

# APPENDIX G — SUMMARY OF IMPACTS ACROSS ALTERNATIVES

Summary of Impacts Across Alternatives, Jonah Infill Drilling Project, Sublette County, Wyoming, 2006<sup>1</sup>

IMPACT BY ENVIRONMENTAL RESOURCE	NO ACTION (No New Well or Pads)	PROPOSED ACTION (3,100 New Wells / 2,825 New Pads)	ALTERNATIVE A (3,100 Wells / 3,100 New Pads)	ALTERNATIVE B (3,100 Wells/No New Pads)	PREFERRED ALTERNATIVE <sup>2</sup> (3,100 Wells / 2,825 New Pads / Reclamation Credit, Mitigation/Monitoring)
<b>AIR QUALITY</b>					
Increased concentrations of criteria pollutants and Hazardous Air Pollutants (HAPs)	No impact above existing levels; no new developments	Potential near-field concentrations would be in compliance with applicable National Ambient Air Quality Standards (NAAQS) and Wyoming Ambient Air Quality Standards (WAAQS); potential near-field concentrations could exceed the Prevention of Significant Deterioration (PSD) 24-hour PM <sub>10</sub> increment but would be below the annual PM <sub>10</sub> increment and below the PSD increments for all other pollutants; potential far-field concentrations would be in compliance with applicable NAAQS and WAAQS; potential far-field concentrations would be below PSD increments; potential HAP impacts would be below applicable health-based levels for non-cancer compounds and within acceptable cancer risk ranges for carcinogens.	Potential near-field concentrations would be in compliance with applicable National Ambient Air Quality Standards (NAAQS) and Wyoming Ambient Air Quality Standards (WAAQS); potential near-field concentrations could exceed the PSD 24-hour PM <sub>10</sub> increment but would be below the annual PM <sub>10</sub> increment and below the PSD increments for all other pollutants; potential far-field concentrations would be in compliance with applicable NAAQS and WAAQS; potential far-field concentrations would be below PSD increments; potential HAP impacts would be below applicable health-based levels for non-cancer compounds and within acceptable cancer risk ranges for carcinogens.	Potential near-field concentrations would be in compliance with applicable National Ambient Air Quality Standards (NAAQS) and Wyoming Ambient Air Quality Standards (WAAQS); potential near-field concentrations could exceed the PSD 24-hour PM <sub>10</sub> increment but would be below the annual PM <sub>10</sub> increment and below the PSD increments for all other pollutants; potential far-field concentrations would be in compliance with applicable NAAQS and WAAQS; potential far-field concentrations would be below PSD increments; potential HAP impacts would be below applicable health-based levels for non-cancer compounds and within acceptable cancer risk ranges for carcinogens.	Potential near-field concentrations would be in compliance with applicable NAAQS and WAAQS; potential near-field concentrations would be below PSD increments; potential far-field concentrations would be in compliance with applicable NAAQS and WAAQS; potential far-field concentrations would be below PSD increments; potential HAP impacts would be below applicable health-based levels for non-cancer compounds and within acceptable cancer risk ranges for carcinogens.
Visibility (regional haze) at Class I and Sensitive Class II areas (far-field)	No impact above existing levels; no new developments	Potential project impacts would be greater than 1.0 deciview (dv) for a maximum of 10 days per year; significant project-specific and cumulative air quality impacts to visibility are possible at regional Class I airsheds; impairment at Bridger Wilderness only	Potential project impacts would be greater than 1.0 dv for a maximum of 10 days per year; significant project-specific and cumulative air quality impacts to visibility are possible at regional Class I airsheds; impairment at Bridger Wilderness only	Potential project impacts would be greater than 1.0 dv for a maximum of 4 days per year; significant project-specific and cumulative air quality impacts to visibility are possible at regional Class I airsheds; impairment at Bridger Wilderness only	Potential project impacts would be greater than 1.0 dv for a maximum of 3 days per year; significant project-specific and cumulative air quality impacts to visibility are possible at regional Class I airsheds; impairment at Bridger Wilderness only
Visibility (regional haze) (mid-field communities)	No impact above existing levels; no new developments	Maximum of 23 days per year >1.0 dv at Big Sandy	Maximum of 23 days per year >1.0 dv at Big Sandy	Maximum of 6 days per year >1.0 dv at Big Sandy	Maximum of 4 days per year >1.0 dv at Big Sandy
Atmospheric/terrestrial deposition	No impact above existing levels; no new developments	Potential project impacts from sulfur deposition would be less than Deposition Analysis Threshold (DAT) at all analyzed areas; potential project impacts from nitrogen deposition would be greater than DAT (i.e., 0.005 kg/ha/yr) at Bridger Wilderness (0.035 kg/ha/yr), Popo Agie Wilderness (0.017 kg/ha/yr), and Wind River Roadless Area (0.010 kg/ha/yr), and less than DAT at all other analyzed areas	Potential project impacts from sulfur deposition would be less than DAT at all analyzed areas; potential project impacts from nitrogen deposition would be greater than DAT (i.e., 0.005 kg/ha/yr) at Bridger Wilderness (0.035 kg/ha/yr), Popo Agie Wilderness (0.017 kg/ha/yr), and Wind River Roadless Area (0.010 kg/ha/yr), and less than DAT at all other analyzed areas	Potential project impacts from sulfur deposition would be less than DAT at all analyzed areas; potential project impacts from nitrogen deposition would be greater than DAT (i.e., 0.005 kg/ha/yr) at Bridger Wilderness (0.018 kg/ha/yr), and Popo Agie Wilderness (0.008 kg/ha/yr), and less than DAT at all other analyzed areas	Potential project impacts from sulfur deposition would be less than DAT at all analyzed areas; potential project impacts from nitrogen deposition would be greater than DAT (i.e., 0.005 kg/ha/yr) at Bridger Wilderness (0.015 kg/ha/yr), and Popo Agie Wilderness (0.007 kg/ha/yr), and less than DAT at all other analyzed areas
Sensitive lake acid neutralization capacity (ANC)	No impact above existing levels; no new developments	Potential project impacts would be less than Level of Acceptable Change (LAC) at acid sensitive lakes	Potential project impacts would be less than LAC at acid sensitive lakes	Potential project impacts would be less than LAC at acid sensitive lakes	Potential project impacts would be less than LAC at acid sensitive lakes
<b>TOPOGRAPHY</b>					
Landscape feature alteration	Total surface disturbance of 4,209 acres (2,811 acres short-term, 1,409 acres Life-of-project [LOP]); duration of impact would be 63 years; no major landscape feature alterations	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; impacts significant	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives; impacts significant	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts significant
<b>MINERAL RESOURCES</b>					
Natural gas	3.37 trillion cubic ft (TCF) of gas recovered	7.95 TCF of gas recovered; impacts significant	8.19 TCF of gas recovered; impacts significant	6.12 TCF gas recovered	4.82–7.95 TCF of gas recovered; impacts significant
Oil (condensate)	32.0 million barrels of oil (MBO) recovered	75.5 MBO recovered; impacts significant	77.8 MBO recovered; impacts significant	58.2 MBO recovered	45.8–75.5 MBO recovered; impacts significant
Other minerals	Localized LOP loss of access but no known minerals available in minable quantities; violation of contractual agreements; duration of impact would be 63 years	Increased loss of access above No Action and no violation of contractual agreements; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Increased loss of access above No Action and no violation of contractual agreements; duration of impacts increased to 105 years	Increased loss of access above No Action and no violation of contractual agreements; duration of impacts increased to 76 years
<b>GEOLOGIC HAZARDS</b>					
Earthquake damage	No impacts likely; low earthquake potential	Same as No Action	Same as No Action	Same as No Action	Same as No Action
Landslides and slumping	No impacts likely; no known landslide areas or underground mines; no new facilities developed; duration of impact would be 63 years	Increased above No Action in some areas; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Increased above No Action at project feature sites; duration of impacts increased to 105 years	Increased above No Action in some areas; increased mitigative actions; duration of impacts increased to 76 years

