DECISION RECORD
Yates Petroleum Corporation (Yates), Nimitz Federal #39, Application for Permit to Drill (APD)
Environmental Assessment (EA), WY-070-EA13-136
Bureau of Land Management, Buffalo Field Office, Wyoming

DECISION. The BLM approves Yates Petroleum Corporation (Yates) Nimitz Federal #39 oil and gas well application for permit to drill (APD) as described in Alternative B of the EA, WY-070-EA13-136. This approval includes the well's support facilities.

Compliance. This decision complies with:
- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701); DOI Order 3310.
- Mineral Leasing Act of 1920 (MLA) (30 U.S.C. 181); Onshore Oil and Gas Order No. 1.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- National Historic Preservation Act of 1966 (NHPA) (16 USC 470).
- Buffalo Resource Management Plan (RMP) 1985 and Amendments.

BLM summarizes the details of the approval of Alternative B, below. The EA includes the project description, including specific changes made at the onsites, and site-specific mitigation measures.

Well Site. BLM approves the following APD and support facilities:

	Well Name	Well #	Qtr/Qtr	Section	Twp	Rng	Lease #
1	Nimitz Federal	#39	SWSE	12	57N	75W	WYW139605

List of Approved Right-of-Way (ROW).

Right-of-Way	Sec	Twp	Rng	Use/Type	Disturbance Acres
WYW-168395	13, 14, 24	57N	75W	Existing crown and ditch road	2.27

Limitations. There are no denials or deferrals. Also see the conditions of approval (COAs).

THE FINDING OF NO SIGNIFICANT IMPACT (FONSI). Analysis of Alternative B of the EA, WY-070-EA13-136, and the FONSI (incorporated here by reference) found the project will have no significant impacts on the human environment, beyond those described in the Powder River Basin Final Environmental Impact Statement (PRB FEIS). There is no requirement for an EIS.

COMMENT OR NEW INFORMATION SUMMARY. BLM publically posted the proposed APD for 30 days, received no comments, and then internally scoped it. BLM's experience in the PRB (outside of the Fortification Creek Planning Area) revealed little public input or new issue discovery other than those revealed after public scoping during development of the PRB FEIS.

DECISION RATIONALE. BLM bases the decision authorizing the selected project on:
1. BLM and Yates included mitigation measures to reduce environmental impacts while meeting the BLM's need. For a complete description of all site-specific COAs see the COAs. The PRB FEIS analyzed and predicted that the PRB oil and gas development would have significant impacts to the region's Greater Sage-Grouse (GSG) population. The impact of this development cumulatively contributes to the potential for local extirpation yet its effect is acceptable because it is outside priority habitats and is within the parameters of the PRB FEIS and ROD and current BLM and Wyoming GSG conservation strategies.

2. Yates will conduct operations to minimize adverse effects to surface and subsurface resources, prevent unnecessary surface disturbance, and conform to currently available technology and practice.

3. The selected alternative will help meet the nation's energy needs, and help stimulate local economies by maintaining workforce stability.

4. The operator, in their project, shall:
   - Comply with all applicable federal, state, and local laws and regulations.
   - Offer water well agreements to the owners of record for permitted water wells within 0.5 mile of a federal producing well in the POD (PRB FEIS Record of Decision (ROD), p. 7).
   - The operator will collect a water sample representative of the water produced from this well for analysis within 90 days of initial production.
   - Comply with the approved APD, applicable laws, regulations, orders, and notices to lessees.
   - Obtain necessary permits from agencies.
   - Incorporate several measures to alleviate resource impacts into their submitted surface use plan and drilling plan.

5. The Operator certified it has a surface access agreement or posted a 43 CFR 3814.1 bond.

6. The project is clearly lacking in wilderness characteristics as there is no federal surface.

7. This APD is pursuant to the Mineral Leasing Act for the purpose of exploring or developing oil or gas and do not satisfy the categorical exclusion directive of the Energy Policy Act of 2005, Section 390 because the proposed well is in a developed field supported by a NEPA document older than 5 years from the date possible to spud this well.

ADMINISTRATIVE REVIEW AND APPEAL. This decision is subject to administrative review according to 43 CFR 3165. Request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this Decision Record is received or considered to have been received. Parties adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager: _____ Date: 6/3/13

FINDING OF NO SIGNIFICANT IMPACT
Yates Petroleum Corporation (Yates), Nimitz Federal #39, Application for Permit to Drill (APD)
Environmental Assessment (EA), WY-070-EA13-136
Bureau of Land Management, Buffalo Field Office, Wyoming

FINDING OF NO SIGNIFICANT IMPACT (FONSI). Based on the information in the EA, WY-070-EA13-136, which BLM incorporates here by reference; I find that: (1) the implementation of Alternative B will not have significant environmental impacts beyond those addressed in the Buffalo Final Environmental Impact Statement (FEIS) 1985, and the Powder River Basin (PRB) FEIS, 2003. (2) Alternative B conforms to the Buffalo Field Office (BFO) Resource Management Plan (RMP) (1985, 2001, 2003, 2011); and (3) Alternative B does not constitute a major federal action having a significant effect on the human environment. Thus an EIS is not required. I base this finding on consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), with regard to the context and to the intensity of the impacts described in the EA, and Interior Department Order 3310.

CONTEXT: Mineral development is a common PRB land use, sourcing over 42% of the nation's coal. The PRB FEIS foreseeable development analyzed the development of 54,200 wells. The additional development analyzed in Alternative B is insignificant in the national, regional, and local context.

INTENSITY: The implementation of Alternative B will result in beneficial effects in the forms of energy and revenue production however; there will also be adverse effects to the environment. Design features and mitigation measures included in Alternative B will minimize adverse environmental effects. The preferred alternative does not pose a significant risk to public health and safety. The geographic area of project does not contain unique characteristics identified in the 1985 RMP, 2003 PRB FEIS, or other legislative or regulatory processes.

BLM used relevant scientific literature and professional expertise in preparing the EA. The scientific community is reasonably consistent with their conclusions on environmental effects relative to oil and gas development. Research findings on the nature of the environmental effects are not highly controversial, highly uncertain, or involve unique or unknown risks. The PRB FEIS predicted and analyzed oil development of the nature proposed with this project and similar projects. The selected alternative does not establish a precedent for future actions with significant effects. The proposal may relate to the PRB Greater Sage-Grouse and its habitat decline having cumulative significant impacts; yet the small size of this project is within the parameters of the impacts in the PRB FEIS. There are no cultural or historical resources present that will be adversely affected by the selected alternative. The project area is clearly lacking in wilderness characteristics as it lacks federally owned surface. No species listed under the Endangered Species Act or their designated critical habitat will be adversely affected. The selected alternative will not have any anticipated effects that would threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment.

