.
P11	03		Similar adjustments need to be made in regards to Sage Grouse management, to ensure that current policies, directives and maps are used in place of older, outdated ones.	The 2019 ARMPA has been placed on hold through a court challenge. As a result, the BLM will continue to utilize the 2015 ARMPA as guidance.
P11	04		I also would request that a number of clarifications be made; first, regarding exceptions to timing stipulations, necessary to permit drilling and other activity to occur in the project area year-round, the DEIS does not establish the process for requesting and receiving them. Unless a set procedure is put in place operators can have no certainty that they will be granted. Since a large number of the proposed well pads are to be built in areas that are covered by habitat timing restrictions, this is an important consideration.	Please see the response to Comment B11-024.
P11	05		Second, even though around 64% of the oil and gas being produced in the project is-federal, it is being accessed from predominantly private surface; and yet the DEIS makes little mention of how the BLM plans to manage these private surface wells and other infrastructure.	The text has been updated to clarify the extent of BLM's authority within the project area.

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Taylor Harper - Casper, Wyoming (Continued)				
P11	06		And third, the same applies to the identification and monitoring of cultural and tribal resources on private land associated with the project. These clarifications need to be made before the final plan is revealed.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.
Brian and Brandi Jensen - Glenrock, Wyoming				
P14	01		Water- The impacts to the areas water system, both surface and sub-surface, quantity and quality, needs much more evaluation and/or compensation. This is a very arid environment that already faces serious water challenges and the idea of removing an additional 10,000-acre foot of water from our existing water sources and aquifers is very scary to me and some geologists I've discussed the project with, feel that estimate is low. As a resident of Glenrock, we have seen our water and sewer rates essentially double in recent years to help off-set the maintenance and upkeep costs of our water system. Industry should not get a pass on related impacts.	The purpose of the NEPA (EIS) process is to disclose potential project impacts. The BLM appreciates that you have identified your specific concerns regarding the impacts disclosed in the DEIS.
P14	02		Water quality impacts are equally concerning to me. Given the area's diverse geology, it is nearly impossible to ensure that "fracking" fluids do not leak into valuable aquifers, or cause unforeseen impacts as has been noticed in other fracking areas.	The purpose of the NEPA (EIS) process is to disclose potential project impacts. The BLM appreciates that you have identified your specific concerns regarding the impacts disclosed in the DEIS.
P14	03		Finally, disposal of "produced water" is a real challenge that leads to long-term environmental impacts and should be evaluated and mitigated carefully.	Thank you for expressing your concerns. While statements of opinion do not require specific responses or text revisions under the NEPA regulations, they will be considered by the BLM and documented in the administrative record associated with this EIS.
P14	04		Flaring- There needs to be greater emphasis on recovering natural gas associated with this development and industry should be required to install the necessary infrastructure up-front to do so. Like oil, natural gas is a finite resource that should be taxed and utilized and not simply burned off to create additional environmental issues (i.e. air quality concerns) because the pace of development is too fast to collect a less valuable resource. If we ever want to break the "boom to bust" cycle in Wyoming, we must push for more long-term, phased development that captures and collects on every possible resource rather than only the highest dollar ones. Wyoming has been blessed with an amazing energy resource and we should not allow industry to treat some of it as a "by-product" simply because they are after a higher profit commodity. Such a mentality will come back to bite us someday… Every time we drive north of Douglas or pay our personal natural gas bill, I can't help but think how many homes could be heated with the gas that is flared every day from that development.	Thank you for this comment. Flaring will occur at times during the completion process and temporarily at 10 percent of wells where infrastructure to gather the gas is not in place. Flaring will occur on a limited basis. Also, please refer to Section 2.6.5.
P14	05		Wildlife Concerns- I realize most of this area is private surface and falls outside of sage grouse core areas protected by the Governor's Executive Order 2015-4, but I still think a greater effort should be made to protect sage grouse and other wildlife species during this development. As proposed with the density of wells/pads and no timing stipulations on drilling, etc., it appears the BLM is prepared to right-off sage grouse in this area, which is not the intent of the Executive Order. While development is supposed to be allowed, if not encouraged, outside of core areas, the Order still expects to maintain viable populations of sage grouse in non-core areas, like this one. I have similar concerns for mule deer and pronghorn in the area. The level of development proposed has been shown to have population-level impacts to such species in other parts of WY and elsewhere in the West. Given the economic and intrinsic value of wildlife in WY and this region, I feel that the BLM should seriously consider greater protections for wildlife associated with this development.	Comment noted. The project will be compliant with WY EO 205-4 as stated.
P14	07		Finally, efforts should be made to compensate the County for impacts to their existing infrastructure (roads, bridges, emergency services, etc.) caused by the increase in industrial activity.	The BLM does not have authority to require compensation for impacts on local government infrastructure or services. Note that the Final EIS includes mitigation proposed by Converse County that could address this concern.

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Nicholas Ladd - Glenrock, Wyoming				
P15	03		For instance, there are a few areas within the DEIS that require better clarification before the Record of Decision is adopted. On the of these involves the management of wells on private land; roughly 90% of the project area is private-or state-owned land, even though 64% of the oil and gas being drilled for is federally owned. This means that much of the drilling and construction associated with the project will be on private land. The DEIS needs to make it absolutely clear how the BLM intends to approach this situation, so as to avoid confusion in the future.	Please see the response to Comment B11-059.
P15	04		Also, while Alternative B quite correctly allows for year-round drilling, the procedure for requesting and granting the timing stipulation exceptions required to allow that are not well defined. This also needs to be cleared up in the final draft.	Please see the response to Comment B11-024.
Chris Lamb - Glenrock, Wyoming				
P16	02		the drafters of the ROD need to make sure that all documents which are a part of it comport fully with policy directives issued from Washington D.C. We recognize that the change in administration has meant a rather dramatic change in policies impacting the various agencies; however, it is incumbent upon those agencies to adapt to the political climate and operate in accordance with the policies currently in effect. Failure to do so could result in confusion and uncertainty among stakeholders as the project progresses. This could in tum cause delays and economic consequences that would be unacceptable to Converse County.	The text has been updated to reflect current agency and department guidance and policy.
P16	03		the DEIS appears to rely too heavily on Greater Sage Grouse RMP's that are under review and likely to be seriously modified. Of the most concern is reliance on outdated habitat maps, and timing stipulations set around Sage Grouse leks. These timing stipulations specifically preclude drilling year round, which is a priority for us. Suspending activity for even a few weeks at certain parts of the year makes this a seasonal project and will interrupt the economic benefits that Converse County expects to receive from this project. It also will likely do more harm than good, since the stipulations require complete removal of drilling equipment, requiring several unnecessary truck trips, which places extra strain on the surface. It also delays pad reclamation. These timing stipulations themselves are obsolete, as the RMP review will reveal. A better approach to habitat management is included in the local Migratory Bird Conservation Plan.	Comment noted. The project analysis is compliant with current RMP direction.
P16	04		the DEIS does not adequately describe how the BLM will approach management of wells located on private, off-lease property that are penetrating or recovering federal minerals. This is important, because about 90 percent of the project surface is private or state-owned land, while more than 60 percent of the minerals ore federal.	Please see the response to Comment B11-059.
P16	05		the DEIS prescribes onerous compensatory mitigation measures, despite those being expressly withdrawn as Again, it is important that local policies comport with the direction provided from the administration.	The BLM has updated the EIS text to reflect the most current agency guidance and policy regarding mitigation.
Lucky G. Lambdin - Sheridan, Wyoming				
P17	01		Concerning your recent environmental reviews in the state of Wyoming, I've held discussions with several friends & neighbors. It strikes us that it would be helpful if you could possibly evaluate a greater range of alternatives to reduce the number of wells, roads, etc., being installed in order to prevent impact to land, air, water, & wildlife. Wyoming is a relatively pristine state compared to the majority of the rest of the U.S., & we'd like to keep it that way.	Comment noted. Please refer to the discussion of alternatives in Chapter 2.
P17	03		We believe that BLM should implement a program of increased bonding for all new wells to circumvent landowners and taxpayers from having to cover the costs of orphaned wells. Site-specific environmental impact analysis through careful assessment for all permitted wells going forward under the plan should be included as well.	Bonding is a policy and guidance issue which is beyond the scope of this document. As noted in Section 1.4.1, site-specific environmental review will be conducted to determine final locations of facilities for specific development proposals.
P17	04		In addition, noise & light pollution are issues that should be taken into account more closely by the BLM.	Impacts from Noise are disclosed in Section 4.7 and impacts from light are disclosed as part of the Visual Resources section (Section 4.15).

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Adrianne Martinez -Douglas, Wyoming				
P18	03		For a project this big and this impactful, it is important that it be done right. I fully support the proposed action, alternative B, but there are a few flaws which must be addressed before the EIS is finalized and a ROD Issued. The biggest involves the permitting of year-round drilling. Alternative B does elude to this possibility, but it does not spell out the process by which it may occur; that is, the issuing of exceptions to habitat timing stipulations. This process needs to be established, and restrictions on the issuance of exceptions removed, for the environmental and economic benefits of year-round drilling to be realized.	Please see the response to Comment B11-024.
P18	04		The EIS also does not clearly define the BLM's management role as it relates to wells producing federal minerals from private land. Only about 10% of the surface of the project area is controlled by the BLM or the Forest Service - 7 % is managed by the State of Wyoming, and fully 83% is private land. Under this mostly private land within the project area, 64% of the minerals are federally owned. With so much split estate involved, and most of the surface being private, it is important that the BLM's intentions and management goals on private land are very clearly spelled out ahead of time.	Please see the new subsection in Section 1.4 for an explanation of the extent of the BLM's authority within the CCPA.
P18	05		Likewise, it Is also important that the EIS and proposed management plan take into account recent policy changes at the highest levels, and prudently anticipate near-future changes. In terms of Greater Sage Grouse management, the RMP's referenced in the DEIS are under review and will likely be heavily amended before the EIS is finalized. This needs to be taken into account. The DEIS is also imposing restrictions in Priority Habitat Management Areas (PHMA's) using the outdated State of Wyoming version 3 GSG boundary map, rather than the newer, more accurate version 4. The EIS absolutely needs to avoid any conflict with official, high-level policy, and make sure that it is comporting to the most recent policy directions, documentation, and data available.	The text has been updated to reflect the most current agency and department guidance and policy, including consistency with the Wyoming sage grouse policy.
Johnathan McDonald - Douglas, Wyoming				
P19	02		Reading through the document and the supporting materials, it was clear that there were a number of places where the language and tone of the DEIS does not comport with recent policy changes from the highest levels in Washington D.C. Obviously, if a federal planning document does conform to federal policy, that will create issues, including legal issues, going forward. The business community, including operators, investors, contractors, and support businesses, cannot approach a major project like this with the required certainty knowing that there are conflicts between the plan and federal policies expressed by the President via Executive Orders, and the Department of Interior via Secretarial Order. This must also apply to expected upcoming changes that will impact the implementation of the project. Any responsible project plan will take reasonably anticipated future policy changes into account.	The text has been updated to reflect the most current agency and department guidance and policy.
P19	05		Even here, the language is not clear enough to be as effective as it should. Utilization of the Migratory Bird Conservation Plan, referenced briefly in the DEIS, would provide the framework to grant relief from the timing stipulations and facilitate the year round drilling this project requires.	Please see the response to Comment B11-024. Also note that the Operator Group has suspended development of the Migratory Bird Conservation Plan.
Chris Mochulsky - email				
P20	01		I am requesting that you send me the all of the mineral leases that the operating group has obtained for the Converse County Project Area.	The BLM responded to this request separately by directing the commenter to a publicly available source for the requested information.
Chris Mochulsky – email #2				
P21	01		Section II of my comment requests that the BLM make the underlying leases for the Converse County Oil and Gas Project available, or at least provide the requisite information to locate the leases on the LR 2000 database.	The BLM responded to this request separately to provide the requested information.
P21	02		I am requesting that the comment period be re-opened/extended once this information is made available.	The BLM does not see the need to extend the comment period to accommodate review of material that was not used in the impact analysis disclosed in the EIS.