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<b>PALEONTOLOGICAL RESOURCES</b>					
Disturbance/loss of important fossils during construction	Total surface disturbance of 4,209 acres (1,409 acres LOP); duration of impact would be 63 years; no major landscape feature alterations	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years;
Fossil collection/vandalism for LOP	Total surface disturbance of 4,209 acres (1,409 acres LOP); duration of impact would be 63 years; no major landscape feature alterations	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
<b>SOILS</b>					
Soils in general	No additional significant impacts	Impacts significant	Impacts significant	Impacts significant	Impacts significant
Disturbance and erosional loss of soils; soil compaction and mixing of soil horizons; decreased topsoil productivity	Surface disturbance of 4,209 acres is currently authorized; no further surface disturbance would be authorized	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Contamination due to accidental hazardous material discharge	No new facilities developed; decreased probability of impact; duration of impact would be 63 years	duration of impacts increased to 76 years; adherence to Spill Prevention, Control, and Countermeasures Plans (SPCCPs), Storm Water Pollution Prevention Plans (SWPPPs,) and other applicable local, state, and federal rules and regulations; prompt soil remediation to minimize potential impact severity	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; prompt soil remediation to minimize potential impact severity	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; prompt soil remediation to minimize potential impact severity; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Reactivation of stabilized dunes	No new surface disturbance of stabilized dunes	LOP potential until disturbed areas are reclaimed; 38 acres of known stabilized dunes occur within JIDPA	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources

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<b>SURFACE WATER RESOURCES</b>					
Surface water resources in general	Impacts unlikely to be significant	Impacts could be significant	Impacts could be significant	Impacts could be significant	Impacts could be significant
Increased turbidity, salinity, and sedimentation of surface waters due to runoff from disturbed areas	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; no natural perennial surface waters in the JIDPA	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Contamination of surface waters from accidental hazardous material discharge	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years; no new facilities developed; adherence to SPCCPs, SWPPPs, and other applicable local, state, and federal rules and regulations; prompt remediation to minimize potential impact severity	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Contamination of surface waters from discharge of unsuitable quality produced water and/or pipeline test water	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years; no new pipelines developed; adherence to SPCCPs, SWPPPs, and other applicable local, state, and federal rules and regulations; prompt remediation to minimize potential impact severity	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Alteration of surface drainages for LOP	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years; no new drainage crossings; adherence to SPCCPs, SWPPPs, and other applicable local, state, and federal rules; prompt remediation to minimize potential impact severity	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; no long-term modification of drainages	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Flood damage to pipelines and facilities for LOP	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years; adherence to SPCCPs, SWPPPs, and other applicable local, state, and federal rules; prompt remediation to minimize potential impact severity; no new project facilities other than what are authorized under the Record of Decision (ROD)	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; few flood-prone areas in the JIDPA	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources

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<b>GROUNDWATER RESOURCES</b>					
Depletion during development	No new consumption of groundwater; full recovery of aquifer within a few years	Consumption of 1,225.0 acre-ft/year; 6.0 years to full recovery of aquifer; duration of impact would be approximately 13 years and until aquifer recovery	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Consumption of groundwater at 367.5 acre-ft/year; 0.5 years to full recovery; duration of impacts would be approximately 42 years and until aquifer recovery	Consumption of 1,225.0 acre-ft/year; 6.0 years to full aquifer recovery; duration of impacts would be 13 years and until aquifer recovery
Contamination of groundwater from accidental hazardous material discharge and cross contamination in well bores	Potential exists for contamination; duration of impact would be 63 years; adherence to SPCCPs, WOGCC, Bureau of Land Management (BLM) well casing and abandonment procedures, and other applicable local, state, and federal rules and regulations would minimize potential impact severity; no new development	Increased potential for contamination above No Action because new wells would be drilled; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Increased above No Action because new wells would be drilled; duration of impacts increased to 105 years	Increased above No Action because new wells would be drilled; duration of impacts increased to 76 years; impacts reduced due to application of specific mitigation measures
<b>NOISE AND ODOR</b>					
Increased noise levels near wells, facilities, and roads for LOP	Noise levels would not be increased above existing authorized actions (i.e., 533 wells on 497 well pads); duration of impact would be 63 years; although impacts were determined not significant during analysis of currently authorized actions, subsequent monitoring data indicate that existing noise levels likely are causing significant impacts; no additional significant impacts beyond those of previously authorized actions	Noise levels higher than described for No Action as a result of new well pads, wells, and other project facilities proposed; noise associated with construction and drilling activities would be short term, but that associated with field traffic and well maintenance would be increased to 76 years; impacts significant	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives; impacts significant	Noise levels similar to those described for Proposed Action as a result of new well pads, wells, and other project facilities proposed, but noise would be concentrated at existing pads; noise associated with construction and drilling activities would be short-term, but that associated with field traffic and well maintenance would be increased to 105 years; impacts significant	Noise levels higher than as described for No Action as a result of new well pads, wells, and other project facilities proposed; noise associated with field traffic and well maintenance would be increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; impacts significant
Presence of offensive odors near wells, facilities, and roads for LOP	Temporary, localized impacts rapidly dispersed by wind; decreased after development completed; duration of impact would be 63 years; no additional development; no additional significant impacts beyond those of previously authorized actions	Temporary, localized impacts rapidly dispersed by wind; decreased after development completed; duration of impacts increased to 76 years; impacts significant	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives; impacts significant	Temporary, localized impacts rapidly dispersed by wind; decreased after development completed; development foci would be limited to existing well pads; duration of impacts increased to 105 years; impacts significant	Temporary, localized impacts rapidly dispersed by wind; decreased after development completed; intermediate level of impacts between No Action and Proposed Action; duration of impacts increased to 76 years; impacts significant
<b>VEGETATION INCLUDING BWS PLANT SPECIES</b>					
Loss of vegetation; changes in diversity following reclamation (i.e., shrubland to grassland); and potential weed infestation for LOP and until areas adequately reclaimed	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years plus time needed for adequate reclamation; no new surface disturbance beyond that currently authorized	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss; impacts significant	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives; impacts significant	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss; impacts significant	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; impacts significant
Disturbance of wetlands and riparian areas for LOP	No new wetland disturbance	No impacts; all wetlands would be avoided	No impacts; all wetlands would be avoided	No impacts; all wetlands would be avoided	No impacts; all wetlands would be avoided