ADMINISTRATIVE REVIEW AND APPEAL. This finding is subject to administrative review according to 43 CFR 3165. Request for administrative review of this finding must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this FONSI is received or considered to have been received. Parties adversely affected by the State Director's finding may appeal that finding to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager: _____ Date: 6/3/13

ENVIRONMENTAL ASSESSMENT (EA), WY-070-EA13-136
Yates Petroleum Corporation (Yates), Nimitz Federal #39, Application for Permit to Drill (APD)
Bureau of Land Management, Buffalo Field Office, Wyoming

1. INTRODUCTION

BLM provides an EA for Yates Petroleum Corporation (Yates) Nimitz Federal #39 oil well application for permit to drill (APD). This site-specific analysis tiers into and incorporates by reference the information and analysis in the Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil and Gas Project (PRB FEIS), WY-070-02-065, 2003 and the PRB FEIS Record of Decision (ROD) pursuant to 40 CFR 1508.28 and 1502.21. One may review these documents at the BLM Buffalo Field Office (BFO) and on our website: http://www.blm.gov/wy/st/en/field_offices/Buffalo/bfoplan.html. This APD is pursuant to the Mineral Leasing Act for exploring or developing oil or gas and does not satisfy the categorical exclusion directive of the Energy Policy Act of 2005, Section 390 because no site-specific analysis adequately covered the project area. BLM's jurisdiction is through spilt estate: fee surface over federal minerals.

Congress made a 4-part process for federal fluid mineral decisions under the long-term needs of multiple-use. First is the land use / resource management plan (RMP); here the PRB FEIS and ROD amendment to the BFO RMP. Second are the decisions of whether and, if so, under what conditions, to lease lands for fluid mineral development. Courts held leasing decisions are an almost irrevocable resource commitment. Third, (this phase) is deciding on the proposed POD or APD, or both: the site-specific analysis, and mitigation. Fourth is the monitoring and reclamation of wells and their features; Pendery 2010.

1.1. Background

Yates submitted the Nimitz Federal #39 on June 28, 2012 to the BFO to produce oil and gas from federally managed fluid mineral bearing formations of the PRB, on fee surface.

- November 6, 2012- Yates, BLM BFO resource staff, and other stakeholders conducted a pre-approval onsite inspection for the proposed APD well locations, roads, utility corridors, and associated infrastructure. The proposal was evaluated and modified to minimize environmental impacts.
- November 21, 2012- BLM sent a post-onsite deficiency letter to Yates.
- December 21, 2012- BLM received deficiency responses from Yates.
- April 28, 2013-BLM shared the proposed COAs with the operator.

1.2. Need for the Proposed Project

The need for this project is to determine whether, how, and under what conditions to support the Buffalo RMP's goals, objectives, and management actions (2003 Amendment) with allowing the exercise of the operator's conditional lease rights to develop fluid minerals on federal leases. APD information is an integral part of this EA, which BLM incorporates here by reference (40 CFR 1502.21). Conditional fluid mineral development supports the RMP and the Mineral Leasing Act of 1920, the Federal Land Policy Management Act (FLPMA), and other laws and regulations.

1.3. Decision to be Made

The BLM will decide whether or not to approve the proposed development, and if so, under what terms and conditions agreeing with the Bureau's multiple use mandate, environmental protection, and RMP.

1.4. Scoping and Issues

BFO external scoping included a 30 day posting of proposed APD and the EA's timely publication on the BFO website. Previously BFO conducted extensive external scoping for the PRB FEIS - discussed on

p. 2-1 of the PRB FEIS and on p. 15 of the PRB ROD. This project is similar in scope to other fluid mineral development the BFO analyzed. External scoping is unlikely to identify new issues, as verified with recent fluid mineral EAs BLM externally scoped. External scoping of the horizontal drilling in Samson Resources EA, WY-060-EA11-181, 2011, in the PRB area received 2 comments, revealing no new issues.

The BFO interdisciplinary team (ID team) conducted internal scoping by reviewing the proposed development and project location to identify potentially affected resources and land uses. This EA will not discuss resources and land uses that are either not present, not affected, or that the PRB FEIS adequately addressed. The ID team identified important issues for the affected resources to focus the analysis. This EA addresses the project and its site-specific impacts that were unknown and unavailable for review at the time of the PRB FEIS analysis. Project issues include:

- Air quality
- Soils and vegetation: site stability, reclamation potential, riparian and wetland communities, invasive species
- Water: ground water, quality, and quantity of produced water.
- Wildlife: raptor productivity, migratory birds, special status species
- Cultural: National Register of Historic Places (NRHP) eligible sites

These issues are not present, or minimally so. BLM analyzed them in the PRB FEIS and not in this EA:

Geological resources	Recreation	Wilderness characteristics
Cave and karst resources	Heritage & Visual Resources	Livestock & grazing
Mineral resources: locatable, leasable-coal, salable	Paleontological resources	Areas of critical environmental concern
Fire, fuels management, and rehabilitation	Transportation & Access	Socio-economic resources
Forest Products	Tribal Treaty Rights	Environmental justice
Lands & Realty	Wilderness characteristics	

2. PROPOSED PROJECT AND ALTERNATIVES

2.1. Alternative A – No Action

The no action alternative would deny this APD requiring the operator to resubmit an APD that complies with statutes and the reasonable measures in the PRB RMP Record of Decision (ROD) in order to lawfully exercise conditional lease rights. The PRB FEIS considered a no action alternative, pp. 2-54 to 2-62. The BLM keeps the no action alternative current using the aggregated effects analysis approach – tiering to or incorporating by reference the analyses and developments approved by the subsequent NEPA analyses for adjacent and intermingled developments to the proposal area.

2.2. Alternative B Proposed Action

Overview. Yates proposes drilling and developing 1 vertical/wildcat oil and gas well into federal mineral estate from fee surface. The proposed well is 65 miles north of Gillette, Wyoming, in Campbell County. The proposal requires construction of one engineered well pad with, cuts and fills, and topsoil and spoil piles. Access roads will be constructed to meet BLM road standards of anticipated traffic and all-weather requirements. Yates will use existing access with road upgrades including: adding turnouts, culverts, low water crossings (LWC), and best management practices (BMPs), (disturbances for well location and access roads are outlined in Table 2.1). The primary objective is to drill to the Muddy Formation at 7,575 feet total vertical distance. The surface hole location is 973 FSL (from the south line) and 2,395 FEL (from the east line) (SW/SE) Section 12, T57N, R75W. The surface owner is Bow and Arrow Ranch, Inc.

Well Name/#/Lease/Location:

Well Name / #	Qtr	Sec	Twn	Rng	Lease #	Status
Nimitz Federal #39	SWSE	12	57N	75W	WYW139605	APD

Drilling, Construction and Production Design Features Include:
Access and Utilities

- The project proposal consists of a road network of existing improved roads, proposed primitive and engineered sections. Disturbances are outlined in Table 2.1.
- Yates will upgrade the existing access by widening, adding culverts, low water crossings (LWC), and turnouts.
- The constructed access will be surfaced with clinker rock to a minimum average depth of four inches.
- The proposed power will come from existing overhead power then ran as buried power along the road corridor. Buried electric corridors are outlined in Table 2.1.
- Yates will drill a water supply well near the entrance of the newly constructed access road (SEO permit #P198935.0W). The water well will be 360 feet and target the Fort Union Formation.

Well Location

- There will be no pits at the producing oil and gas well location.
- If the well is determined a producer the potential production facilities include; a pumping unit, tank batteries, heater-treater, flare and flare pit, located on the well pad and placed on the cut portion of the location, a minimum of 25 feet from the toe of the back cut.
- A reserve pit will be used for drilling and completion operations.
- Drilling fluids including; salt and/or chemicals utilized in the mud system and cuttings will be contained in the reserve pit.
- An impervious synthetic liner will be installed in the reserve pit to contain drilling fluids and prevent seepage into the surrounding and underlying soils.