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Joel A. Norberg - Gillette, Wyoming				
P22	04		The ability to drill year-round is necessary not only from an economic and efficiency standpoint, but will result in a significant reduction in surface disturbance and truck traffic. Alternative C further failed to include any analysis of the detrimental environmental impacts caused by increased traffic due to the refusal to grant exceptions to timing stipulations.	The impact analysis for Alternative C has been updated to more clearly disclose the impacts associated with changes in traffic due to changes in the number of rig moves.
P22	05		Alternative B is clearly the preferable option, but we would urge the BLM to take steps prior to adopting it to make sure that if fully comports with policy directives issued from the White House and the Department of the Interior. We are concerned that if language is present in the ROD which contradicts high-level policy direction, the likely legal issues that would follow could delay the project, and the socio-economic benefits it will provide.	The text has been updated to reflect current agency and department guidance and policy.
Jaime Pinkerton - Glenrock, Wyoming				
P23	02		My support for alternative B also hinges on the fact that it is the only alternative which makes any sort of provision for year-round drilling. Alternative C does not allow for any exceptions to the timing stipulations established for Greater Sage Grouse leks and raptor nesting areas. These timing restrictions are unnecessary, given that there are better ways to balance development and conservations, such as those spelled out in the migratory bird conservation plan now being developed by the area oil and gas operators, the U.S. Fish and Wildlife Service, and your agency.	Thank you for your comment. Note that the BLM identified Alternative B, the Proposed Action, as the agency's preferred alternative in the Draft EIS. Also see the response to Comment B11-024 regarding exceptions to timing stipulations. Also note that the Operator Group has suspended development of the Migratory Bird Conservation Plan.
P23	03		The final Record of Decision should refer to the MBCP and its recommendations to permit year-round drilling so that the project can be kept on schedule and so that drilling sites can be reclaimed sooner.	Thank you for your comment. Note that the Operator Group has suspended development of the Migratory Bird Conservation Plan. Also see the response to Comment B11-024.
P23	04		One interesting feature of this project is that very little of the surface area involved is actually federally managed land; in fact, only 10% of the surface is federal, with the rest being owned by either the state or private interests. One area in which even Alternative B falls short is in detailing how your agency plans to manage wells and infrastructure development on private lands which fall under the auspices of this ROD because the wells on them are producing federally owned minerals. We all know that this unique situation of"split-estate" -private ownership of the surface and federal ownership of the minerals beneath the surface -presents a difficult hurdle for all involved, but it is something which still needs to be fully addressed in the EIS and properly spelled out.	Please see the response to Comment B11-059 regarding the extent of BLM's authority in the CCPA.
P23	05		A similar issue is encountered with the management of tribal and cultural resources. Section I 06 of the National Historic Preservation Act is notoriously ambiguous and has long caused issues pertaining to its applicability and enforcement. Nevertheless, the BLM has an obligation to clearly define how it intends to manage this issue in each case, and the EIS should therefore explain exactly what level of identification and management of tribal and cultural resources is required in this project, especially on the private lands involved.	Section 1.4.3 has been added to the text to clarify the BLM's authority over management of surface activities within the CCPA depending on the ownership situation (i.e., Federal surface-Federal minerals, split estate, Fee-Fee-Fed). In addition, text has been added to the introductions to Chapters 4 and 6 noting the limits on BLM authority and referencing the reader to Section 1.4.3. Text in Sections 4.2.2.4 and 4.2.3.4 has been added to reiterate that the BLM would follow Section V.A. of the existing Wyoming State Protocol for considering the effects of its undertakings on historic properties located on non-federal surface.
Colton D. Rodeman - Douglas, Wyoming				
P24	03		While I strongly support the Proposed Action, I would like to comment on an area which I feel requires improvement before the Record of Decision is filed. Specifically, the Draft EIS calls for "compensatory mitigation"-even though the Department of the Interior recently withdrew the policies which promoted these measures. Compensatory mitigation is an onerous requirement which accomplishes little beyond creating impediments to progress and injecting a great deal of uncertainty and needless delays into development projects. It is important that documents as critical and comprehensive as an Environmental Impact Statement are developed within the guidelines and directives issued from the President and the Doi. Statements and policies which conflict with official departmental policy and Presidential Executive Orders not only create confusion for all parties but could lead to costly legal delays.	The text has been updated to reflect the most current agency and department guidance and policy.
P24	04		As an elected representative in Converse County, I wish to see economic development occur, and to be done right. I believe your agency has done a good job in preparing this plan, and that the Proposed Action - Alternative B -is, upon some conforming adjustments to ensure it comports with the administration's intent, a workable and environmentally benign development proposal. It is my expectation that your office can make the necessary amendments and finalize the ROD by year's end, so that our people may begin realizing the economic benefits shortly.	Thank you for your comment. Please see the response to Comment B11-024. Also note that the text has been revised to reflect current agency policy and guidance, and has been completed under recent directives relative to EIS schedules.

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Janet Schneider - Wright, Wyoming				
P26	03		The DEIS's references to Greater Sage-Grouse management are outdated, and do not reflect the latest versions of priority habitat boundaries released by the State of Wyoming, nor reflect the fact that the relevant GSG RMP's are under review and likely to undergo significant changes before the EIS is finalized. If the DEIS does not allow for these likely changes, then large parts of the document will be obsolete upon finalization, and will need to be re-worked. We believe It is better to prepare for those eventualities in the document now, rather than wait and cause unnecessary delays.	The project is compliant with the current federal and state policies and management. The 2019 ARMPA has been placed on hold through a court challenge. As a result, the BLM will continue to utilize the 2015 ARMPA as guidance.
P26	04		Similar issues exist with the overall consistency of the DEIS in correlation to policy directives issued within the last year by the Department of the Interior under the new administration. If the DEIS falls to comport with department policy, this too could result in needless delays.	The text has been updated to be consistent with the most recent agency guidance and policy.
Sandra Sikorski - Upton, Wyoming				
P28	04		I do feel as though, however, that the EIS could have made clearer the process for requesting exemptions from timing stipulations and for utilizing Migratory Bird Conservation Plans which would facilitate year-round drilling. As important as year-round drilling is for both economic and environmental reasons, the final Record of Decision should clearly establish that such operations are allowed.	Please see the response to Comment B11-024. Also note that the Operator Group has suspended development of the Migratory Bird Conservation Plan.
P28	05		One more element that requires deeper clarification is the identification and monitoring of tribal and cultural resources. While NHPA Section 106 outlines the process for tribal consultation, this process is applied rather inconsistently, creating confusion and uncertainty on the part of operators.	Text has been modified in Section 4.2.2.4 to clarify when monitoring of areas with the potential for buried cultural resources would occur. Text has been modified in Section 4.2.2.4 to refer to tribal monitoring in areas determined through NHPA to contain or have high potential to contain Indian sacred sites and/or TCPs.
Twila Stafford - Douglas, Wyoming				
P29	03		The ability to drill throughout the year is critical to this project. For it even to get off the ground, operators are going to need assurances that they will be able to do their work without having to stop in the middle of it because of some largely arbitrary timing stipulation imposed because of the possibility of the presence of Sage Grouse breeding areas. These timing stipulations involve a lot more than simply stopping work and sending the crews home for a few days. Several steps need to be taken, especially when drilling, to ensure the safety and security of the partially completed well.	Please see the response to Comment B11-024.
P29	05		The environmental damage done by these timing restrictions exceeds any harm that may come to the Grouse's breeding areas. All those truckloads create wear on the surfaces they drive over, so one should wish to minimize them. Moving on and off also delays the onset of reclamation activities.	Please see the response to Comment B11-024.
P29	06		Alternative B appropriately sets the stage for year-round drilling, by allowing for exceptions to the timing rules to be granted. However, even this alternative does not go far enough towards enabling year-round development, in that it does not adequately spell out how that process would work.	Please see the response to Comment B11-024.
P29	07		Alternative B is a good plan of action, which could be made better with a little more clarity given to the timing stipulation exception process.	Please see the response to Comment B11-024.
Matthew Steinmetz - email				
P30	01		As a long time 38 yr WY resident, I am disturbed to see the BLM considering allowing drilling in the established core sage grouse areas. Easy question: why were these areas established? The answer: to protect sage grouse. So the question for the BLM is: why are you even considering allowing it in these core areas? I know this is the era of Trump and ZInke, and do whatever the hell you want on my public land, but, don't forget why these areas were established in the first place. Keep oil and gas off them!	Any new surface disturbance in PHMAs and Core Areas within the CCPA would be subject to current BLM, USFS, and WGFD management regulations that would restrict surface disturbance and disruption in important sage-grouse habitats, including restrictions on surface disturbance exceeding the 5 percent disturbance threshold and 1 well pad and associated infrastructure per 640 acres, on average (WY EO 2019-3, Attachment 4 to 24 BLM 2015b, Attachment B to USFS 2015b).
George and Joan Tellez - email				
P33	03		BLM acknowledges that the proposed development will cause violations of health-based air quality standards.	The DEIS presents the possible impacts due to the project, and some of these possible impacts do include exceedences of air standards. Mitigation measures to offset such impacts to air quality are presented in Sections 4.1 and 6.5.1.
P33	04		This issue needs to be addressed to protect the health and safety not only for the residents and wildlife, but also to protect the air, land and water.	Please see the response to your previous comment (Comment P33-03).