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Unsuccessful reclamation for LOP and beyond	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years plus time needed for adequate reclamation; no new surface disturbance beyond that currently authorized	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Direct BWS plant habitat loss	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years plus time needed for adequate reclamation; no new surface disturbance beyond that currently authorized	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; adherence to site-specific surveys for BWS species would limit potential impact severity	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; adherence to Reclamation Plan would mitigate, to some degree, potential severity of adverse impacts due to vegetation loss; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
<b>WILDLIFE INCLUDING BWS ANIMAL SPECIES</b>					
Direct habitat loss Specific impacts that would be considered significant include, but would not be limited to, the physical loss or the abandonment of important wildlife features (e.g., greater sage-grouse leks, greater sage-grouse winter concentration areas, raptor nests and nesting and foraging territories, and pronghorn migration corridors), diminished wildlife diversity in the JIDPA, and degradation of crucial winter ranges and/or other important wildlife habitats.	Total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years plus time needed for adequate reclamation; impacts to wildlife and BWS species and their habitat would be locally significant; however, no additional significant impacts beyond those of previously authorized actions are anticipated	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; impacts to wildlife and BWS species and their habitat would be locally significant	Type, magnitude, and duration of impacts same as the Proposed Action but possibly increased in areas that would have been avoided by the Proposed Action and the other alternatives; certain Operator-committed and BLM-required practices concerning the protection of raptor nests, sage-grouse leks, and the Sand Draw drainage corridor would not occur, increasing the potential for adverse impacts to wildlife and BWS species; impacts to wildlife and BWS species and their habitat would be locally significant	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; impacts to wildlife and BWS species and their habitat would be locally significant	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Increased mortality	Unquantified mortality related to vehicle/animal collisions, construction, and potential stress-related deaths, especially during critical seasons, as a result of previously authorized actions; no new actions would be authorized under this alternative	Unquantified increase in mortality related to vehicle/animal collisions, construction, and potential stress-related deaths, especially during critical seasons; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives (i.e., Sand Draw, raptor nest, and sage grouse lek vicinities)	Unquantified increase in mortality related to vehicle/animal collisions, construction, and potential stress-related deaths, especially during critical seasons; level of impacts would be greater than those under the No Action Alternative, but less than those under the Preferred Alternative because no new pads would be constructed; duration of impacts increased to 105 years	Unquantified increase in mortality related to vehicle/animal collisions, construction, and potential stress-related deaths, especially during critical seasons; duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources

## Summary of Impacts Across Alternatives, Jonah Infill Drilling Project, Sublette County, Wyoming, 2006<sup>1</sup>

IMPACT BY ENVIRONMENTAL RESOURCE	NO ACTION (No New Well or Pads)	PROPOSED ACTION (3,100 New Wells / 2,825 New Pads)	ALTERNATIVE A (3,100 Wells / 3,100 New Pads)	ALTERNATIVE B (3,100 Wells/No New Pads)	PREFERRED ALTERNATIVE <sup>2</sup> (3,100 Wells / 2,825 New Pads / Reclamation Credit, Mitigation/Monitoring)
Displacement; indirect habitat loss; habitat fragmentation	Human activity would displace some species from areas near project features, which, when coupled with direct habitat loss, would further fragment habitats; displacement would cause increased use of other habitats in the region; duration of impact would be 63 years; 87.4% of the JIDPA would be within 0.25 mile of project features; no new actions would be authorized under the proposed project; impacts would be significant; however, no additional significant impacts beyond those of previously authorized actions are anticipated	Same types of impacts as under No Action, but degree greatly increased; duration of impacts increased to 76 years; impacts would be significant	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives (i.e., Sand Draw, raptor nest, and sage grouse lek vicinities) ; impacts would be significant	Degree somewhat increased above No Action and duration of impacts increased to 105 years; habitat fragmentation would be somewhat increased from the No Action Alternative; impacts would be significant	Degree greatly increased above No Action and duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; habitat fragmentation would increase, with the degree dependent on the location and arrangement of project facilities within the field; impacts would be significant
Alteration of pronghorn migration routes	Potential avoidance of the JIDPA by migrating pronghorn; relatively undisturbed areas remain west of the JIDPA; project disturbances unlikely to block or prohibit migration to and from crucial ranges; duration of impact would be 63 years	Potential avoidance of the JIDPA by migrating pronghorn; relatively undisturbed areas remain west of the JIDPA; project disturbances unlikely to block or prohibit migration to and from crucial ranges; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Potential avoidance of the JIDPA by migrating pronghorn; relatively undisturbed areas remain west of the JIDPA; project disturbances unlikely to block or prohibit migration to and from crucial ranges; duration of impacts increased to 105 years	Potential avoidance of the JIDPA by migrating pronghorn; relatively undisturbed areas remain west of the JIDPA; project disturbances unlikely to block or prohibit migration to and from crucial ranges; duration of impacts increased to 76 years
Loss of greater sage-grouse productivity for LOP	Loss of breeding, nesting, and winter habitat due to surface disturbance, noise, traffic, and human presence; total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years plus time needed for adequate reclamation; impacts to greater sage-grouse and their habitat would be significant; however, no additional significant impacts beyond those of previously authorized actions are anticipated	Types of impacts to greater sage-grouse similar to those under the No Action Alternative, but total surface disturbance of 20,409 acres (6,043 acres LOP) vs. 4,209 acres (1,409 acres LOP) under No Action; duration of impacts increased to 76 years; impacts to greater sage-grouse and their habitat would be significant	Type, magnitude, and duration of impacts similar to those of the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives; certain Operator-committed and BLM-required practices concerning the protection of sage-grouse leks would not occur, thus further increasing potential adverse impacts to sage-grouse; impacts to greater sage-grouse and their habitat would be significant	Types of impacts to greater sage-grouse similar to those under the No Action Alternative, but total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; impacts to greater sage-grouse and their habitat would be significant	Types of impacts to greater sage-grouse similar to those under the No Action Alternative, but total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; impacts to greater sage-grouse and their habitat would be significant
Loss of raptor productivity for LOP	Fewer nesting initiations, nest site abandonment, and reproductive failure or decreased productivity due to increased human activity, habitat loss, and loss of prey base as a result of surface disturbance, noise, traffic, and human presence; total surface disturbance of 4,209 acres (1,409 acres LOP) currently authorized; duration of impact would be 63 years plus time needed for adequate reclamation; impacts to raptors and their habitat would be locally significant; however, no additional significant impacts beyond those of previously authorized actions are anticipated	Types of impacts to raptors similar to those under the No Action Alternative, but total surface disturbance of 20,409 acres (6,043 acres LOP) vs. 4,209 acres (1,409 acres LOP) under No Action; duration of impacts increased to 76 years; impacts to raptors and their habitat would be locally significant	Type, magnitude, and duration of impacts similar to those of the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives; certain Operator-committed and BLM-required practices concerning the protection of raptor nests would not occur, thus further increasing potential adverse impacts to nesting raptors; impacts to raptors and their habitat would be locally significant	Types of impacts to raptors similar to those under the No Action Alternative, but total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; impacts to raptors and their habitat would be locally significant	Types of impacts to raptors similar to those under the No Action Alternative, but total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; impacts to raptors and their habitat would be locally significant