The following narrative explains why Yates requests approximately 7.0 acres for a bladed and level pad site. All locations require extensive earthwork for creating sufficient area to complete the well. Yates will then reduce the initial well site with interim reclamation. The individual well design is in the individual APD. The totality of the pad contribution to surface disturbance in the upper PRB remains well within the totality of the surface disturbance envisioned and analyzed in the PRB FEIS. The proposed size is necessary to safely accommodate the equipment necessary for an effective well completion.

Drilling and Completion Water Sources and Amounts

The proposal is to drill and develop a oil/gas well into the Muddy formation. The project would be subject to the COAs for drilling of an oil/gas well in the BFO jurisdiction. The operator submitted a proposal to use multiple water sources (outlined in the SUP) for obtaining fresh water, including a newly drilled well; the Nimitz #39 WSW Water Well (SEO Permit #P198935.0W), drilled to the Fort Union Formation and located in the SWSE, Sec 12, T57N, R75W. The depth of the Fort Union Formation is about 360 feet within the proposal's boundary. Yates estimated 30,000 barrels of water are required for drilling the well.

For a detailed description of design features and construction practices associated with the proposed project, refer to the surface use plan (SUP) and drilling plan included with the APD. Also see the subject APD for maps showing the proposed well location and associated facilities described above.

Table 2.1. Disturbance Summary for Nimitz Federal #39 well:

Facility	Number or Miles	Factor	Disturbance
Engineered Pad Including Cut & Fill and Topsoil/Spoil Piles	1 (350 ft x 350 ft) (pad surface)	122,500 sq ft (pad surface)	2.81acres (pad surface) ~7.00 acres (total)
Existing Improved Road to be Modified	1 (10,594 ft x 50 ft)	529,700 sq ft	12.16 acres
Existing Improved Roads to be Modified/ Proposed Buried Electric	1 (1,883 ft x 75 ft)	141,225 sq ft	3.24 acres
Proposed Improved Road w/ Buried Electric	1 (1,120 ft x 75 ft)	84,000 sq ft	1.93 acres
Proposed Primitive Road with Buried Electric	1 (210 ft x 45 ft)	9450 sq ft	0.22 acres
Proposed Water Well Location	1		1.00 acre
Total Surface Disturbance			**25.55 acres**

A right-of-way WYW-168395, granted under the FLPMA, for an existing crown and ditch access road for the Nimitz #39 well on public lands is described as follows:
6th PM, Campbell County, Wyoming,
T. 57 N., R. 75 W.,
sec. 13: SWSW;
sec. 14: SESE;
sec. 24: NWNW.

The existing crown and ditch access road right-of-way granted herein is 40 feet wide, 2,475 feet long and contains approximately 2.27 acres.

The right-of-way was inspected and is required in association with the Master Surface Use Plan for the Nimitz #39 application for permit to drill. It will fall within the constraints of the appropriate stipulations and conditions of approval of the APD.

Right-of-Way	Sec	Twp	Rng	Use/Type	Disturbance Acres
WYW-168395	13, 14, 24	57N	75W	Existing crown and ditch road	2.272

BLM incorporated and analyzed the implementation of committed mitigation measures in the SUP and drilling plan, in addition to the COAs in the PRB FEIS ROD, as well as changes made at the onsite.
Additionally, the Operator, in their APD, committed to:

1. Comply with the approved APD, applicable laws, regulations, orders, and notices to lessees.
2. Obtain necessary permits from agencies.
3. Offer water well agreements to the owners of record for permitted wells.
4. Incorporate several measures to alleviate resource impacts into their submitted surface use plan and drilling plan.
5. Certify it has a surface access agreement with the landowner or posted a 43 CFR 3814.1 bond.

The reasonably foreseeable development (RFD) for this and adjacent areas includes oil/gas exploration on 640 acre spacing and possible 320 acre spacing. (This does not preclude the RFD spacing analysis in the PRB FEIS or applying to drill multiple wells from this pad further reducing the surface disturbance per well.) RFD may use existing well pads and infrastructure put in place for fee and/or federal mineral development. Potential APD submittals could consist of multiple wells on an existing pad or tie into existing supporting infrastructure; tank batteries, pipelines, power lines, and transportation networks.

2.3. Conformance to the Land Use Plan and Other Environmental Assessments

This proposal does not diverge from the goals and objectives in the Buffalo Resource Management Plan (RMP), 1985, 2001, 2003, 2011, and generally conforms to the terms and conditions of that land use plan, its amendments, and supporting FEISs, 1985, 2003.

3. AFFECTED ENVIRONMENT

This section briefly describes the physical and regulatory environment that may be significantly affected by the alternatives in Section 2, or where changes in circumstances or regulations occurred since adoption of analyses to which the EA tiers or incorporates by reference. The PRB FEIS considered a no action alternative (pp. 2-54 to 2-62) in evaluating a development of up to 54,200 fluid mineral wells. Nearly all of the PRB's coalbed natural gas (CBNG) wells and over 60% of the deep oil and gas wells are hydraulically fractured; BLM and Goolsby 2012. The BLM uses the aggregated effects analysis approach incorporating by reference the circumstances and developments approved via the subsequent NEPA analyses for adjacent and intermingled developments coincident to proposal area to retain currency in the no action alternative. 615 F. 3d 1122 (9th Cir. 2010). There are no producing oil and gas wells in the project area, Wyoming Oil and Gas Conservation Commission (WOGCC) 2013. There are 273 federal CBNG wells in the analysis area, Table 3.1. The total number of conventional wells in the Buffalo planning area is 1313, which includes 783 horizontal wells (federal, fee, and state) (as of April 2013). This represents 41% of the projected 3,200 in the 2003 PRB ROD. (The current surface disturbance in the analysis area is about 120 acres.) This agrees with the PRB FEIS which analyzed the reasonably foreseeable development rolling across the PRB of 51,000 CBNG and 3,200 natural gas and oil wells. The State of Wyoming and BLM also approved wells that operators may develop in the near future. In addition, and other operators are likely to continue seeking permits to develop unconnected leases in or in the affects analysis areas near the project area; decisions to approve or deny future proposals will occur following APD submittal. Development occurring on non-federal surface and non-federal mineral estate would continue. A summary of the proposed disturbance is in Table 2.1.

BLM's position is there is a rare lack of surface disturbance impacts attributable to well type, subject to showing a distinction, not a mere difference. See, State Director Reviews WY-2010-023, Part 2, p. 3, and fn. 7, and 2013-005, pp. 2-3. This supports BLM and national policy in 43 CFR 3160 et seq, leasing, APD Form 3160-3, and 2005's Energy Policy Act (Kreckel 2007). The US Geological Survey noted there is only a remote chance of induced seismic activity from the nations hydraulic fracturing and water injection at volumes contemplated in the PRB.