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
George and Joan Tellez – email (Continued)				
P33	06		BLM needs to limit the amount of water drawn from the aquifers, as well as provide bonding for the wells to protect the landowners and taxpayers from picking up the tab from orphaned wells and other cleanup.	The purpose of the NEPA (EIS) process is to disclose potential project impacts. The BLM appreciates that you have identified your specific concerns regarding the impacts disclosed in the DEIS.
P33	07		BLM needs to analyze the impact of noise and lights and complete the analysis before any wells are drilled.	Thank you for your comment. Please see section 4.7 for noise impacts and Section 4.18 for discussion of wildlife impacts including light.
Clifford J. Thompson - Wright, Wyoming				
P34	02		First, we are concerned about several inconsistencies between the Draft Environmental Impact Statement and recent policy changes at the Department of the Interior. For instance, much of the DEIS language does not seem to comport with DOI Secretarial Orders 3349 and 3360. There also appears to be some discrepancy between much of the DEIS tone and Presidential Executive Order 13783, concerning the Promotion of Energy Independence and Economic Growth. We would urge that the document and the follow up ROD be reviewed prior to finalization to ensure that there is no confusion, and that the documents accurately reflect current and reasonably foreseeable policy directives issued from Washington D.C. Failure to do so could create confusion on the ground and possibly legal issues as the project moves forward.	The text has been updated to reflect the most current agency and department guidance and policy.
P34	03		Second, we believe that the ROD needs to better reflect the importance of year-round drilling. While this is referenced in the proposed alternative, there remains some ambiguity over the process for requesting an exception from timing stipulations, and the granting of those exceptions. Such exceptions, of course are critical to ensuring year-round drilling is permitted. Year-round drilling not only cuts costs and keeps the project on a reasonable timeline, but presents unmistakable environmental benefits.	Please see the response to Comment B11-024.
P34	04		Eliminating the need to rig down, move off the project site, and then return all the equipment weeks later means far fewer truck trips, which in turn means reduced emissions, and reduced impact to the road surfaces.	Transportation impacts have been updated to reflect rig move changes between Alternative B and Alternative C.
P34	05		Finally, the ROD needs to more clearly reflect ELM policy with regards to the management of off lease wells on private lands that are accessing federal minerals within the project area. Fully 64% of the minerals being recovered in the project are federally owned, but only I 0% of the surface is, the remainder being state- or privately- owned. ELM policy needs to be clearly and more easily understood, so as to reduce the possibility of confusion or conflict.	Please see the response to Comment B11-059 in regards to the extent of BLM authority in the CCPA.
Shannon Lee Thompson - Wright, Wyoming				
P35	04		My only suggestion would be to carefully review the DEIS to ensure that it is in line with the direction being provided from the White House and the DOI. In several places the language in the DEIS seems to comport more with past policies than with current ones. This could cause a great deal of uncertainty going forward.	The text has been updated to reflect the most current agency and department guidance and policy.
P35	05		Providing greater clarity in terms of how wells and development on private land that is associated with this project will be managed, which tribal and cultural resources need to be monitored on private land,	Please see the response to Comment B11-059.
P35	06		which Greater Sage Grouse policies and RMP's are to be followed,	The text has been updated to reflect the most current agency and department guidance and policy.
P35	07		and the extent of mitigation procedures - especially "compensatory mitigation" - that will be required, in light of recent policy decisions, will be helpful in limiting future problems with the project.	The text has been updated to reflect the most current agency and department guidance and policy.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Department of Agriculture				
S01	01		Our primary concern revolves around the potential loss of permitted Animal Unit Months (AUMs} on federal grazing permits (both BLM and USFS). While the DEIS contains some information regarding overlap of federal grazing allotments with the project area, there is no clear articulation of which federal allotments would be most impacted.	The list of potentially impacted federal allotments is provided on Table 3.9-1. Allotments depicted in Figure 3.9-1 have been numbered to match numbering added to Table 3.9-1 for better visibility regarding location of the allotments listed. Additionally, the portion of each allotment within the CCPA has been added to Table 3.9-1. Due to the programmatic nature of this EIS, site-specific impacts to any one allotment cannot be determined to any degree of certainty until the location of wells and other facilities has been identified (i.e., during the APD process).
S01	03		We are unclear as to what "incremental disturbance" truly means. The analysis seems to indicate an initial boom in activity, followed by the production period for the Project. However, we feel the depiction of impacts to permittees is far too broad throughout the document and would point out what appears to be a discrepancy between the statements above and other parts of the document in terms of "percent of the total cumulative loss of federally permitted AUMs"	This paragraph in the Executive Summary is discussing cumulative impacts to range resources as those reflect the most conservative (i.e., greatest possible) impacts that would be anticipated in the area if this project were approved. “Incremental disturbance” refers to the portion of disturbance that the specific project alternative (B or C) would contribute to the overall (total cumulative) disturbance the analysis area. In the context of cumulative impacts, the overall/total disturbance includes disturbance from other past and anticipated (reasonably foreseeable) future projects in the area as identified in Chapter 5. The percent of “total cumulative loss” of federally permitted AUMs takes into account the loss due to the proposed project plus all other cumulative projects in the analysis area. Please refer to Table 5.3-15 for revised numbers and more detail regarding the total federal AUMs lost. A definition of incremental impacts has been added to the glossary (Chapter 9).
S01	04	Table ES-2	Again, we ask the BLM to clarify what "incremental" disturbance means.	Please see response to comment S01-03.
S01	05	Table ES-2	The numbers provided for the Alternatives in the rows under "Range Resources" do not appear to match the information provided elsewhere in the document. Totals given in other areas (see WDA Comment 1 above) are much higher and are nested in a different section of the document leading to confusion on assumed impacts to permittees. BLM must clarify and consistently portray the impacts in both sections.	The numbers provided in Table ES-2 are project/alternative-specific; whereas, the numbers provided earlier in the Executive Summary are cumulative. The cumulative values should be higher as they include impacts from other cumulative past and reasonably foreseeable future projects in the analysis area as well anticipated values from the project (see response to comment S01-03). Please refer to Section 4.9 for project-specific impacts to range resources and Section 5.3.9 for cumulative impacts to range resources.
S01	06	Tables 2.3-2	We are unclear on how the estimation of 110 wells per year was derived. Data in the table indicates 350 wells were drilled over a 7-year period which would equate to an average of 50 wells per year. Using the 1,663 wells that could be drilled under existing National Environmental Policy Act (NEPA) documents1 we are still unclear as to how this number is arrived at. Please clarify.	BLM used the maximum drilling rate from the historic data obtained from the WOGCC (107 wells drilled in 2014) rounded to 110 wells per year as the assumed drilling rate under the No Action Alternative. This was the data available at the time the assumptions for analysis were established by the BLM.
S01	08	Table 2.7-2	Again, we ask the BLM to clarify what "incremental" disturbance means. The numbers provided for the Alternatives in the rows under "Range Resources" do not appear to match the information provided elsewhere in the document. Totals given in other areas (see WDA Comment 1 above) are much higher and are nested in a different section of the document leading to confusion on assumed impacts to permittees. BLM must clarify and consistently portray the impacts in both sections.	Please see response to comment S01-03.
S01	09	Table 2.7-2	We are concerned by the apparent lack of information with regard to agriculture and agricultural production in the Socioeconomics section of the table. Please add this information to Table 2.7-2. The analysis should at least estimate the reduction in revenue to producers based on AUMs that will be lost due to the project.	Comment noted. A discussion of effects on agricultural production has been added to Section 4.11.2.
S01	10	3.9.2.1	Given the numbers provided prior to this section in the document, we are confused as to what losses in AUMs are being conveyed. The Executive Summary states the combined total for BLM and USFS allotments is 66,500 AUMs. The Executive Summary also states on page ES-8 the "loss of permitted AUMs from cumulative disturbance, including Alternatives B and C would be 25,198 and 22,812, respectively". Given the majority of federal AUMs are likely to be on BLM land, we struggle to understand how these numbers are arrived at. We assume any "permitted" AUMs encompass the entire allotment, regardless of actual surface ownership (e.g., 53 allotments are classified as Custodial). Please clarify these sections.	Section 3.9 defines the affected environment for range resources and does not discuss impacts (i.e., not conveying any losses in AUMs). Alternative-specific impacts are presented in Section 4.9 and cumulative impacts are in Section 5.3.9. The 66,500 federal AUMs presented in Section 3.9 describes the total number of federal AUMs that are in the project area; a subset of these will be impacted (which is provided in Sections 4.9, 5.3.9, and the Executive Summary). Also, please see response to comment S01-03. The “Total Permitted AUMs in Allotment” as provided on Table 3.9-1 does represent the entire allotment.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Department of Agriculture (Continued)				
S01	11	Map of BLM Grazing Allotments and USFS Range Management Units	It is difficult to discern from this map which allotments/range management units are being listed on page 3.9-5. Please label the allotments or only include those that are listed in Table 3.9-1. We would also suggest changing the map so ownership (e.g., federal, state, private) is more clear.	Figure 3.9-1 has been modified to eliminate allotments that do not intersect with the CCPA. Additionally, identification numbers have been added to both Figure 3.9-1 and Table 3.9-1 to more clearly note the location of each allotment.
S01	12	Table 3.9-1	In keeping with WDA Comment 9 above, please include a column disclosing the amount of overlap for each allotment/range management unit within or intersecting the Project Area. At this time, we cannot determine which allotments to expect to be most impacted by the project and which allotments may only be slightly overlapped by the Project Area.	The portion of each allotment within the CCPA has been added to Table 3.9-1. Please see response to comment S01-01.
S01	13	3.9.2.2	Again, we are led to assume this is limited to USFS System Lands, not the allotment as a whole but are unclear as to how the various numbers in the different Range Resources sections correlate.	Please see response to comment S01-10.
S01	14		Proper livestock grazing has the ability to meet these objectives. This statement appears to be highly biased and is incorrect given the information in the Final Environmental Impact Statement for the Thunder Basin National Grassland from October 2009 and associated Record of Decision for the Broken Hills area. Please remove this statement.	Text has been deleted and replaced with the description provided in the 2001 Thunder Basin National Grassland LRMP (USFS 2001).
S01	15		Given the recent push to streamline NEPA documents, we feel the BLM should consider reducing the length of sections such as this. Within the discussion on the two pages listed, only one species is even within the Project Area yet expansive discussion is provided on all the potential species. We also find "potential suitable habitat" for a plant to be extremely presumptive. While certain soils may be more conducive to a certain plant's life, the lack of a seed source within the area should indicate an extremely low likelihood, if not an impossibility, of recruitment. Further, one of the USFS plants is only found in South Dakota. We suggest the BLM review this section and when species are not in the Project Area they should not be discussed further. Similar can be said far wildlife and other sections of the document that refer to the occurrence, or lack thereof, of sensitive species.	Comment noted. Text was revised to include rationale for analyzing these species for the project.
S01	16		Again, we would point out changes in numbers and metrics used to estimate impacts. Information in Chapter 4 seems to combine acres across BLM allotments and USFS range units, yet AUMs were previously used, along with different acreage numbers. We would also point out the large difference in "grazlng allotments" and all "rangelands" and ask that the same verbiage be chosen and used throughout. We would also suggest that, given the unknown success of reclamation, BLM change "minimized" to "reduced" in the second sentence.	Please see responses to comments S01-01, S01-05, and S01-10. Text has been modified to “reduced” as suggested.
S01	17	4.5.22	Table 4.9-2 on page 4.9-3 indicates the "Percent of Permitted AUMs Lost" on BLM lands would be 33% and on USFS lands would be 2%. We do not understand how a loss of one third of the BLM AUMs does not warrant some kind of mitigation. We also would point out the percentages provided here do not seem to correlate to the numbers provided in Chapter 3 which state "... BLM allotments provide for a total o/ 17,657 AUMs..." (pg. 3.9-2) and "... USFS units provide for a total of 26,862 AUMs..." (pg. 3.9-8) or with the total provided in the Executive Summary of 66,500 AUMs (pg. ES-8). We struggle to understand the math used to derive the ratios and estimated percentages of losses. Please clarify throughout the document.	The calculation of permitted AUMs lost on the tables in Section 4.9 was in error and has been corrected. Additionally, more information was added to these tables (as well as Table 3.9-1) to better clarify how these numbers were calculated. Also, please see responses to comments S01-01, S01-05, and S01-10.
S01	18		Please refer to our comments above regarding calculations and mitigation of impacts to livestock grazing permittees.	Please see response to comment S01-16.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Department of Agriculture (Continued)				
S01	19		This effectively removes all federal lands from the analysis due to the fact locations have not been chosen for well pads yet. We do not support mandatory 2-year deferment and, given our experience working with reclamation, believe the last portion of this statement only serves to lengthen the amount of time these lands would be unavailable to livestock grazing permittees. Again, we do not see how this level of impact can go unmitigated on federal surface. Our experience has also shown that blanket deferment of reclaimed sites does not further reclamation success. In many cases, reclaimed areas promote heavy grass production which hinders forb and shrub growth without grazing and therefore does not move towards final reclamation objectives. Grazing should be used as a tool to further reclamation objectives. We recommend BLM change this to read: "Federally managed lands which undergo reclamation may be available for grazing. In instances where deferment from grazing is deemed necessary, these sites may be fenced. Fencing and deferment of reclamation sites on federally managed lands is not required in all instances and should only be done based on site conditions and objectives."	Text modified as requested.
S01	20		Page 4.11-20, lines 40-45, of the Socioeconomics and Environmental Justice section state: "Such changes would include reductions in authorized grazing of as many as 6,922 AUMs of grazing on federal lands {Section 4.9). Private surface owners are compensated for use of their land through surface use and damage agreements. On federal grazing allotments, permittees are not compensated for surface disturbance or other effects associated with reductions in authorized grazing levels. Such reductions could result in adverse effects on farm income for grazing permittees. The mitigation measures for range resources outlined in Section 4.9 would reduce impacts on permittees with grazing allotments on federal lands." While there may be a reduction due to "mitigation measures outlined in Section 4.9" there is clear recognition that adverse impacts are expected from the reductions in AUMs. Additionally, the "mitigation measures" on page 4.9-3 and 4.9-4 have nothing to do with the loss of AUMs but instead are focused on range improvement inventory and replacement (RANGE-1), livestock fatalities (RANGE-2), construction schedules (RANGE-3), and signage and gates (RANGE-4). In the end, we are skeptical that the AUMs lost due to this Project will ever be returned or regained and urge the BLM to consider actual impacts to livestock grazing permittees. The Socioeconomic section should fully analyze the value of an AUM and acknowledge the adverse impacts due to AUM losses. BLM should also identify actual mitigation measures for livestock grazing permittees and the loss of AUMs.	Comment noted. A discussion of effects on agricultural production, including the value of reductions in grazing on public lands, has been added to Section 4.11.2.
S01	21		Again, we are concerned that impacts to livestock grazing on federal lands are being marginalized. We are also concerned that numbers again do not appear to be consistent. Since the Cumulative Impacts Study Area is the same as the analysis area (allotments that overlap or are within the Project Area) we do not understand how these numbers are calculated differently than those found in Chapter 4.	Analysis in Chapter 4 has been modified to focus on impacts only within the CCPA (i.e., some allotments are not entirely within the CCPA), while Chapter 5 considers impacts to the entire allotments. Also see responses to comments S01-05, S01-10, and S01-17.
S01	22		This section appears to be entirely devoid of any discussion of impacts to the agricultural sector although there may be multiple avenues by which the agriculture industry is impacted. For example, if demand for short- and long-term housing rises, pressure to sell rangelands will increase and further impact the industry as a whole and by county. BLM should add information on impacts to the agricultural sector in this section.	Comment noted. A discussion of effects on agricultural production, including the reductions in grazing on public lands, has been added to Section 5.11.
S01	23	6.3	This section does not include any information on BLM Range Management or goals and objectives for livestock grazing in the Casper Field Office. We suggest the BLM add information similar to the USFS (see page 6-15).	The referenced section (6.3) provides a listing of existing goals and objectives for each agency's land use plan. Making the suggested changes in these land use plans is beyond the scope of this project-specific EIS.
S01	24	6.4	Neither of these OG Committed Design Features should be considered an "addition to federal and state regulatory requirements"; the first is dictated by the "surface use agreement" noted in the statement and if the second is not recognized it would result in trespassing. We do not believe these commitments are above and beyond anything that would already be required and do not feel they should be listed in the Range Resources section. We suggest the BLM move them to the Land Use section and would hope the OG would put forth some actual measures for Range Resources.	The referenced design features are part of the Operator Group's proposed project and are reproduced within the EIS as presented in their plan of development. The impact analysis (see Section 4.9) considers whether proposed design features eliminate impacts before proposing additional mitigation. Note that Section 4.9 presents four additional mitigation measures for Range Resources.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Department of Environmental Quality				
S02	01		There are 10 existing Class I commercial injection wells within the immediate vicinity of the EIS and these wells should be considered for produced water disposal scenarios. Most of these Class I injection wells have been safely disposing of produced water for decades without incident. Additionally, there are 5 proposed Class I commercial injection wells in Converse County that have been permitted but not constructed. These 5 proposed Class I commercial wells will be drilled, and additional Class I commercial wells will be brought on-line to help with disposal of produced water if necessary.	There are nine active Class I wells associated with uranium mining in the vicinity of the CCPA that would not be expected to take oil field waste. The table was edited to delete an inactive permit.
S02	03		There is no discussion regarding the likely need for 'man camps' in remote areas, their size, location, and the availability of potable water and sewage treatment facilities.	Workforce facilities (also called man camps) are discussed in Section 2.4.7 and disturbance associated with these facilities is included in Table 2.4-1. As with other elements of the proposed development, the specific location of workforce facilities is not known due to the programmatic nature of the development proposal. Water use and wastewater management for workforce facilities would be a negligible portion of the overall water used for the proposed project.
S02	04		The information provided did not discuss water quality in specific terms nor was any water quality data provided. There is little dispute that the Wasatch and/or Fort Union formations within the EIS are considered Class I ground water - if not by use, then by water quality and are the main drinking water sources.	The water quality data provided is general in nature, but it adequately characterizes the water quality in the various aquifers. The text was revised to provide the TDS concentration standards that define the quality classes.
S02	05	Section 1.5.3, Table 1.5-1	Key Federal, State, and Local Permits, Approvals, and Authorizing Actions for Construction, Operation, Maintenance, and Abandonment of the Proposed Action are missing the following permit descriptions. Storm Water Permit. A storm water permit is required any time project construction results in clearing, grading, or otherwise disturbing one or more acres. The disturbed area does not need to be contiguous. The permit is required for surface disturbances associated with construction of the project, access roads, construction of wetland mitigation sites, borrow and stockpiling areas, equipment staging and maintenance areas and any other disturbed areas associated with construction. A general permit has been established for this purpose and either the project sponsor or general contractor is responsible for filing a Notice of Intent (NOI) and complying with the provisions of the general permit. The NOI should be filed no later than 30 days prior to the start of construction activity. Please contact Barb Sahl (307-777-7570) for additional information.	Table 1.5-1 includes "National Pollutant Discharge Elimination System (NPDES) General Permit for Construction: for discharge of construction dewatering and hydrostatic test waters from property to U.S. waters; controls offsite stormwater runoff from construction activities resulting in 1 acre or more of disturbance." This table provides a general overview of all key permits required for this programmatic EIS and does not need the level of detail provided in the comment.
S02	06	Section 1.5.3, Table 1.5-1	Key Federal, State, and Local Permits, Approvals, and Authorizing Actions for Construction, Operation, Maintenance, and Abandonment of the Proposed Action are missing the following permit descriptions. Commercial Oil Wastewater Disposal Facility (COWDF) Permit. A COWDF permit is required for any project that involves the construction, modification, or operation of a COWDF (W.S. 35-11-301(a)(iii)). All applications must be submitted with a management plan that includes an engineering design report, construction plan, operation plan, and financial assurance for the COWDF. Evaporation ponds need to be constructed in a manner that protects surface water and groundwater, and a groundwater monitoring program is also required as a condition of the permit. Please contact Dennis Lamb (307-473-3452) for more information.	Information on the COWDF permit has been added to Table 1.5-1.
S02	07	Section 1.5.3, Table 1.5-1	Key Federal, State, and Local Permits, Approvals, and Authorizing Actions for Construction, Operation, Maintenance, and Abandonment of the Proposed Action are missing the following permit descriptions. Underground Injection Control (UIC) Permit. The WDEQ UIC Program regulates the subsurface injection of nonhazardous waste fluids, subsurface storage of liquid and gaseous fluids, and mineral solution mining to protect current and future uses of Underground Sources of Drinking Water (USDW). A USDW site is defined as an aquifer which currently, or could, supply a public water system with drinking water. For permitting requirements, please contact the Groundwater Section Manager at 307-777-7072.	Information on the UIC program that is administered by WDEQ has been added to Table 1.5-1.
S02	08	Section 2.2.3.4	The WQD requests that the EIS clarify any intention to discharge to surface waters and relevant discharge permits. If the OG does not plan to discharge to surface waters, the WQD requests the following sentence be added to the EIS following the abovementioned sentence: "There will be no point source discharge of flowback water, produced water, or any other waste streams to any surface waters."	Text modified in Section 2.2.3.4 as requested.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Department of Environmental Quality (Continued)				
S02	09	2.2.5.3	Spills of Hazardous Materials and Solid Wastes: This section should include spill reporting to DEQ as a requirement. Spill Reporting. Chapter 4 of the Wyoming Water Quality Rules and Regulations requires that the WQD be notified of spills or releases of chemicals and petroleum products. Spills can be reported through our website (http://spills.adm.apps.deq.wyoming.gov/) or directly to Joe Hunter (307-777-5885)	Text on Spill Reporting has been added to Section 2.2.5.3.
S02	10	Section 2.5.2.8 Produced Water Management and Disposal	The WQD recommends changing the following sentence “This would result in 40 percent of the Project proposed water use to be recycled” “this would result in 40 percent of the Project proposed water use to be recycled” to “recycling would reduce the demand for fresh water by 40%”.	Text modified as requested.
S02	11	Section 3.16.1.1 Laws and Regulations	The WQD request the following sentence be added to the end of the first paragraph: “Section 401 of the CWA requires WDEQ to certify any federal license or permit which may result in a discharge into waters of the United States, including discharges permitted by USACE under Section 404.”	Text modified as requested in Section 3.16.1.1.
S02	12	Section 3.16.1.4 Surface Water Use	While the surface water intakes for the two municipal water systems (Town of Douglas and Dave Johnston Generating Station) are not within the Project area, both of these systems have delineated source water areas that intersect with the Project area. Any activities that occur within these delineated source water areas have the potential to impact the water quality of these two surface waterbodies, and if WYPDES permits are proposed for produced water disposal, permits would need to exclude direct or tributary (indirect) discharge to the Platte River. The WQD requests that language be included to address delineated source water areas in this section, as well as the corresponding section in Chapter 4. Spatial data regarding the location of delineated source water areas can be obtained via a public records request. Please contact Kim Parker (307-777-6128) for more information.	The OG is not proposing WYPDES permits for the disposal of waste water. The text was revised in Section 2.2.3.4.
S02	13	Section 4.16.1.1 Impacts to Surface Water Resources from Alternative A - No Action	Page 4.16-2, Line 37-39 states that stream crossings will be constructed according to the standards found in the “Gold Book” to reduce temporary increases in turbidity and suspended solids associated with installing culverts or other stream crossing methods. The WQD requests that the EIS include the following language: “Proponents of individual projects will consult with WDEQ and obtain a turbidity waiver for any activities that may result in elevated levels of total suspended solids and increases in turbidity prior to initiating the activity during the APD stage.”	The turbidity standard is under the CWA Section 401 and contained in Chapter 1 of the Wyoming Water Quality Standards, which are listed on Table 1.5-1. Based on the assumption that applicants will abide by all laws and regulations, no revision to the table is seen as necessary.
S02	14	Section 4.16.1.1 Impacts to Surface Water Resources from Alternative A - No Action	Page 4.16-3, Line 1-3 states that “on BLM-administered lands, no new surface disturbing activities would occur within 500 feet of Class 1 and 2 waterbodies (BLM 2007b). Waters other than Class 1 or Class 2 waterbodies would be considered on a case-by-case basis.” This statement is consistent with the Casper RMP, but the WQD requests that the EIS elaborate on which characteristics (i.e. ephemeral, intermittent, delineated floodplain width, etc.) of a Class 3 or lesser quality waterbody would result in development being allowed within 500 feet of the waterbody and whether there would be mandatory setbacks for these waters less than 500 feet. Additionally, please explain any BMPs or other measures that would be taken to reduce the risk of pollutants reaching these waterbodies and downstream waterbodies.	Text has been modified to address Class 3 waters. Appendix K of the BLM Casper RMP Final EIS provides sources of BMPs, but the RMP does not provide descriptions of BMPs.
S02	15	Section 4.16.1.1 Impacts to Surface Water Resources from Alternative A - No Action	Page 4.16-4, Line 7 states that that SPCC plans will be prepared to minimize risk of surface water contamination from spills. The WQD requests that spill reporting be included in this paragraph: Spill Reporting. Chapter 4 of the Wyoming Water Quality Rules and Regulations requires that the WQD be notified of spills or releases of chemicals and petroleum products. Spills can be reported through our website (http://spills.adm.apps.deq.wyoming.gov/) or directly to Joe Hunter (307-777-5885).	Additional spill reporting information was added to the first paragraph in Section 2.2.5.3. It is not necessary to provide spill reporting telephone numbers in a programmatic EIS.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Department of Environmental Quality (Continued)				
S02	16	Section 4.16.1.2 Impacts to Groundwater Resources from Alternative A - No Action	Page 4.16-3, Line 16 states that "Marston and Dolan (1988) conducted research to investigate the major criteria that control upland erosion…." Is there a more current reference?	No more current reference was found. The results of research provided in Marston and Dolan (1988) is not outdated.
S02	17	Section 4.16.1.2 Impacts to Groundwater Resources from Alternative A - No Action	Page 4.16-5, Line 41-42 states that "out of 18,000 active wells in Weld County, the frequency of surface spills that impacted groundwater was 0.5 percent over a 1-year period…" which seems to contradict language on Page 4.16-6, Line 3-4 that states: "The 0.5 percent per year frequency of surface spills impacting groundwater represents slightly less than 90 incidents per 18,000 wells in one year." The first sentence only specifies a percentage of spills that result in groundwater contamination, while the second sentence provides an actual rate of spills per well per year that result in groundwater contamination, so it is important to distinguish which is the case for the impact analysis.	0.5 percent of 18,000 (i.e., 0.005x18,000) equals 90. Text is not inconsistent and remains unchanged.
S02	18	Sectopm 4.16.1.2 Impacts to Groundwater Resources from Alternative A - No Action	Page 4.16-6, Line 19-22 states that "a Condition of Approval (COA) for development on federal minerals would include a setback of 0.25 mile near occupied dwellings or structures. Domestic water supply wells would be closely associated with occupied structures; therefore, this COA would provide setbacks from domestic wells." The WQD requests that 0.25 mile setbacks be specifically established for domestic wells.	The 0.25-mile setback from occupied dwellings is sufficient given the assumption stated in the text. Furthermore, the BLM does not have the authority to add this requirement.
S02	19	Section 4.16.1.2 Impacts to Groundwater Resources from Alternative A - No Action	Page 4.16-11, Line 22-27 states that "Capacity of commercial evaporation ponds…would affect the number of Class II disposal wells that would be needed…Pond capacity could be quite large as evidenced by a new pond [with] a 1,000,000-barrel capacity (Lamb 2017)". Evaporation ponds do not function effectively during the colder months in Wyoming, and OG should plan accordingly, given that they are seeking seasonal exemptions from wildlife restrictions in order to operate year-round. The WQD would recommend consulting with Dennis Lamb (307-473-3452) for more information.	Please see response to Comment F02-12.
S02	20	Section 4.16.2.1 Impacts to Surface Water Resources (Alternative B)	Page 4.16-12, Line 14-15 states that "[stream] crossings would be installed in accordance with requirements contained in the Gold Book (USDOI-USDA 2007)." It is not clear whether OG intends to implement these construction practices on BLM land only or if it will apply to private lands as well.	The referenced statement is not a commitment by the OG. Please see the response to Comment B11-059.
S02	21	Section 4.16.2.1 Impacts to Surface Water Resources (Alternative B)	Page 4.16-12, Line 18-24 states that "Interim reclamation under Alternative B would be required to meet BLM or USFS approval for suitable wildlife habitat on only the 10 percent of the CCPA that is federal managed surface estate (Section 2.4.5). Areas of disturbance adjacent to and directly upslope of streams that are not successfully reclaimed also could contribute to impacts on surface water through increased levels of stream sedimentation. Site-specific BMPs for storm water runoff control would be specified in the SWPPP and applied during construction and reclamation to minimize these impacts." The WQD would like to point out that storm water permits are required for any project that disturbs 1 acre or more of surface area, even on private lands. These permits generally require disturbance that is not paved or graveled to be revegetated to 70% of the background cover for the area.	Text modified in Section 4.16.2.1 to include more information on Stormwater Pollution Prevention Plans.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Department of Environmental Quality (Continued)				
S02	22	Section 4.16.3.1 Impacts to Surface Water Resources (Alternative C)	Page 4.16-19, Line 2-5 states that “Lease stipulations could restrict disturbance or occupancy on federally administered lands within floodplains, within or near riparian areas and wetlands, and at public water reserves. On BLM-administered lands, no new surface disturbing activities would occur within 500 feet of waterbodies (BLM 2007b).” This sentence references the Casper RMP, but seems to be inclusive of ALL waterbodies for Alternative C, as opposed to Class 1 and Class 2 waterbodies only for Alternative B. Is this an additional protective measure for Alternative C, or is this a typo? The WQD requests clarification on this issue.	Such lease stipulations would apply to all alternatives. Text has been modified in Sections 4.16.1.1 and 4.16.3.1 to refer to Class I and Class II waterbodies.
Wyoming Game and Fish Department				
S03	02		As we have expressed from the inception of this project, our primary concern is for the increasing and cumulative amount of industrial development in Converse County, which in turn leads to increased habitat loss and fragmentation. Intact sagebrush shrubland habitat is limited in northeast Wyoming, and further loss of sagebrush habitat will be a significant shift for wildlife that depend on sagebrush habitats in this part of the state. The preferred alternative estimates ~ 76,700 acres of surface disturbance will occur in the Converse County Project Area (CCPA) as a result of existing and planned oil and gas development, of which ~ 11,600 acres is identified as sagebrush shrubland habitat. The analysis for vegetation resources under Alternative B identifies the impact of this amount of vegetation loss as substantial. These disturbance estimates do not account for other types of existing and planned industrial development in Converse County (e.g., wind energy and mining); though the terrestrial wildlife cumulative impact study area (CISA)estimates .....,44,400 acres of existing and reasonably foreseeable development (excluding the Converse County Oil and Gas Project), which includes all industries.	Sections 5.3.14 and 5.3.19 identify acreage impacts as a result of disturbance from the project as well as past, present, and future projects. Exact acres of disturbance to specific vegetation types would be analyzed in subsequent NEPA at the site-specific level.
S03	03		The CCPA encompasses the southern portion of the Thunder Basin National Grasslands (TBNG), several of the Department's Strategic Habitat Plan (SHP) crucial and enhancement areas, and winter-yearlong range for mule deer and pronghorn as identified in the EIS. These areas provide habitat for both game species and non-game Species of Greatest Conservation Need (SGCN). As noted in our comments on the preliminary draft EIS, the aforementioned areas fall into categories of vital, high, and moderate value habitat. The Department's approach for these wildlife and habitat resources is to recommend the following: 1. No significant declines in species distribution or abundance or loss of habitat function (Vital - Tier 1 SGCN, sage-grouse core habitat, wetlands). 2. Mitigation measures that result in no net long-term loss of habitat function or species distribution or abundance (High - Tier II SGCN, big game winter-yearlong range, riparian habitat) 3. Mitigation measures that result in no large-scale loss, or cumulative loss, of landscape habitat function (Moderate - Tier III SGCN, other big game seasonal ranges).	Thank you for these recommendations. The department's Strategic Wildlife Habitat Plan was considered in the development of mitigation measures for the EIS (see Section 4.18.1).
S03	04		Alternatives B and C apply certain mitigation measures to reduce impacts on specific resources; however, we have concern with the conclusion drawn in the cumulative impacts assessment (Chapter 5) that "ongoing and future well development within the terrestrial wildlife CISA would cumulatively and incrementally reduce the ability of wildlife habitats to support wildlife and special status species at their current levels for the lifetime of the proposed project." Given the existing amount of industrial development, including wind energy, mining, aud oil and gas, the Department believes this to be an accurate assessment and expects that the overall capacity of this landscape to support wildlife and wildlife-oriented recreation will diminish. We anticipate increases in wind energy development in Converse County, which should be accounted for in the cumulative impacts analysis; increases in mining activity, particularly sources of gravel and aggregate, which are often located in high value mule deer habitat and are needed for other types of development in the CCP A; and an increase in oil and gas development as evidenced by multiple existing, approved EAs and this EIS. Long-term loss of habitat function warrants additional consideration for avoidance, minimization, and measures that result in the replacement of habitat function.	Speculative projects are not analyzed under the NEPA process. Projects that are not considered to be speculative include those for which the NEPA process has already been initiated, permit applications have been submitted, or resources or funding have been committed.