**Summary of Impacts Across Alternatives, Jonah Infill Drilling Project, Sublette County, Wyoming, 2006<sup>1</sup>**

<b>IMPACT BY ENVIRONMENTAL RESOURCE</b>	<b>NO ACTION (No New Well or Pads)</b>	<b>PROPOSED ACTION (3,100 New Wells / 2,825 New Pads)</b>	<b>ALTERNATIVE A (3,100 Wells / 3,100 New Pads)</b>	<b>ALTERNATIVE B (3,100 Wells/No New Pads)</b>	<b>PREFERRED ALTERNATIVE <sup>2</sup> (3,100 Wells / 2,825 New Pads / Reclamation Credit, Mitigation/Monitoring)</b>
<b>THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE (TEP&amp;C) SPECIES</b>					
Direct habitat loss for LOP	Total surface disturbance of 4,209 acres (1,409 acres LOP); duration of impact would be 63 years; no new disturbance or facilities; impacts to TEP&C species and their habitat would be minimal because of infrequent use of the area by TEP&C species	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years; impacts to TEP&C species and their habitat would be minimal because of infrequent use of the area by TEP&C species	Type, magnitude, and duration of impacts similar to those of the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives; certain Operator-committed and BLM-required practices concerning the protection of wildlife would not occur, increasing the potential for adverse impacts to TEP&C species and their habitat; however, impacts to TEP&C species and their habitat still would be minimal because of infrequent use of the area by TEP&C species	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years; impacts to TEP&C species and their habitat would be minimal because of infrequent use of the area by TEP&C species	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; impacts to TEP&C species and their habitat would be minimal because of infrequent use of the area by TEP&C species
Displacement for LOP	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; some decrease in available habitat and habitat function for some species; no new disturbance	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; some decrease in available habitat and habitat function for some species	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; some decrease in available habitat and habitat function for some species	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; some decrease in available habitat and habitat function for some species	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; some decrease in available habitat and habitat function for some species
Increased mortality for LOP	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; no new facility sites	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal
Disturbance of critical habitats for LOP	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; no critical habitat present; no new disturbance affected	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; no critical habitat present	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; no critical habitat present	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; no critical habitat present	No adverse effects - no bald eagle nests or roosts; no confirmed black-footed ferret presence; no Ute ladies'-tresses habitat or known occurrence; no surface water withdrawal; no critical habitat present
Potential downstream surface water depletion due to groundwater pumping	No adverse effects	Annual groundwater depletions of 1,225 acre-ft may adversely affect the endangered Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker; mitigation would be in the form of paying a "depletion charge" to the Upper Colorado River Endangered Fish Recovery Program	Annual groundwater depletions of 1,225 acre-ft may adversely affect the endangered Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker; mitigation would be in the form of paying a "depletion charge" to the Upper Colorado River Endangered Fish Recovery Program	Annual groundwater depletions of 367.5 acre-ft may adversely affect the endangered Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker; mitigation would be in the form of paying a "depletion charge" to the Upper Colorado River Endangered Fish Recovery Program	Annual groundwater depletions of 1,225 acre-ft may adversely affect the endangered Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker; mitigation would be in the form of paying a "depletion charge" to the Upper Colorado River Endangered Fish Recovery Program
<b>WILD HORSES</b>					
Loss of habitat; displacement; mortality	No impacts above existing levels; no new surface disturbance	2,415 acres new disturbance (715 acres LOP) within the Little Colorado Herd Management Area (LCHMA); displacement due to human presence; potential vehicle/animal collisions; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	867 acres new disturbance (305 acres LOP) within the LCHMA; displacement due to human presence; potential vehicle/animal collisions; more areas with human presence; increased traffic; duration of impacts increased to 105 years	1,469 new disturbance (452 acres LOP) within the LCHMA; displacement due to human presence; potential vehicle/animal collisions; more areas with human presence; increased traffic; duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
<b>CULTURAL RESOURCES</b>					
Cultural resources in general		Potential significant impacts to cultural resources could occur	Potential significant impacts to cultural resources could occur	Potential significant impacts to cultural resources could occur	Potential significant impacts to cultural resources could occur