Table 3.1. Adjacent or Overlapping Development

POD Name	NEPA Document	Well # / Type	Approval
Ford Ranch Phase 1	WY-070-EA07-106	31 CBNG	5/25/2007
Ford Ranch Phase 2	WY-070-EA08-066	23 CBNG	3/13/2008
ROF	WY-070-EA08-156	35 CBNG	9/5/2008
East Bitter Creek	WY-070-EA08-065	21 CBNG	5/9/2008
DHL Federal	WY-070-EA06-002	49 CBNG	5/16/2006
Cutler Draw	WY-070-EA04-195	42 CBNG	12/28/2004
Coal Creek	WY-070-EA04-241	6 CBNG	10/29/2004
Lower SA Creek	WY-070-EA04-289	66 CBNG	9/24/2004

BLM incorporates by reference the description and analysis of drilling, completion, hydraulic fracturing, water, groundwater, traffic, and socioeconomics from EA, Crazy Cat East, WY-070-EA13-028, 2013, as representative of general industry practices.

3.1. Air Quality

Wyoming's Department of Environmental Quality (WDEQ) regulates Wyoming's air quality with oversight from the U.S. Environmental Protection Agency (EPA). BLM incorporates by reference the August 2012 Lease Sale EA, WY-070-EA12-44, pp. 17-24 (air quality, greenhouse gas emissions, and visibility); and the Update of Task 3A Report for the Powder River Basin Coal Review Cumulative Air Quality Effects for 2020, BLM (AECOM), 2009, (Cumulative Air Quality Effects, 2009) as it captures the cumulative air quality effects of present and projected PRB fluid and solid mineral development. The EPA established ozone standards in 2011 and oil and gas new source performance standards in 2012, 77 FR 49490. Existing air quality in the PRB is "unclassified/attainment" for all ambient air quality standards. It is also in an area that is in prevention of significant deterioration zone. PRB air quality is a rising concern due to ozone in the oil and gas producing Upper Green River Basin that became 1 of the nation's 40 "nonattainment" zones for ozone in 2012; in addition to PRB-area air quality alerts issued in 2011 - 2013 for particulate matter (PM), attributed to coal dust. Four sites monitor the air quality in the PRB: Cloud Peak in the Big Horn Mountains, Thunder Basin northeast of Gillette, Campbell County south of Gillette, and Gillette. In addition, the Wyoming Air Resource Monitoring System (WARMS) measures meteorological parameters from 6 sites, and particulate concentrations from 5 of those sites, monitors speciated aerosol (3 locations), and evapotranspiration rates (3 locations). These sites are at Sheridan, Taylor Reservoir, South Coal Reservoir, Buffalo, Juniper, and Newcastle. The northeast Wyoming visibility study is ongoing by the WDEQ. Sites adjacent to the Wyoming PRB-area are at Birney on the Tongue River 24 miles north of the Wyoming-Montana border, Broadus on the Powder River in Montana, and Devils Tower.

Existing air pollutant emission sources in the region include:

- Exhaust emissions (primarily carbon monoxide (CO) and nitrogen oxides (NOx)) from existing natural gas fired compressor engines used in production of natural gas and CBNG; and, gasoline and diesel vehicle tailpipe emissions of combustion pollutants;
- PM (dust) generated by vehicle travel on unpaved roads, windblown dust from neighboring areas, road sanding during the winter months, coal mines, and trains;
- Transport of air pollutants from emission sources located outside the region;
- NOx, PM, and other emissions from diesel trains; and
- Sulfur dioxide (SO2) and NOx from power plants.

3.2. Soils and Vegetation

The North Campbell County Survey Area, Wyoming Soil Survey Geographic (SSURGO) Database (WY705) provided detailed soils identification and data. NRCS performed the soil survey according to National Cooperative Soil Survey standards. The BLM uses county soil survey information to predict soil behavior, limitations, or suitability for a given activity or action. The agency's long term goal for soil resource management is to maintain, improve, or restore soil health and productivity, and to prevent or minimize soil erosion and compaction. Soil management objectives are to ensure that adequate soil protection is consistent with the resource capabilities. Many of the soils and landforms of this area present distinct challenges for development, and /or eventual site reclamation.

Project area soils developed in alluvium and residuum derived mainly from the Wasatch Formation. Lithology consists of light to dark yellow and tan siltstone and sandstones with minor coal seams resulting in a wide variety of surface and subsurface textures. Soil depths vary from deep on lesser slopes to shallow and very shallow on steeper slopes. Differences in lithology produced topographic and geomorphic variations in the area. An erosion resistant cap of clinker, terrace gravels, or sandstone often protects ridges and hills. Parent material chemistry may result in local concentration of salts.

Soils differ with topographic location, slope, and elevation. Topsoil depths to be salvaged for reclamation range from 2 to 4 inches on ridges to 6+ inches in bottomland. Erosion potential varies from minor to

moderate depending on the soil type, vegetative cover and slope. Reclamation potential of soils also varies throughout the project area.

Using the Natural Resource Conservation Service, (NRCS, USDA), Technical Guides for the Major Land Resource Area 58B Northern Rolling High Plains, in the 10-14" Northern Plains precipitation zone, the landforms and the soils of this site are shallow (less than 20"to bedrock) well-drained soils formed in alluvium over residuum or residuum. These soils have moderate permeability and may occur on all slopes. The bedrock may be any kind which is virtually impenetrable to plant roots, except igneous. The surface soil will have one or more of the following textures: very fine sandy loam, loam, silt loam, sandy clay loam, silty clay loam, and clay loam. Thin ineffectual layers of other textures are disregarded. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick. The main soil limitations include: depth to bedrock, low organic matter content, and soil droughtiness, and high erosion potential especially in areas of steep slopes. The low annual precipitation should be considered when planning a seeding. The predominant ecological site (or sites) occurring within the proposed APD is found to be Shallow Loamy and the plant community consisted of:

<u>Mixed Sagebrush/Grass Plant Community</u>
Historically, this plant community evolved under grazing by bison and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock in the absence of fire or brush control. Wyoming big sagebrush is a significant component of this plant community. Cool-season grasses make up the majority of the understory with the balance made up of short warm-season grasses, annual cool-season grass, and miscellaneous forbs. Dominant grasses include bluebunch wheatgrass, rhizomatous wheatgrasses, and blue grama. Grasses of secondary importance include little bluestem, prairie junegrass, and Sandberg bluegrass. Forbs, commonly found in this plant community, include Louisiana sagewort (cudweed), plains wallflower, hairy goldaster, slimflower scurfpea, and scarlet globemallow. Big sagebrush canopy ranges from 20% to 30%. Fringed sagewort is commonly found. Plains pricklypear and winterfat can also occur.

When compared to the Historical Climax Plant Community, big sagebrush and blue grama have increased. Bluebunch wheatgrass has decreased, often occurring only where protected from grazing by the sagebrush canopy. Production of cool-season grasses has also been reduced. Cheatgrass (downy brome) has invaded the state. The overstory of big sagebrush and understory of grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as mule deer and antelope.

The state is stable and protected from excessive erosion. The biotic integrity of this plant community is usually intact. However, it can be at risk depending on how far a shift has occurred in plant composition toward blue grama, sagebrush, and/or cheatgrass. The watershed is usually functioning. However, it can become at risk when canopy cover of sagebrush, blue grama sod, and/or bare ground increases. For more detailed soil information, see the NRCS Soil Survey WY705.