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Wyoming Game and Fish Department (Continued)				
S03	05		The Department is also concerned about the continued spread of noxious and invasive plant species across the CCP A as a result of high levels of surface disturbance. Invasive plant species such as cheatgrass thrive where disturbance occurs and can quickly and severely degrade rangeland and habitat quality. Other invasive grasses have been documented in northeast Wyoming and can be expected to spread into neighboring counties. The existing and potential increased impacts of these invasive species on lands within the CCP A are vastly understated in the EIS. The maintenance of productive rangelands is a common interest of high importance. We encourage the BLM and operator group (OG) to consider measures that will reduce the overall amount of surface disturbance in the CCP A, as well as additional proactive measures to prevent the establishment and spread of invasive plant species.	Comment noted. The impact analysis was based on available information for the assessment of a programmatic development proposal. Mitigation measures have been proposed that include the mitigation measure VEG-1, as well as a site-specific reclamation plan, to avoid or reduce the potential for the spread of noxious and invasive plant species.
S03	06		Finally, the Department recognizes the inherent complexity of the proposed project given split estate surface and mineral ownership in Converse County. We value and respect private surface owner rights and aim to support landowners in achieving mutual goals whenever possible. We are concerned that this programmatic EIS will be the first and final to time to review and comment on development with little or no federal nexus in the CCP A. Categorical exclusions for new site-specific development may be tiered to the EIS with little opportunity for cooperator input; on-site opportunities for federal minerals produced off-lease will be limited; and ancillary facilities placed on private surface will require no BLM authorizations. In short, the potential for site-specific development to occur without site-specific analysis is high, which limits opportunities for site-specific avoidance and minimization measures to be applied beyond this programmatic EIS. The Department encourages the BLM and the OG to consider ways to facilitate regular conversation pertaining to site-specific planning in order to minimize the impacts of the proposed development.	The BLM will continue to follow established NEPA processes, including involvement of the public and cooperating agencies as appropriate, in approving future site-specific development proposals in the CCPA. Also note that the BLM issued a Supplemental Draft EIS after release of the Draft EIS to disclose the analysis of potential land use plan amendments based on Draft EIS comments.
S03	07		Well Pad and Associated Infrastructure Reduction In Alternative C, we appreciate the analysis of the BLM requiring more wells on fewer well pads; however, it is unclear how BLM will achieve this and we recommend more explanation is provided in the alternative description. Methods for incentivizing the placement of multiple wells on a pad should be explored and considered. The Department supports the end goal of reducing surface disturbance acres through the need for fewer well pads.	Thank you for your comment. As noted in Section 2.5.1, the number of wells per pad for Alternative C was based on information provided by the Operator Group to support the regional air quality modeling. The number of wells per pad is driven by advancements in drilling technology as well as the location and characteristics of target formations.
S03	10		Consolidating Production Facilities Though we did not find discussion of this in the EIS, we recommend the BLM work with the OG to consolidate production facilities for federal and non-federal minerals. Consolidating the facilities needed for collecting federal and non-federal minerals would limit the duplication of production facilities. We recommend this is incorporated into the preferred alternative.	Thank you for your recommendation. The BLM is not currently aware of a means by which the agency can require the consolidation of facilities.
S03	13B		Sagebrush Restoration As disclosed in the EIS, sagebrush shrublands will be the most highly impacted habitat in the CCP A. Contiguous, intact sagebrush habitat is limited in northeast Wyoming. Sagebrush habitat is difficult to restore in landscapes with low precipitation and that are dominated by perennial grasses. Reclamation will take decades to return to pre-disturbance conditions. Avoidance of these intact sagebrush stands and minimization of surface disturbance is key to reducing overall impacts to this habitat type. Current BLM-proposed mitigation measures and OG-committed design features will help to address this issue. We recommend additional mitigation measures are developed and applied to further reduce this impact: VEG-1 indicates the OG will collect native seed to increase local native seed stock. Collection of native seeds should include sagebrush. Further, the seed collected through the application of this mitigation measure should actually be used in reclamation in the CCPA. Additionally, sagebrush seed should be offered (not required) in reclamation seed mixtures throughout the CCPA.	Text revised to include that local, native seed sources will be considered when deemed practicable and feasible to meet reclamation goals.
S03	13A		The OG developed a programmatic reclamation plan in 2014. The plan discusses the OG's anticipated reclamation plans across the CCPA subject to variations within specific landowner surface use agreements. The OG reclamation plan should be analyzed in an alternative in the EIS and carried forward to the preferred alternative.	The OG's Reclamation Plan was presented to the BLM as part of the Proposed Action (Alt B) and was analyzed in the EIS.