### Summary of Impacts Across Alternatives, Jonah Infill Drilling Project, Sublette County, Wyoming, 2006<sup>1</sup>

IMPACT BY ENVIRONMENTAL RESOURCE	NO ACTION (No New Well or Pads)	PROPOSED ACTION (3,100 New Wells / 2,825 New Pads)	ALTERNATIVE A (3,100 Wells / 3,100 New Pads)	ALTERNATIVE B (3,100 Wells/No New Pads)	PREFERRED ALTERNATIVE <sup>2</sup> (3,100 Wells / 2,825 New Pads / Reclamation Credit, Mitigation/Monitoring)
Disturbance/destruction of important sites	Potential impacts assumed to increase with increased surface disturbance; total surface disturbance 4,209 acres; no new surface disturbance	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP)	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP)	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Artifact collection/site vandalism	Total surface disturbance of 4,209 acres; no new surface disturbance beyond that currently authorized; no increased human presence	Total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP); duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP); duration of impacts increased to 105 years	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; duration of impacts increased to 76 years
Disturbance of Native American religious or culturally significant sites	Avoidance of known sites and continued consultation would minimize potential impact severity; no new disturbance	Avoidance of known sites and continued consultation would minimize potential impact severity; total surface disturbance increased by 16,200 acres (11,577 acres short-term, 4,631 acres LOP)	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Total surface disturbance increased by 3,222 acres (2,037 acres short-term, 1,193 acres LOP)	Total surface disturbance increased by 9,821–16,125 acres (6,971–11,577 acres short-term, 2,858–4,611 acres LOP); impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
<b>SOCIOECONOMICS</b>					
Local population increase	Up to 13,947 new secondary labor Annual Job Equivalents (AJEs) from production for 63-year LOP; no population impact anticipated beyond existing levels; some job loss may occur as wells become less productive and abandonment begins to occur	Up to 9,899 new worker-years direct labor and 52,930 new AJEs secondary labor for development; 6,964 new worker-years and 32,928 new AJEs secondary labor for LOP from production; any increase to population minimal due to Operator-committed recruitment from local population; some unquantifiable in-migration may occur from active job-seekers; LOP extended to 76 years	Up to 9,899 new worker-years direct labor and 52,187 new AJEs secondary labor for development; 6,964 new worker-years and 33,939 new AJEs secondary labor for LOP from production; any increase to population minimal due to Operator-committed recruitment from local population; some unquantifiable in-migration may occur from active job-seekers; LOP extended to 76 years	Up to 9,899 new worker-years direct labor and 61,110 new AJEs secondary labor for development; 6,964 new worker-years and 25,374 new AJEs secondary labor for LOP from production; any increase to population minimal due to Operator-committed recruitment from local population; some unquantifiable in-migration may occur from active job-seekers; LOP extended to 105 years	Effects on employment and population same as under the Proposed Action
Increased demand for housing	No further impact anticipated beyond existing levels	Possible small increase in population may exacerbate an already tight housing market	Effects on housing same as under the Proposed Action	Effects on housing same as under the Proposed Action	Effects on housing same as under the Proposed Action
Increased demand for services	No further impact anticipated beyond existing levels	Possible small increase in population may increase demand on services	Effects on demand for services same as under the Proposed Action	Effects on demand for services same as under the Proposed Action	Effects on demand for services same as under the Proposed Action
Change of community character	No impact anticipated beyond existing social changes	Increased economic activity could enhance the availability of goods, services, and cultural, educational, and certain recreational opportunities; however, additional conversion of land from rangeland to gas development may be seen by some as industrialization and a diminishment of the characteristics they most value in the region and a loss of cultural heritage.	Effects on change of community character same as under the Proposed Action	Effects on change of community character same as under the Proposed Action	Effects on change of community character same as under the Proposed Action
Increased tax revenues and royalties	Continued tax revenue and royalty streams for 63-year LOP (\$1,753.7 million present value); tax revenues and royalty streams would decline as wells become less productive; potential tax revenues and royalties would remain unrealized due to lack of new development and failure to recover mineral resources	Tax revenues and royalties would be expected to increase to \$3,474.7 million present value in taxes/royalties	Tax revenues and royalties would be expected to increase to \$3,574.9 million present value in taxes/royalties	Tax revenues and royalties would be expected to increase to \$2,108.2 million present value in taxes/royalties	Tax revenues and royalties would be the same as under the Proposed Action (\$3,474.7 million present value)