3.3. Water Resources

WDEQ regulates Wyoming's water quality with oversight by the U.S. Environmental Protection Agency (EPA) per the Clean Water Act, 33 USC 1251 et seq. (1972). The Wyoming State Engineer's Office (WSEO) has authority for regulating water rights issues and permitting impoundments for the containment of the State's surface waters. The Wyoming Oil and Gas Conservation Commission (WYOGCC) has authority for permitting and bonding off channel pits located over state and fee minerals.

3.3.1. Groundwater

The historical use for groundwater in this area was for stock or domestic water. A search of the WSEO Ground Water Rights Database showed 5 registered stock and domestic wells within 1 mile of the Nimitz

Federal #39 well, with depths ranging from 330 to 1072 feet. For additional information on groundwater, refer to the PRB FEIS, pp. 3-1 to 3-36.

Depth to the Fox Hills formation, which is a documented water source, is 3,496 feet total vertical distance (TVD). Refer to the PRB FEIS for additional information on groundwater, pp. 3-1 to 3-36. The 2004 EPA study found it unlikely that hydraulically fractured CBNG wells would contaminate ground water. Studies from the University of Texas, Massachusetts Institute of Technology, echo decades of industry and regulatory experience that good casing, cement plans, and execution are keys to protect groundwater from hydrocarbon communication.

3.3.2. Surface Water

The project area is in the Lower Bitter Creek drainage which is a tributary to the Powder River drainage. Most of the area drainages are ephemeral (flowing only in response to a precipitation event or snow melt) to intermittent (flowing only at certain times of the year when it receives water from alluvial groundwater, springs, or other surface source – PRB FEIS, Glossary). The channels are well vegetated grassy swales, without defined bed and bank. See generally, the PRB FEIS for a surface water quality, pp. 3-48 to 3-49.

3.4. Wetlands/Riparian

There are no wetlands or riparian areas near the proposed well pads or infrastructure so the project should not impact wetlands or riparian areas. The Nimitz Federal #39 is in the Lower Bitter Creek drainage - a tributary of the Powder River drainage. Ephemeral drainages, which flow into intermittent Lower Bitter Creek, dissect the area. The ephemeral drainages have gentle slope with well vegetated bottoms with numerous small head-cut features.

3.5. Invasive and Noxious Species

The BLM's weed database showed the presence of leafy spurge in areas in or around the areas of this project. During the onsite inspections no populations of leafy spurge were observed. Cheatgrass or downy brome (*Bromus tectorum*) and to a lesser extent, Japanese brome (*B. japonicus*) exist in the affected environment. These species are found in high densities and numerous locations in NE Wyoming. Recent studies show that surface disturbances increase cheatgrass and weed proliferations 0.5 miles or more from the disturbance. Cheatgrass proliferation contributes to wildfire's increased frequency and severity.

3.6. Fish and Wildlife

Resources consulted to identify wildlife species that may occur in the proposal area include the wildlife database compiled and managed by the BLM Buffalo Field Office (BFO), the PRB FEIS, the Wyoming Game and Fish Department (WGFD) big game and Greater Sage-Grouse (GSG) maps, and the Wyoming Natural Diversity Database (WYNDD). BLM conducted a field visit on November 6, 2012, when the biologist evaluated potential impacts to wildlife resources, and provided project recommendations. Wildlife species common to the habitat types present are noted in the PRB FEIS, p. 3-114.PRB FEIS identified wildlife species occurring in the PRB, pp. 3-113 to 3-206.

3.6.1. Big Game

Big game species expected to be within the project area include pronghorn antelope, mule deer, and elk. Populations of pronghorn antelope and mule deer within their respective hunt areas are above WGFD objectives. The WGFD has determined that the project area contains winter, spring-summer-fall and yearlong range for pronghorn antelope and winter-yearlong and yearlong range for mule deer. The project area is outside of any WGFD designated elk seasonal ranges and herd units.

Summer or spring-summer-fall use is when a population or portion of a population of animals uses the documented habitats within this range annually from the end of previous winter to the onset of persistent winter conditions. Winter use is when a population or portion of a population of animals uses the

documented suitable habitat sites within this range annually, in substantial numbers only during the winter period. Winter-yearlong use is when a population or a portion of a population of animals makes general use of the documented suitable habitat sites within this range on a year-round basis. During the winter months there is a significant influx of additional animals into the area from other seasonal ranges. Yearlong use is when a population of animals makes general use of suitable documented habitat sites within the range on a year round basis. Animals may leave the area under severe conditions. The PRB FEIS discussed the affected environment for pronghorn, mule deer, white-tailed deer, and elk on pp. 3-117 to 3-122, pp. 3-127 to 3-132, 3-122 to 3-127, and 3-132 to 3-140, respectively.

3.6.2. Small Game Birds and Mammals (Greater Sage-Grouse: see Candidate Species)

3.6.2.1. Sharp tailed Grouse

The PRB FEIS discussed the affected environment for plains sharp-tailed grouse, pp. 3-148 to 3-150. BLM discusses plains sharp-tailed grouse here because the public identified specific concerns for this species during the scoping process for the PRB FEIS. In Wyoming, this species is found where grasslands are intermixed with shrublands, especially wooded draws, shrubby riparian area, and wet meadows. Habitat within the project area is not conducive to support sharp-tailed grouse throughout the year. The vegetative community is dominated by mature ponderosa pine with sage-brush, and mixed prairie grasses within the understory. The nearest known lek (41-T.R.) is located 3 miles south-east of the project.

3.6.3. Non-Game

3.6.3.1. Raptors

The PRB FEIS discussed the affected environment for raptors, pp. 3-141 to 3-148. According to the BLM raptor database and an onsite inspection, there is not a raptor nest within 0.5 mile of the project area. Most raptor species nest in a variety of habitats including (but not limited to): native and non-native grasslands, agricultural lands, live and dead trees, cliff faces, rock outcrops, and tree cavities. Suitable nesting habitat is present in the project area.

3.6.3.2. Migratory Birds

Migratory birds are birds that migrate for breeding and foraging at some point in the year. The BLM-Fish and Wildlife Service (FWS) Memorandum of Understanding (MOU) (2010) promotes the conservation of migratory birds, complying with Executive Order 13186 (Federal Register V. 66, No. 11). BLM must include migratory birds in every NEPA analysis of actions that have potential to affect migratory bird species of concern to fulfill obligations under the Migratory Bird Treaty Act (MBTA). The MBTA (and Bald and Golden Eagle Protection Act (BGEPA)) are strict liability statutes so require no intent to harm migratory birds through prosecuting a taking. Recent prosecutions or settlements in Wyoming and the West cost companies millions of dollars in fines and restitution (which was usually retrofitting powerlines to discourage perching to minimize electrocution or shielding ponds holding toxic substances). BLM encourages voluntary design features and conservation measures supporting migratory bird conservation, in addition to appropriate restrictions. A wide variety of migratory birds may be found in the proposed project area at some time throughout the year. Many species that are of high management concern use shrub-steppe and shortgrass prairie areas for their primary breeding habitats (Saab and Rich 1997). Nationally, grassland and shrubland birds declined more consistently than any other ecological association of birds over the last 30 years (WGFD 2009).