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Wyoming Game and Fish Department (Continued)				
S03	14		Invasive Plant Species As previously noted, we feel the potential impacts of the spread of invasive plant species such as cheatgrass are understated in the EIS. Statewide and regional modeling indicates northeast Wyoming, and in particular Converse County, is at high risk for increased cheatgrass invasion based on existing presence/absence information and predicted climate trends (Noseworthy, 2015). An increase in surface disturbance will result in an increase in invasive species presence. An increase in prevalence of invasive species will quickly compound reclamation challenges and degrade undisturbed habitat in the CCP A. Current BLM-proposed mitigation measures and OG-committed design features will help to address this issue. We recommend additional mitigation measures are developed and applied to further reduce this impact: VEG-2 indicates weeds and invasive plant species will be mapped on a site-specific basis and submitted to land managers to develop a treatment plan. Responsibility for implementing weed management plans must be clear. Treatment plans must be implemented in a timely manner, and include pre-disturbance treatment and post-disturbance treatment. We recommend a broader, programmatic approach to weed monitoring, prevention, and control is considered for the CCP A, one that maximizes federal, state, local, and private partnerships. Again, the OG developed a programmatic reclamation plan in 2014. The plan discusses the OG's anticipated reclamation plans across the CCP A subject to variations within specific landowner surface use agreements. The OG reclamation plan should be analyzed in an alternative in the EIS and carried forward to the preferred alternative.	Comment noted. Due to existing measures designed to reduce the invasion and spread of noxious and invasive weeds as noted in BLM IM No. WY-2012-032 under Alternative A and carried forward to Alternative B and C, no additional mitigation measures will be added. See response to comment S03-13A regarding reclamation.
S03	15		The challenges associated with the proposed project regarding the issue of split estate are well known. However, the potential impacts of activities associated with the proposed project with little or no federal nexus are not well disclosed in the EIS. Activities such as off-lease mineral development and the siting of facilities and installation of utilities on private surface will occur with limited ability to provide input on avoidance and minimization measures to reduce impacts. For example, a pipeline company providing midstream services to the OG that are entirely on private surface would not be subject to resource protection measures outlined in the EIS Record of Decision (ROD). Similarly, the construction of a gas plant or other facility on private surface would not have a federal nexus connecting the action to the requirements of the ROD. The analyses for vegetation and wildlife resources should describe this potential impact more thoroughly. An OG-committed design feature for wildlife and biological resources indicates infrastructure locations would avoid disturbance in high value wildlife habitat where safe and practical. The Department supports this measure and requests the opportunity to identify and discuss potential avoidance areas with the BLM, Forest Service, and OG.	Comment noted. Due to the programmatic nature of the document, site specific impacts would be determined under further NEPA at the APD level in coordination with the parties identified in the comment.
S03	16		We recommend the BLM holds annual development planning meetings with the OG and interested cooperating agencies. These meetings would allow federal, state, and local agencies/entities to better understand the OG's plans for the coming year and offer recommendations on how to avoid and minimize impacts to sensitive resources and high value habitats. It is the OG's responsibility to work with partner or contracted operators to ensure resource protection measures are being appropriately implemented on private surface. An annual development planning meeting would be especially valuable if the preferred alternative includes year-round drilling and the OG anticipates making seasonal use exception requests for sage-grouse and raptors.	Annual development planning meetings have been committed to by the Operator Group.