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Loss of revenues from livestock grazing due to loss of animal unit months (AUMs)	Worst case impact on grazing would be loss of \$0.9 million present value over 63-year LOP if all AUMs lost; however, it is unlikely AUMs would be lost proportionately to the degree of development; actual impact will depend on the success of ongoing reclamation efforts as evaluated by monitoring data. No impacts beyond those of previously authorized activities would occur	Worst case impact on grazing would be loss of \$6.6 million present value over 76-year LOP if all AUMs lost; however, it is unlikely AUMs would be lost proportionately to the degree of development; actual impact will depend on the success of ongoing reclamation efforts as evaluated by monitoring data	Impacts would be the same as those under the Proposed Action	Worst case impact on grazing would be loss of \$2.0 million present value over 105-year LOP if all AUMs lost; however, it is unlikely AUMs would be lost proportionately to the degree of development; actual impact will depend on the success of ongoing reclamation efforts as evaluated by monitoring data	Impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Loss of hunting revenues	No impact anticipated beyond existing levels; LOP would be 63 years	Reduction in economic activity from hunting expenditures would be \$1.0 million present value over the 76-year LOP	Impacts would be the same as those under the Proposed Action	Reduction in economic activity from hunting expenditures would be \$1.1 million present value over the 105-year LOP	Impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Loss of recreation revenues	No impact anticipated beyond existing levels; LOP would be 63 years	Reduction in economic activity from recreation-related expenditures would be \$2.4 million present value over the 76-year LOP	Impacts would be the same as those under the Proposed Action	Reduction in economic activity from recreation-related expenditures would be \$2.7 million present value over the 105-year LOP	Impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Stimulation of local economics	No new development; total economic activity of \$11,028.5 million present value for 63-year LOP	Total economic activity of \$28,060.4 million present value for 76-year LOP	Total economic activity of \$28,637.3 million present value for 76-year LOP	Total economic activity of \$16,424.7 million present value for 105-year LOP	Total economic activity would be the same as under the Proposed Action
Environmental justice for LOP	No impact anticipated; no minority communities in study area; no low-income populations in study area	No impact anticipated; no minority communities in study area; no low-income populations in study area	No impact anticipated; no minority communities in study area; no low-income populations in study area	No impact anticipated; no minority communities in study area; no low-income populations in study area	No impact anticipated; no minority communities in study area; no low-income populations in study area
<b>LAND USE/LIVESTOCK GRAZING</b>					
Loss of animal unit months (AUMs) for livestock, wild horses, and wildlife for LOP	No additional impacts to livestock/grazing management other than those already approved for the area; duration of impacts would be 63 years	Stud Horse Common, Sand Draw Common, and Boundary Allotments: significant potential for a decrease in livestock forage depending on the results of reclamation efforts as evaluated by monitoring data; unlikely that AUMs would be lost proportionately to the degree of development; duration of impacts increased to 76 years  Blue Rim Desert Common Allotment: the Burma Road upgrade would require reclamation along the roadsides, attracting cattle; increased traffic and increased speed would increase potential for vehicular/cattle collisions	Impacts the same as under the Proposed Action but possibly increased in areas that would have been avoided by Proposed Action and the other alternatives	Stud Horse Common, Sand Draw Common, and Boundary Allotments: considerable potential for a decrease in livestock forage depending on the results of reclamation efforts as evaluated by monitoring data; unlikely that AUMs would be lost proportionately to the degree of development; duration of impacts increased to 105 years  Blue Rim Desert Common Allotment: no impacts because the Burma Road would not be upgraded	Stud Horse Common, Sand Draw Common, and Boundary Allotments: considerable potential for a decrease in livestock forage depending on the results of reclamation efforts as evaluated by monitoring data; unlikely that AUMs would be lost proportionately to the degree of development; duration of impacts increased to 76 years; potential for impacts generally would be lower than for the Proposed Action because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources  Blue Rim Desert Common Allotment: no impacts because the Burma Road would not be upgraded