The WGFD Wyoming Bird Conservation Plan (Nicholoff 2003) identified 3 groups of high-priority bird species in Wyoming: Level I – those that clearly need conservation action, Level II – species where the focus is on monitoring, rather than active conservation, and Level III – species that are not a high priority but are of local interest. (Shrub-steppe vegetation dominates the project area.(use or vary to fit the project area) Many species that are of high management concern use shrub-steppe areas for their primary breeding habitats (Saab and Rich 1997). Nationally, grassland and shrubland birds declined more consistently in the last 30 years than any other ecological association of birds (WGFD 2009). Species that

may occur in these vegetation types in northeast Wyoming, according to the Wyoming Bird Conservation Plan, appear Table 3.2, grouped by level as identified in the plan. Several migratory species are also BLM special status (sensitive) species (SSS). Those suspected to occur in the project area including: *Baird's sparrow, Brewer's sparrow, loggerhead shrike, sage sparrow, and sage thrasher*. The PRB FEIS discussed the affected environment for migratory birds on pp. 3-150 to 3-153.

Table 3.2. Migratory Birds Occurring in Shrub-steppe Habitat, NE Wyoming (Nicholoff 2003)

Level	Species	WY BLM SSS	Species	WY BLM SSS
Level I	Brewer's sparrow	Yes	McCown's longspur	No
	Ferruginous hawk	Yes	Sage sparrow	Yes
Level II	Vesper sparrow	No	Loggerhead shrike	Yes
	Lark bunting	No	Sage thrasher	Yes
	Lark sparrow	No		
Level III	Common poorwill	No	Say's phoebe	No

3.6.3.3. Loggerhead Shrike

The PRB FEIS discussed the affected environment for loggerhead shrike, p. 3-187. Sagebrush grasslands and juniper in the project area provide suitable nesting habitat for loggerhead shrikes, and the species is suspected to occur.

3.6.3.4. Sage Thrasher

The PRB FEIS discussed the affected environment for sage thrasher, pp. 3-199 to 3-200. Sagebrush grasslands in the project area provide suitable nesting habitat for sage thrasher, and the species is suspected to occur. Sage thrashers (BLM sensitive species) may lay a second clutch of eggs as late as mid-July (information on breeding habits available on the Birds of North America Online website: http://bna.birds.cornell.edu/bna).

3.6.3.5. Brewer's Sparrow

The PRB FEIS discussed the affected environment for Brewer's sparrow, p. 3-200. Sagebrush grassland areas in the project area provide suitable nesting habitat for Brewer's sparrows, and the species is suspected to occur. Nesting in Brewer's sparrows (a BLM SSS) typically occurs mid-May to mid-July. Some young fledge in late July (information on breeding habits available on the Birds of North America Online website: http://bna.birds.cornell.edu/bna).

3.6.3.6. Baird's Sparrow

The PRB FEIS discussed the affected environment for Baird's sparrow, p. 3-188. Grassland areas may provide suitable nesting habitat for Baird's sparrows and the species is suspected to occur.

3.7. Threatened, Endangered, Candidate, Special Status (Sensitive) Species (SSS)

The Buffalo BLM receives a species list periodically from the FWS concerning threatened, endangered and candidate species. The 2012 list included Ute Ladies'-tresses orchid (ULT) (threatened) and Greater Sage-Grouse (GSG) (candidate). The project area lacks habitat for ULT and GSG. The vegetative community is dominated by mature ponderosa pine with sage-brush, and mixed prairie grasses in the understory. This area is not GSG preliminary priority (core) habitat (PPH) area and current GSG mapping identified no leks in the area. The nearest GSG lek (Three Bees) is 5 miles south-east of the project.

The PRB FEIS has a detailed discussion on GSG ecology and habitat on pp. 3-194 to 3-199. Subsequently the FWS determined the GSG warrants federal listing as threatened across its range, but precluded listing due to other higher priority listing actions (75 Fed. Reg. 13910 to 14014, Mar. 23, 2010; 75 Fed. Reg. 69222 to 69294, Nov. 10, 2010). GSG are a Wyoming BLM special status (sensitive) species (SSS) and a

WGFD species of greatest conservation need because of population decline and ongoing habitat loss. The 2012 population viability analysis for the Northeast Wyoming GSG found there remains a viable population of GSG in the PRB; however, threats from energy development and West Nile Virus are impacting future viability (Taylor et al. 2012). The BLM Instructional Memorandums (IM) WY-2012-019, WO IM-2012-044, and -043 establish interim management policies for proposed activities on BLM-administered lands, including federal mineral estate, until RMP updates are complete.

3.7.1. Special Status (Sensitive) Species (SSS)

The PRB FEIS discussed the affected environment for SSS, p. 3-174 to 201. Appendix A, lists those SSS that occur in the project area. The Table also includes a brief description of the habitat requirements for each species. Wyoming BLM annually updates its list of SSS to focus management to maintain habitats to preclude listing as a threatened or endangered species.

Wyoming BLM updates SSS on its website: http://www.blm.gov/wy/st/en/programs/Wildlife.html. BLM discusses those SSS impacted beyond the level analyzed in the PRB FEIS, in Appendix A.

3.8. Cultural Resources

A Class III cultural resource inventory was performed for the project prior to on-the-ground project work (BFO project no. 700120069). A Class III cultural resource inventory following the Archeology and Historic Preservation, Secretary of the Interior's Standards and Guidelines (48CFR190) and the Wyoming State Historic Preservation Office (SHPO) Format, Guidelines, and Standards for Class II and III Reports was provided to BFO the project applicant. G.L. “Buck” Damone III, BLM Archaeologist, reviewed the report for technical adequacy and compliance with BLM standards, and determined it to be adequate. No cultural resources are in the project area.

4. ENVIRONMENTAL EFFECTS

No Action Alternative. BLM analyzed the no action alternative as Alternative 3 in the PRB FEIS and it subsequently received augmentation of the effects analysis in this EA through the analysis of mineral projects, their approval, and construction; and through the analysis and approval of other projects. BLM incorporates by reference these analyses in this EA; see Table 3.1. This updated the no action alternative and cumulative effects. The project area has about 120 acres of surface disturbance from existing roads, well pads, and oil and gas facilities. Under the no action alternative, on-going well field operations would continue as would the development of approved single and multi-well pads. The production and the drilling and completion of any new wells would result in noise and human presence that could affect resources in the project area; these effects could include the disruption of wildlife, the dispersal of noxious and invasive weed species, and dust effects from traffic on unpaved roads. Present fluid mineral development in the PRB is under half of that envisioned and analyzed in the PRB FEIS. There is only a remote potential for significant effects above those identified in the PRB FEIS to resource issues as a result of implementing the no action alternative.

BLM recommend Alternative B as the preferred alternative and its analysis is follows, below.

4.1. Air Quality

4.1.1. Direct and Indirect Effects

In the project area, air quality impacts would occur during construction (due to surface disturbance by earth-moving equipment, vehicle traffic fugitive dust, well testing, as well as drilling rig and vehicle engine exhaust) and production (including well production equipment, booster and pipeline compression engine exhaust). The amount of air pollutant emissions during construction would be controlled by watering disturbed soils, and by air pollutant emission limitations imposed by applicable air quality regulatory agencies. Air quality impacts modeled in the PRB FEIS and Cumulative Air Quality Effects,

2009 concluded that PRB projected fluid and solid development would not violate state, tribal, or federal air quality standards and this project is well within the projected development parameters, in addition to the 2011 ozone standards.