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Wyoming Game and Fish Department (Continued)				
S03	17		Chapter 4 discloses the potential impacts of each alternative on non-game species including small mammals, migratory birds, special status, and aquatic species. Alternative B identifies the OG has developed a migratory bird conservation plan to assist in navigating the challenges associated primarily with raptor nests in the CCPA. To date, the Department has not had the opportunity to participate in the development of the plan nor review it. However, we feel the plan should be incorporated as a mitigation measure to reduce impacts to migratory bird species, particularly if year-round drilling will be a component of the preferred alternative. We reiterate our desire to review this plan prior to finalization.	Comment noted. The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.
S03	18		The EIS indicates that some species may move back into development areas despite an ongoing level of disturbance. The analyses for avian species should reference recent research which indicates that although some bird species may move back into development areas, chronic noise may have long-term impacts on overall species fitness (Kleist et al., 2018).	This information has been included in the text.
S03	19		Additionally, the level of development proposed will result in significant light pollution in the CCP A. The analyses for nocturnal species should provide more detail on this potential impact.	The text has been revised to include reference to light pollution.
S03	20		Current BLM proposed mitigation measures and OG-committed design features will help to address impacts related to non-game species. We recommend additional mitigation measures are developed and applied to further reduce these impacts: MIG-2 indicates forest and woodland habitat areas in the CCPA will be avoided, and downed woody debris greater than three inches in diameter will be left in place. We support this mitigation measure and further recommend snags are left in place to reduce impacts on non-game species. Maximizing the retention of all snags, dead-topped trees, and live trees with cavities will benefit all cavity dependent species, especially bats.	Section 4.18 added text based on comment
S03	21		Current BLM proposed mitigation measures and OG-committed design features will help to address impacts related to non-game species. We recommend additional mitigation measures are developed and applied to further reduce these impacts: ABR-1 indicates culverts will be selected to facilitate long-term connectivity and movement of aquatic species. In riparian, wetland, or other key non-game habitat, we recommend bottomless culverts are used to facilitate the movement of small mammals and amphibians.	Section 4.18.4.1 and Section 4.18.4.3 specifically mentions culvert designs for target aquatic species passage.
S03	22		Current BLM proposed mitigation measures and OG-committed design features will help to address impacts related to non-game species. We recommend additional mitigation measures are developed and applied to further reduce these impacts: SSWS-5 and SSWS-6 indicate specific avoidance measures will be implemented around roost sites to reduce impacts to bats. We support these measures and further recommend any new bridges that are built or existing bridges that are reconstructed include bat-friendly design modifications. Bat surveys should occur on bridges that will be modified prior to reconstruction.	Text revised in Section 4.18.3.3 to include that bat surveys will be required on bridges that are modified. Bat friendly designs and modifications will be considered at the time of site-specific proposals.
S03	23		Current BLM proposed mitigation measures and OG-committed design features will help to address impacts related to non-game species. We recommend additional mitigation measures are developed and applied to further reduce these impacts: Development in the CCPA will be subject to the Casper BLM Resource Management Plan and TBNG Land Use Plan stipulations for mountain plover. In addition to breeding season restrictions, we recommend minimizing the use of insecticides around mountain plover breeding colonies.	Thank you for your comment. The BLM will use the Casper RMP decisions and NEPA process in the development and analyzation of impacts (including any similar to this comment) at the site-specific level.