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<b>LAND USE/RECREATION</b>					
Reduced recreational use of JIDPA and adjacent areas for LOP	No additional impacts to recreational resources beyond existing levels; duration of impact would be 63 years; impacts on dispersed recreation opportunities may be significant; however, no additional significant impacts beyond those of previously authorized actions are anticipated; no significant impacts to recreation sites or facilities are anticipated	Displacement of existing dispersed recreation (e.g., hunting, wildlife viewing, photography) due to the increased level of development (e.g., facilities noise, traffic, dust, human presence) and the perceived reduction in the quality of the recreational experience; duration of impacts increased to 76 years; significant impacts on dispersed recreation opportunities but no significant impacts to sites or facilities	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives; significant impacts on dispersed recreation opportunities but no significant impacts to sites or facilities	Displacement of existing dispersed recreation (e.g., hunting, wildlife viewing, photography) due to the increased level of development (e.g., facilities noise, traffic, dust, human presence) and the perceived reduction in the quality of the recreational experience; duration of impacts increased to 105 years; significant impacts on dispersed recreation opportunities but no significant impacts to sites or facilities	Displacement of existing dispersed recreation (e.g., hunting, wildlife viewing, photography) due to the increased level of development (e.g., facilities noise, traffic, dust, human presence) and the perceived reduction in the quality of the recreational experience; duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources; significant impacts on dispersed recreation opportunities but no significant impacts to sites or facilities
<b>LAND USE/TRANSPORTATION</b>					
Increased road miles and road density in JIDPA for 63-year LOP	No additional roads over 199 miles of currently authorized resource roads; duration of impact would be 63 years	An additional 465 miles of resource roads, 8 miles of collector roads, and 12 miles of Burma Road improvement above No Action; impact severity would be somewhat mitigated with adherence to the Transportation Plan; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	No new roads or improvement of the Burma Road; impact severity would be somewhat mitigated with adherence to the Transportation Plan; duration of impacts increased to 105 years	No new roads or improvement of the Burma Road; impact severity of existing (i.e., approved roads) would be somewhat mitigated with adherence to the Transportation Plan; duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Increased traffic for the 63-year LOP	Traffic would be maintained at existing levels with some potential for reduction; duration of impacts would be 63 years	Traffic increase may cause congestion, road damage, and increased collision potential; new and existing roads would be built and maintained to facilitate safety and accommodate increased traffic; adherence to the Transportation Plan would to some extent mitigate impact severity; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Traffic increase may cause congestion, road damage, and increased collision potential; new and existing roads would be built and maintained to facilitate safety and accommodate increased traffic; adherence to the Transportation Plan would to some extent mitigate impact severity; duration of impacts increased to 105 years	Traffic increase may cause congestion, road damage, and increased collision potential; new and existing roads would be built and maintained to facilitate safety and accommodate increased traffic; adherence to the Transportation Plan would to some extent mitigate impact severity; duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
<b>VISUAL RESOURCES</b>					
Visual resources in general	Significant impacts from the existing developments have since been identified since authorization; however, no additional significant impacts beyond those of previously authorized actions are anticipated	Significant impacts may occur to non-JIDPA VRM Class I and II areas, including wilderness and wilderness study areas	Significant impacts may occur to non-JIDPA VRM Class I and II areas, including wilderness and wilderness study areas	Significant impacts may occur to non-JIDPA VRM Class I and II areas, including wilderness and wilderness study areas	Significant impacts may occur to non-JIDPA VRM Class I and II areas, including wilderness and wilderness study areas

**Summary of Impacts Across Alternatives, Jonah Infill Drilling Project, Sublette County, Wyoming, 2006<sup>1</sup>**

<b>IMPACT BY ENVIRONMENTAL RESOURCE</b>	<b>NO ACTION (No New Well or Pads)</b>	<b>PROPOSED ACTION (3,100 New Wells / 2,825 New Pads)</b>	<b>ALTERNATIVE A (3,100 Wells / 3,100 New Pads)</b>	<b>ALTERNATIVE B (3,100 Wells/No New Pads)</b>	<b>PREFERRED ALTERNATIVE <sup>2</sup> (3,100 Wells / 2,825 New Pads / Reclamation Credit, Mitigation/Monitoring)</b>
Modification to basic visual elements and changes in visual character of JIDPA for the LOP and until areas reclaimed	No additional impacts to visual resources beyond current authorized actions; duration of impacts would be 63 years	Continued long-term modification of visual characteristics; current visual resource management (VRM) Class IV designation of JIDPA would be maintained; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Continued long-term modification of visual characteristics; current visual resource management (VRM) Class IV designation of JIDPA would be maintained; duration of impacts increased to 105 years	Continued long-term modification of visual characteristics; current visual resource management (VRM) Class IV designation of JIDPA would be maintained; duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because maximum disturbance at any one time would be limited to 14,030 acres; additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
Light pollution effects at JIDPA and viewsheds where JIDPA is visible	No additional impacts beyond current levels; duration of impacts would be 63 years	Light impacts would be increased due to additional development; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Light impacts would be increased due to additional development; duration of impacts increased to 105 years	Light impacts would be increased due to additional development; duration of impacts increased to 76 years; impacts would be similar to those of the proposed action except potential for impacts generally would be lower because additional mitigation measures would be applied to facilitate achievement of specific management objectives and to minimize impacts to resources
<b>HAZARDOUS MATERIALS</b>					
Soil, surface water, and groundwater contamination and wildlife exposure from accidental spills, pipeline ruptures, etc., for the LOP	No additional opportunities for material spills, pipeline ruptures, and/or exposure to hazardous materials above present approved levels; LOP would be 63 years	Increased above No Action due to more materials, produced, used, stored, and transported; adherence to SPCCPs, SWPPPs, and other applicable local, state, and federal rules and regulations and appropriate monitoring, containment, and disposal of hazardous materials would limit potential impact severity; duration of impacts increased to 76 years	Type, magnitude, and duration of impacts same as the Proposed Action but increased in areas that would have been avoided by the Proposed Action and the other alternatives	Increased above No Action due to more materials, produced, used, stored, and transported; adherence to SPCCPs, SWPPPs, and other applicable local, state, and federal rules and regulations and appropriate monitoring, containment, and disposal of hazardous materials would limit potential impact severity; duration of impacts increased to 105 years	Increased above No Action due to more materials, produced, used, stored, and transported; adherence to SPCCPs, SWPPPs, and other applicable local, state, and federal rules and regulations and appropriate monitoring, containment, and disposal of hazardous materials would limit potential impact severity; duration of impacts increased to 76 years

<sup>1</sup> Impacts assume successful implementation of the variously proposed mitigation/monitoring/development requirements (see Appendices A and C).

<sup>2</sup> Assumes 3,100 additional wells.