4.1.2. Cumulative Effects

Cumulative air quality impacts were assessed for the WY PRB. The PRB FEIS discusses the cumulative effects to air quality, pp. 4-386 to 4-392. For each alternative, potential air pollutant project sources were combined with non-project sources, including sources from the Montana Statewide Oil and Gas EIS, to determine the total potential cumulative air quality impacts. The analysis in the PRB FEIS compared potential air quality impacts from 4 alternatives to applicable ambient air quality standards and PSD increments, but comparisons to the PSD Class I and II increments were intended to evaluate a threshold of concern for potential impacts and did not represent a regulatory PSD Increment Consumption Analysis. The proposed action would contribute to the cumulative impacts described in the PRB FEIS. The Update of the Task 3A Report for the Powder River Basin Coal Review Cumulative Air Quality Effects for 2020 also evaluated the air quality-related environmental impacts of ongoing development in the region, to which the proposed action would contribute.

4.1.3. Mitigation Measures

The BLM proposes no additional mitigation measures beyond the operator committed measures.

4.1.4. Residual Effects

The BLM anticipates no residual effects.

4.2. Soils and Vegetation

4.2.1. Direct and Indirect Effects

Anticipated impacts to soils and vegetation from well pad, road, and utility construction include:

- Soil rutting and mixing, compaction, increased erosion potential, and loss of soil productivity.
- Construction activities mix the soil profiles with a corresponding loss of soil structure. Mixing may result in removal, dilution, or relocation of organic matter and nutrients to depths where it would be unavailable for vegetative use. Less desirable inorganic compounds such as carbonates, salts, or weathered materials could be relocated and have a negative impact on revegetation.
- Soils compaction results from the construction of wells and associated facilities, continued vehicle and foot traffic as well as operational activities. Factors affecting compaction include soil texture, moisture, organic matter, clay content and type, pressure exerted, and the number of passes by vehicle traffic or machinery. Compaction leads to a loss of soil structure; decreased infiltration, permeability, and soil aeration; as well as increased runoff and erosion.
- Increased erosion can lead to a decrease in soil fertility and an increase in sedimentation. The duration and intensity of these impacts would vary according to the type of construction activity to be completed and the inherent characteristics of the soils to be impacted.
- The potential for erosion would increase through the loss of vegetation cover and soil structure as compared to an undisturbed state. Soil productivity would decrease, primarily as a result of profile mixing and compaction along with the loss in vegetative cover. These impacts would begin immediately as the soils would be subjected to grading and construction activities and impacts would continue for the term of operations. The impacts on soils would move to a steady state as construction activities were completed and well production/maintenance operations begin.
- Loss of soil vegetation cover, biologic crusts, organic matter and productivity. With expedient reclamation, productivity and stability should be regained in the shortest time frame.
- Direct effects (removal and/or compaction) to vegetation would occur from ground disturbance caused by drilling rig equipment and construction of a well pads, tank batteries, and roads. Short term effects would occur where vegetated areas are disturbed but later reclaimed within 1 to 3 years of the

initial disturbance. Long-term effects would occur where well pads, compressor stations, roads, water-handling facilities or other semi-permanent facilities may result in loss of vegetation and affect reclamation success for the life of the project.

- Large cuts and fills on well pad and road construction could lead to increased soil erosion from water or wind. Expedient stabilization and interim reclamation will decrease the potential for erosion from the disturbed lands as outlined in the SUP.
- Operator proposed engineered sections of road to gain access to the wells due to steep slopes, with cuts/fills exceeding 5 feet. The operator is responsible for having the licensed professional engineer(s) certify that the construction of those roads meet the design criteria and are built to Bureau standards. These engineered road segments should be completed, including any culverts, low water crossings and required surfacing, before the drilling rig or other drilling equipment moves onto the pad in order to protect erodible soils.

The BLM will evaluate reclamation success using the requirements in the BLM State Wide Reclamation Policy found at: http://www.blm.gov/wy/st/en/programs/reclamation, incorporated here by reference.

4.2.2. Cumulative Effects

The PRB FEIS defined the duration of disturbance, see residual effects, below. Most soil disturbances would be short term impacts with expedient interim reclamation and site stabilization, as committed to in Yates's Surface Use Plan, Reclamation Plan and as required by the BLM in COAs. Geomorphic effects of roads and other surface disturbance range from chronic and long-term contributions of sediment into waters of the state to catastrophic effects associated with mass failures of road fill material during large storms. Roads can affect geomorphic processes primarily by: accelerating erosion from the road surface and prism itself through mass failures and surface erosion processes; directly affecting stream channel structure and geometry; altering surface flow paths, leading to diversion or extension of channels onto previously un-channelized portions of the landscape; and causing interactions among water, sediment, and debris at road-stream crossings. These impacts, singly or in combination, could increase the potential for valuable soil loss due to increased water and wind erosion, invasive/noxious/poisonous plant spread, invasion and establishment, and increased sedimentation and salt loads to the watershed system.

4.2.3. Mitigation Measures

The proponent planned their project to maximize the fluid mineral drainage while avoiding areas with soil limitation where possible. The proponent also designed the infrastructure such that no engineering roads will be required and uses existing oil/gas roads as possible to access the proposed well. The constructed well pads were designed to minimize cut and fill slopes. Operator committed measures committed to in the MSUP, Reclamation Plan, and pad design drawings, and road deigns will rectify impacted areas by repairing, rehabilitating and/or restoring the affected environment. The operator's design features will reduce or eliminate impacts over time by preservation and maintenance operations during the project's life. Refer to the surface use plan (SUP), Reclamation Plan, and the APD for pad design drawings and a detailed description of design features, operator committed measures and construction practices.

Improved roads used in conjunction with accessing the well will be fully built (including all water control structures such as wing ditches, culverts, relief ditches, low water crossings, surfacing, etc.) and functional to BLM standards as outlined in the BLM Manual 9113 prior to drilling of the well. Rip rap will be installed at the inlet/outlets of the culverts where the road crosses the drainages. All erosion control products will be applied according to manufacturer's specifications to reduce product failures.

A 30 day stabilization requirement from initial disturbance is applied to all wells and access/pipelines for the entire project. Stabilization BMPs include, but are not limited to; straw waddles, rock check dams, surface roughening, ditch and berms, erosion matting/blankets, seeding and mulching, and spraying tackifier on cut/fill slopes and topsoil/spoil piles.

If the well is a producer, the location shall be put into interim reclamation as soon as possible after completing well. Yates shall locate the facilities in a way that will facilitate maximum interim reclamation; all areas not needed for production shall be put into interim reclamation.

4.2.4. Residual Effects

Residual effects across the POD would include a long-term loss of soil productivity associated with well pad and roads. The PRB FEIS identified residual effects (p. 4-408) such as the loss of vegetative cover, despite expedient reclamation, for several years until reclamation is successfully established. Due to the presence of erosive soils and the topography of the project area erosion will occur. Rilling and gullying of cut and fill slopes on, access/utility corridors, will take place. Impacts from livestock to stabilized cut and fill slopes will limit soils becoming stable and getting vegetation establish. The PRB FEIS defined the designation of the duration of disturbance, pp. 4-1 and 4-15. "For this EIS, short-term effects are defined as occurring during the construction and drilling/completion phases. Long-term effects are caused by construction and operations that would remain longer".