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Wyoming Game and Fish Department (Continued)				
S03	24		Current BLM proposed mitigation measures and OG-committed design features will help to address impacts related to non-game species. We recommend additional mitigation measures are developed and applied to further reduce these impacts: Artificial light can affect migration, foraging, reproduction, and other animal behaviors. It is important to retain natural unlit areas whenever possible to reduce these impacts. In those areas where nighttime lighting is required, it is recommended that efforts be made to reduce light pollution, including the use of low-pressure sodium lights or other appropriate lamp types (flashing bulbs or color corrected lights). Additional steps should be taken to properly shade and direct light downwards, diffuse light to reduce glare, and minimizing flaring to the greatest extent possible. It is also recommended that lighting intensity and timing be reduced during periods of bird and bat migration. Efforts should be made to limit light pollution in sensitive habitats (e.g., bat roosting areas, migratory corridors, bird nesting areas, areas of SGCN concentration, or areas where large congregations of wildlife occur), and around aquatic features.	Thank you for your comment. The BLM will use the Casper RMP decisions and NEPA process in the development and analyzation of impacts (including any similar to this comment) at the site-specific level.
S03	26		Alternative B assumes year-round development will occur within the two-mile buffers of leks in GHMA (i.e., non-core leks). It should be more clearly noted that individual exception requests for seasonal stipulation relief within buffers of non-core leks would require coordination between the BLM, Forest Service, and the State per our MOU to Promote a Cohesive and Consistent Conservation Strategy for the Greater Sage-grouse and its Habitat in Wyoming (federal-state MOU). These requests would require site-specific NEPA and compliance with Executive Order 2015-4 and the State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework.	The EIS text makes numerous references to the 2015 ARMPA (which is in force at the time this Final EIS is being released) and Executive Order 2019-3.
S03	27		In the description of Alternative C, it is not clear that Version 4 core areas will be analyzed for this alternative. We recommend this aspect of Alternative C, which is different from Alternative B, is more explicitly stated and described. Furthermore, we support the selection of this aspect of Alternative C. It is important that Version 4 core areas are incorporated into the preferred alternative.	Text has been revised in Section 2.5.2.3 to specifically state that the analysis is based on Core Area Version 4.
S03	28		Additionally, Alternative C assumes no new disturbance will occur in core area due to an existing exceedance of the 5% disturbance threshold based on an area-wide Density Disturbance Calculation Tool (DDCT) analysis. The Department supports maintaining core area disturbance under the thresholds outlined in Executive Order 2015-4. The disturbance thresholds should be assessed using project-specific DDCT analyses. However, it is likely unrealistic to assume the OG will be able to access and develop valid existing mineral leases within the North Glenrock, Thunder Basin, and Douglas core areas without creating some new disturbance. If this aspect of Alternative C is incorporated into the preferred alternative it should be clear that there are mechanisms for addressing this challenge. For example, site-specific DDCTs may not exceed the thresholds, and operators have the opportunity to resolve existing disturbance within the DDCT area. It is important to note the primary operator in the Douglas core area has an existing plan of development that is agreed upon by the State as an appropriate means for that operator to move forward with development in that core area. This plan should be recognized by the BLM.	Under Alternative C, the BLM assumes for purposes of analysis that new disturbance would be prohibited within PHMA regardless of the amount of existing disturbance. This provides a comparison with other alternatives that would follow current Sage-grouse management plans as well as EO 2019-3 in regards to new disturbance in PHMA.
S03	29		Chapter 3 contains detailed information pertaining to current and historical sage-grouse trends in the CCPA. This section contains inaccurate numbers of leks within the CCPA, within two miles of the CCPA, and within PHMA and GHMA (Section 3.18.3.5 Page 3.18-57 Lines 1-8). According to the Department's 2017 lek data, correct lek numbers are as follows: Total number of leks within the CCPA = 44 (32 occupied, 8 unoccupied, 4 undetermined), Leks in PHMA/Core Area = 19, Lek in GHMA/Non-core Area = 25 Total number of leks within two miles of CCPA = 8 (7 occupied, 1 undetermined), Leks in Forest Service PHMA = 3, Leks in PHMA/Core Area = 5 Total number of leks in CCPA and within two miles of CCPA = 52, Total number of leks in PHMA/Core Area = 24, Total number of leks in Forest Service PHMA = 3, Total number of leks in GHMA/Non-core Area = 25	Based on the comment, project lek data was revisited. Some revisions to status were made based on the 2017 WGFD data. The current stats are: Total number of leks within the CCPA = 46 (33 occupied, 8 unoccupied, 5 undetermined), Leks in PHMA/Core Area = 19, Lek in GHMA/Non-core Area = 27 Total number of leks within two miles of CCPA = 8 (7 occupied, 1 undetermined), Leks in Forest Service PHMA = 3, Leks in PHMA/Core Area = 5 Total number of leks in CCPA and within two miles of CCPA = 54, Total number of leks in PHMA/Core Area = 24, Total number of leks in Forest Service PHMA = 3, Total number of leks in GHMA/Non-core Area = 27 There seems to be a discrepancy of two lek sites and would invite WGFD to provide their list to compare.

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Wyoming Game and Fish Department (Continued)				
S03	30		Chapter 4 provides a detailed analysis of potential impacts to sage-grouse and sage-grouse habitat as a result of each alternative. All three alternatives (A, B, and C) include a similar analysis of assuming new well pads will be evenly distributed across the CCP A resulting in ~ 1.8 to 10 new well pads, depending on the alternative, within the two-mile buffers of all occupied leks. An assumption of evenly distributed well pads is unrealistic in any alternative and leads' to potentially false conclusions about impacts when impacts are based on well pad density. Moreover, this analysis is contradictory for Alternative C because this alternative then assumes both no new disturbance in core area and ~6.4 new well pads within each of the two-mile buffers of occupied leks, 19 of which are in core area.	Due to the programmatic nature of the project, this approach was used to give some indication of potential level of impacts. However, under Alternative C, text has been added to emphasize prohibition of development within PHMA.
S03	31		Though all three alternatives indicate significant impacts to sage-grouse are possible, based on conclusions from the above described analysis, only Alternative B suggests compensatory mitigation is warranted because avoidance and minimization measures in core area may be inadequate or impossible given existing disturbance levels. In other words, it is expected there will be authorization of new disturbance in core area that exceeds the 5% threshold. If this is the case, operators in core area are expected to coordinate with the BLM, Forest Service, and the State to discuss avoidance and minimization measures. If after those measures are implemented there are still impacts, compensatory mitigation should be coordinated per the federal-state MOU and should follow the State's compensatory mitigation framework. It should be noted under Alternative B that compensatory mitigation will also be required for any authorized exception requests for sage-grouse seasonal stipulation relief in non-core area.	Agreed, it is stated that further development within areas currently exceeding the 5% disturbance cap would be analyzed on a site-specific basis consistent with the DDCT process. The comment regarding the requirement for compensatory mitigation for any authorized exception requests for sage-grouse seasonal stipulation relief in non-core area will not be included at this time. Wyoming EO 2019-3 indicates that compensatory mitigation is a strategy that should be used when avoidance and minimization are inadequate to protect Core Population Area Greater sage-grouse. The need for offsite mitigation will be determined in conformance with current BLM policy, as updated.
S03	33		We recommend additional mitigation measures are developed and applied to further reduce these impacts: ARMPA RDFs require that artificial water impoundments in PHMA will be managed for the prevention and spread of West Nile virus where the virus poses a threat to sage-grouse. West Nile virus is a threat to sage-grouse in northeast Wyoming. We recommend West Nile virus prevention is applied throughout the CCPA in areas of suitable habitat and where leks are concentrated.	The BLM will follow all RDFs for GHMA and PHMA. Water impoundment management for the prevention of West Nile Virus is only required in PHMA.
S03	36		In previous letters, we identified the prevention of the spread of aquatic invasive species (AIS) as a significant aquatic concern. The Department has documented within the North Platte watershed the following AIS species: Asian clam, rusty crawfish, and brook stickleback (February 11, 2015 letter). However, the DEIS does not mention the known occurrence of AIS within the project boundary and the potential occurrence of AIS in all surface waters within the project (Chapter 3) or the potential impacts of introducing an AIS with the movement of surface water between 4th level (8-digit Hydrological Unit Code) watersheds on the aquatic resources (Chapter 4). We recommend the DEIS address this concern.	The EIS does address the issue regarding aquatic invasive species in Section 3.18.4.6. This section lists the species that have been detected in the North Platte River basin. Potential impacts involving aquatic invasive species are discussed in Section 4.18.4.1 (No Action), Section 4.18.4.2 (Proposed Action), and Section 4.18.4.5 under the subheading Introduction or Spread of Aquatic Invasive Species.
S03	37		Additionally, we strongly recommend the following management actions common to all alternatives be included in DEIS: To prevent the spread of aquatic invasive species, prohibit the movement of surface water from one 4th level (8-digit Hydrological Unit Code) watershed to another 4th level (8-digit Hydrological Unit Code) watershed.	The suggested management action is included in mitigation measure AB-5 in Section 4.18.4.3. However, additional text was added to the measure regarding the 4th level watersheds. Text also was added to the Alternative B and C impact discussion regarding movement of water between HUC-8 watersheds.
S03	38		Additionally, we strongly recommend the following management actions common to all alternatives be included in DEIS: Equipment that was in contact with a water positive for zebra/quagga mussels (currently none in Wyoming) within the last 30 days, is required to undergo inspection by an authorized inspector prior to contacting a Wyoming water.	Operators are required to abide by all local and state laws. This includes all laws regarding the management of AIS.
S03	39		Additionally, we strongly recommend the following management actions common to all alternatives be included in DEIS: From March through November, all equipment entering the state by land must be inspected before contacting a water of the state.	Operators are required to abide by all local and state laws. This includes all laws regarding the management of AIS.

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Wyoming Game and Fish Department (Continued)				
S03	40		Additionally, we strongly recommend the following management actions common to all alternatives be included in DEIS: Equipment used in any Wyoming water that contains AIS, must be Cleaned, Drained and Dried before use in another water. Wyoming waters with AIS can be found at: https://wgfd.wyo.gov/Fishing-and-Boating/Aguatic-Invasive-Species-Prevention/AIS-Boating-Information.	Operators are required to abide by all local and state laws. This includes all laws regarding the management of AIS.
S03	41		Additionally, we strongly recommend the following management actions common to all alternatives be included in DEIS: When equipment that has been in contact with any Wyoming water is moved from one 4th level watershed (8-digit Hydrological Unit Code) to another within Wyoming, they must be Cleaned, Drained and Dried (specific guidance 1s available at: https://wgfd.wyo.gov/Fishing-and-Boating/Aguatic-Invasive-Species-Prevention/AIS-Construction-and-Fire.	Operators are required to abide by all local and state laws. This includes all laws regarding the management of AIS.
Wyoming Office of the Governor				
S04	01		It remains imperative that development in the project area remain consistent with Wyoming's Greater Sage-Grouse Core Population Area Strategy, embodied in Executive Order 2015-4 (SGEO). To remain consistent with the Executive Order, the EIS should address the following: In the analysis of Alternatives A and B, the DEIS references SGEO Core Area Version 3 maps. (pgs. 3.18-47, 3.18-48, 4.18-46, 4.18-47, 4.18-62, 4.18-74, 6-30). The analysis of Alternative C used SGEO Core Area Version 4 maps. On October 27, 2017, BLM updated its mapping to adopt version 4 of the SGEO Core Area map through Categorical Exclusion DOI-BLM-WY-0000-2018-0001. BLM should update the DEIS to reflect the new boundaries of core areas established through SGEO Core Area Version 4 maps.	The boundaries are consistent with Core Area Version 4 maps.
S04	02		It remains imperative that development in the project area remain consistent with Wyoming's Greater Sage-Grouse Core Population Area Strategy, embodied in Executive Order 2015-4 (SGEO). To remain consistent with the Executive Order, the EIS should address the following: The EIS applies a noise stipulation to all sage-grouse habitat types (pgs. 2-37, 2-38, 4.7-4, 6-5). However, Wyoming's SGEO only applies the noise stipulation to core areas. Please consider revising the EIS to be consistent with SGEO.	The DEIS is consistent with EO 2015-4 (updated to EO 2019-3 in the Final EIS), as well as the BLM and USFS greater sage-grouse amendments. More specifically, the noise stipulations identified in Section 2.0 and 4.7 as cited are also based on stipulations under the Casper RMP and Thunder Basin LRMP.
S04	03		It remains imperative that development in the project area remain consistent with Wyoming's Greater Sage-Grouse Core Population Area Strategy, embodied in Executive Order 2015-4 (SGEO). To remain consistent with the Executive Order, the EIS should address the following: Page 6-1 contains a reference to BLM Handbook H-1794-1, which was rescinded by Department Order Number 3360 (Dec. 22, 2017). Consider updating with the latest Department policy statements on mitigation.	See response to B11-091.
S04	04		Alternative B assumes year-round development in the project area. (p. 2-1, 2-25). The DEIS lays out the general process for the BLM to grant exceptions to timing stipulations for raptor nests and greater sage-grouse leks. However, this process only gives tacit recognition to the SGEO and State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework. The DEIS should clearly explain that that exception requests for seasonal stipulation relief within buffers of noncore leks require coordination among the BLM, Forest Service, and State consistent with our MOU to Promote a Cohesive and Consistent Conservation Strategy for the Greater Sage-grouse and its Habitat in Wyoming. Under this MOU, exception requests would require compliance with the SGEO and State of Wyoming Greater Sage-Grouse Compensatory Mitigation Framework. As I requested in scoping comments on the Notice of Intent to amend resource management plans, BLM should amend the Casper Resource Management Plan, and the Thunder Basin National Grassland Resource Management Plan to embed the Wyoming Greater Sage Grouse Compensatory Mitigation Framework as a recognized mechanism to adequately address exceptions to timing stipulations.	Text revised to include mention of the Approved RMP Amendment for Greater Sage- Grouse (BLM 2015b), the USFS 2015 LRMP Amendments and the WY EO 2019-3.

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Document ID	Comment ID [1]	Section Table Figure	Comment	AECOM Response
Wyoming Office of the Governor (Continued)				
S04	05		The Preferred Alternative B assumes no reclamation on private surface. This is not realistic. Operators have developed a programmatic reclamation plan to guide reclamation activities on all lands in the project area; however, it is not included/analyzed in the DEIS. I support interim and final reclamation to occur on all federal lands and private lands above federal minerals, using the agency reclamation standards identified in Alternative C.	Thank you for your comment. Note that the OG would reclaim private surface at the direction of surface owner (see Section 2.2.4). A site-specific Reclamation Plan would be developed by the operator and submitted with the APD.
S04	06		Consistent with the recommendation of the Wyoming State Historic Preservation Officer (SHPO), I recommend the BLM develop a Programmatic Agreement to govern the implementation of the undertakings that are subject to Section 106 of the National Historic Preservation Act and covered under the DEIS. This will provide a path to minimize conflict among stakeholders, and ensure timely development of the resources in the project area. For further detail, please see the comments of Wyoming's SHPO.	Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts to comply with NHPA on lands where the BLM has authority.
Wyoming Office of State Lands and Investments				
S05	01		We are not opposed to Alternative B, the Proposed Action. However, as mentioned in previous comments, notwithstanding the federal NEPA process or federal approvals, the project proponent must comply with the Rules and Regulations adopted by the Board of Land Commissioners in accordance with W.S. 36-2-107 and W.S. 36-9-118, in the event that development occurs on, or it is necessary to traverse, state trust lands.	Comment noted. Implementation of the proposed development must be done in accordance with existing rules and regulations.
Wyoming State Engineer's Office				
S06	01		The following table indicates the number of new water supply well permits located in the CCOG project area that have been issued since 2014. Compared to 466 water supply wells cited in the Water White Paper and Appendix E, this represents a 46 percent increase in permitted water use over four years. Of these, 115 new wells are oil and gas water supply wells (industrial or miscellaneous uses) with average appropriations of 150 gallons per minute per year. It is understood that water rights data used for the DEIS represent a "snapshot in time." However, given the scale of new water development since the last period of analysis was performed, the SEO restates our concerns that significant new water use developments have occurred in the project area and that the groundwater modeling may have underestimated existing ground water withdrawals. Moreover, recently we have seen that the developers want 20,000 bbl per day (using 42 gallons per bbl = 840,000 gallons perday = 583 gallons per minute) at water well sites. This could mean that multiple wells will need to be developed to meet the demand at each site developed to supply water. As such, any new water use will be subject to interference considerations as they apply to existing water rights. The SEO and Board of Control can refuse to issue permits or allow changes to water rights if such an issuance proves detrimental to the public interest or adversely affects users. Any observed impact to an existing water right, including we·11 drawdown or reduced flow, may be subject to priority regulation or other investigations.	According to the comment by the Wyoming State Engineer's Office (SEO), the average appropriation for new water wells in CCPA since 2014 is 150 gallons per minute (gpm). By contrast, the model was based on a pumping rate of 100 gpm or less depending on the scenario. The dispersed pumping scenario of the model is a reasonable representation of expected conditions whereby water sources would be distributed for maximum efficiency and lowest transportation costs. Even if water consumption for the project may be 50 to 100 percent greater than initially proposed, the model indicates that drawdown would not be excessive, and water levels would recover at some point after pumping would cease. It is assumed that the additional water would be sourced from purchase or lease of water rights, temporary use agreements, or recycling.
S06	02		As a matter of record, the 50 new ground water supply wells anticipated for this project will require an Application for Permit to Appropriate Ground Water, or U.W. 5 form, with the SEO prior to any water well drilling taking place. For groundwater or surface water withdrawals that are attributed to existing water rights, there are two methods to obtain the water. The first method is to acquire a temporary water use agreement from an existing water right that has demonstrated recent beneficial use. The second option is to file a petition to permanently change the beneficial use with the Board of Control. Under the first option, the State Engineer is authorized to grant temporary water use agreements provided by Wyoming Statute §41-3-110 for a period not to exceed two (2) years. The quantity to be transferred is only the amount that has been consumptively used historically. Irrigation water from the unstored flow of any stream is typically subject to a 50 percent reduction to account for the lack of return flows, unless determined by the State Engineer to be a different amount. When obtaining water under an existing water right via a change in use petition to the BOC, pursuant to Wyoming Statute §41-3-104, the quantity of water transferred shall not exceed the amount or rate of water historically diverted under the existing use, increase historic consumptive use, increase return flow, nor in any manner injure other existing lawful appropriators.	A brief summary of the groundwater permitting process as provided by the WSEO has been included in Section 2.4.3.4.

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Wyoming State Engineer's Office				
S06	03		Section 3.16.2.4 of the DEIS correctly identifies that new groundwater development related to this project may have to be offset to avoid adverse effects downstream under the Wyoming Platte River Depletions Plan if it occurs outside of the Modified North Platte Decree and Platte River Recovery Implementation Program (PRRIP) Green Area map boundary. According to current DEIS project boundary maps, the majority of the North Platte River Basin portion of the CCOG project area falls within the Green Area boundaries and therefore any new groundwater developments in that area would not have to be offset. However, some portions on the southern end do not fall within the Green Area and would be subject to mitigation. Please be aware that mitigation will be required if any new water development occurs outside of the Green Area. If a significant amount of water is needed outside a Green Area, the project proponent could consider temporary water use agreements from existing agricultural water wells (through the procedure outlined above). This would most likely speed up the process of obtaining a reliable water source and eliminate the need to mitigate for new depletions to the system.	The text has been updated to clarify that "green areas" are not in hydrologic communication with the river whereas areas to the south of the "green areas" are likely drawing water from the river. Wells drawing groundwater from these areas to the south of the "green areas" would require replacement or mitigation as noted in the comment.
S06	04		In May 2017 the SEO provided commentary to the BLM that outlines our concerns regarding the hydrogeologic assumptions used to characterize the Wasatch/Tongue River aquifer in the Groundwater Analysis Report. Specifically, we challenge the assumption that the two formations are considered as a combined hydrgeologic unit; the SEO does not categorize these formations as an interconnected aquifer. Currently, the distance drawdown calculations described in Appendix E and Chapter 4 of the DEIS state that, under the preferred alternative, equally distributing SO water wells would extend groundwater drawdown approximately 1,000 feet around many wells as defined by the 10-foot drawdown contour. Characterizing the Wasatch/Tongue River Aquifer formations as unconfined could have a drastically different result when modeling distance-drawdown calculations.	The selection of hydrogeologic units was based on US Geological Survey publications (Thamke et al. 2014; Long et al. 2014) as explained in the groundwater model report. Unconfined or confined conditions can result in different responses of the aquifer when withdrawals occur. This Wasatch-Tongue River unit was assumed to be unconfined because it more closely approximates the actual conditions even though it might underestimate drawdown.
S06	05		It is also important to note that the geology of the area for this project is different than other parts of the Powder River Basin. The tertiary aquifers, as referenced in this report, can be 4,000 feet or more in depth. The SEO also considers the Tertiary Wasatch, Tertiary Fort Union, Cretaceous Lance, and Cretaceous Fox Hills to be separate and cannot be commingled when completing a water well.	Thank you for your comment. The text has been updated to disclose that the SEO considers the Tertiary and Cretaceous aquifers cited in the comment to be separate aquifers that could not be commingled within the same well. Also, please see the response to Comment S06-04.
S06	06		The state agencies list in Chapter 7 Section 7.4 page 7-5 does not include the SEO. Please add our agency to the list of participating agencies in the EIS review process.	Sections 7.1 and 7.4 have been modified to include SEO in the cooperating agencies list.
S06	07		Page 13 of the Water White Paper includes a discussion in the first paragraph that is not worded correctly. An enlargement filing can be for additional instantaneous yield, total volumetric quantity, use, points of use, or any/all combinations of these. Deepening or relocation of an existing well occurs under different actions.	The white paper was provided to the BLM by the proponent (the OG); therefore, it is the OG's document and cannot be modified by the BLM.
Wyoming State Historic Preservation Office				
S07	01		Per the implementing regulations for Section 106 of the National Historic Preservation Act, 36 CFR § 800. I 4(b) and 36 CFR § 800.14(b)(v), we recommend that the Bureau of Land Management (BLM) develop a Programmatic Agreement (PA) to govern the implementation of the undertakings covered under this Environmental Impact Statement (EIS). Given the complexities of land/mineral ownership within the EIS area, we feel that a PA would provide clarity and consistency in the implementation of Section 106 compliance among the various stakeholders. We believe that a PA would serve to minimize conflict among the stakeholders and benefit the timely and efficient development of resources for the undertakings proposed under this EIS.	Text has been added to Section 4.2 to state that the BLM would follow federal regulations to avoid, minimize, or mitigate impacts to comply with NHPA on lands where the BLM has authority.

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Wyoming Office of the Governor #2				
S08	01		However, after reviewing the comments submitted by the Petroleum Association of Wyoming (PAW) and the Wyoming Grune and Fish Department (WGFD) regarding raptors, I wanted to make sure my comments are clear. I incorporated the comments of the Wyoming state agencies into my comments, and the WGFD discussed raptors in its comments. PAW emphasizes the need for relief from timing stipulations for raptors to allow for year-round drilling. I support year-round drilling if appropriate safeguards are in place to reduce impacts to migratory bird species. WGFD's comments referenced that the project proponents were developing a migratory bird conservation plan with the US Fish and Wildlife Service to navigate the challenges associated with raptor nests in the project area. Wyoming has not seen the plan, but believes it is important to consider all appropriate options that might aid the BLM.	Thank you for your comment. Please refer to responses to comments from state agencies (Letter #s S01 through S07). Also see the response to comments from PAW (Letter # N09) and the Converse County Operator Group (Comment B11-024) for clarifications regarding year-round drilling. The Migratory Bird Conservation Strategy (MBCS) being developed between the Operator Group and USFWS has been placed on hold and is not available for review.

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