Impacts to vegetation and soils from surface disturbance will be reduced, by following the operator's plans and BLM applied mitigation. Construction of new access roads has been reduced by placing the well locations such that existing oil/gas access roads are used and one existing fee mineral pad location is being used for federal mineral development. This practice results in less surface disturbance and overall environmental impacts. See Section 2.2 for a summary of the disturbance. All disturbances associated with the proposed action are long term. With the reclamation status of the project area being rated as fair and field observations showing areas of reclamation success expedient reclamation of disturbed land with stockpiled topsoil, proper seedbed preparation techniques, and appropriate seed mixes, along with utilization of erosion control measures (e.g., waterbars, water wings, culverts, rip-rap, etc.) would ensure land productivity/stability is regained and maximized.

4.3. Water Resources

Adherence to the drilling COAs, the setting of casing at appropriate depths, following safe remedial procedures in the event of casing failure, and using proper cementing procedures should protect fresh water aquifers above the drilling target zone. Compliance with the drilling and completion plans and Onshore Oil and Gas Orders Nos. 2 and 7 will ensure there is no adverse impact on ground water. The volume of water produced by this federal mineral development is unknowable at the time of permitting.

"BLM may rely on the actions of state regulators. The IBLA and federal courts recognized it is appropriate for BLM to assume a proposed action complies with state permitting requirements, and rely on state analysis when evaluating the significance of effects. Wyo. Outdoor Council v. U.S. Army Corps of Eng'rs, 351 F. Supp. 2d 1232, 1244 (D. Wyo. 2005); PRBRC, 180 IBLA 32, 57 (2010); Bristlecone Alliance, 179 IBLA 51, 74-77 (2010)." In Wyoming Outdoor Council, the District Court held the Corps may rely on the WDEQ permitting process to "ameliorate any concerns that impacts to water quality will be significant." Id.

4.3.1. Groundwater

4.3.1.1. Direct and Indirect Effects

There are no reasonable/forseeable direct/indirect/cumulative or residual effects with the drilling of the proposed well. The cumulative industry and regulatory experience shows that thousands of wells pierce the nation's largest aquifer in western Texas, Oklahoma, and Kansas with essentially no direct or indirect impact to groundwater, see, http://www.spe.org/jpt/print/archives/2010/12/10Hydraulic.pdf. Lastly, the EPA 2004 study and its on-going, detailed study of hydraulic fracturing yielded, thus far, no immediate cautions, concerns, or warnings that present industry and regulatory practices endanger ground water or require immediate changes.

The APD's surface use and drilling plans show adequate protection of surface lands and ground water, including the Fox Hills Formation, located at 3,496 feet (TVD) for the Nimitz Federal #39 well. Adherence to the drilling COAs, the setting of casing at appropriate depths, following safe remedial procedures in the event of casing failure, and using proper cementing procedures should protect any fresh water aquifers above the target coal zone. This will ensure that ground water will not be adversely impacted by well drilling and completion operations.

At the time of permitting, the volume of water that will be produced in association with these federal minerals is unknown. The operator will have to produce the well for a time to be able to estimate the water production. In order to comply with the requirements of Onshore Oil and Gas Order #7, Disposal of Produced Water, the operator will submit a Sundry to the BLM within 90 days of first production which includes a representative water analysis as well as the proposal for water management. Historically, the quality of water produced in association with conventional oil and gas has been such that surface discharge would not be possible without treatment. Initial water production is quite low in most cases. There are three common alternatives for water management: Re-injection, deep disposal or disposal into pits. All alternatives would be protective of groundwater resources when performed in compliance with state and federal regulations.

Water for drilling and completion purposes will be produced from a well drilled near the newly constructed access road in the SESE Section 12 T.57N. R.75W. The well will target the sands of the Fort Union Formation at 360 feet TD. Yates has permitted the well through the WSEO. This will reduce traffic and/or surface lines run to the well location to supply water to the well.

4.3.1.2. Cumulative Effects, Mitigation Measures, and Residual Effects

BLM foresees minimal cumulative effects either to or from the use of ground water for this 1 proposed well. BLM anticipates no need for mitigation measures beyond the design features and programmatic COAs. BLM anticipates no residual effects to ground water from this project.

4.4. Invasive Species

4.4.1. Direct and Indirect Effects

The operator committed to the control of noxious weeds and species of concern using the following measures identified in their Integrated Pest Management Plan (IPMP): 1) Weed Inspection/ Prevention; 2) Weed Education/ Awareness; and 3) Weed Treatments. Cheatgrass or downy brome (*Bromus tectorum*) and to a lesser extent, Japanese brome (*B. japonicus*) exist in the affected environment. These species are found in such high densities and numerous locations throughout NE Wyoming that a control program is not presently feasible. The use of existing facilities along with the surface disturbance associated with construction of proposed access roads, pipelines, and related facilities would present opportunities for weed invasion and spread. The activities related to the performance of the proposed project would create a favorable environment for the establishment and spread of noxious weeds/invasive plants such as salt cedar, Canada thistle, and perennial pepperweed. However, mitigation as required by BLM applied COAs will reduce potential impacts from noxious weeds and invasive plants.

4.4.2. Cumulative Effects

Cumulative effects across the project area would include a long-term loss of soil productivity associated with well pads and road construction. The activities related to the performance of the proposed project would create a favorable environment for the establishment and spread of noxious weeds/invasive plants.

4.4.3. Mitigation Measures

Yates submitted applicant committed measures in the SUP to identify, reduce opportunities to spread, and treat infestation of noxious weeds and invasive plants, listed in the Nimitz #39 Weed Control Program,

will reduce potential impacts from these species. Refer to the Weed Control Program in the SUP for a complete listing of general and species-specific applicant committed measures to address this issue.

4.4.4. Residual Effects

Yates's control efforts are limited to the surface disturbance associated the project's implementation. Cheat grass and other invasive species that are present in non-physically disturbed project areas are anticipated to continue to spread unless control efforts are expanded. Cheatgrass and to a lesser extent, Japanese brome are found in such high densities throughout NE Wyoming that a control program is not considered feasible at this time; these annual bromes would continue to be found within the project area.

4.5. Fish and Wildlife

4.5.1. Big Game

The PRB FEIS analyzed direct and indirect impacts to big game, pp. 4-181 to 4-210. BLM foresees no cumulative effects to big game; see generally, the PRB FEIS, p. 4-211. BLM anticipates no need for mitigation measures and no residual effects.

4.5.2. Migratory Birds (BLM SSS; loggerhead shrike, sage thrasher, Brewer's sparrow, Baird's sparrow)

4.5.2.1. Direct and Indirect Effects

Direct and indirect effects to migratory birds are discussed in the PRB FEIS (pp. 4-231 to 4-235). Disturbance of habitat within the project area is likely to impact migratory birds. Native habitats will be lost directly with the construction of the well and roads. Reclamation and other activities that occur in the spring may be detrimental to migratory bird survival. Prompt re-vegetation of short-term disturbance areas should reduce habitat loss impacts. Activities will likely displace migratory birds farther than the immediate area of physical disturbance. Drilling and construction noise can be troublesome for songbirds by interfering with the males' ability to attract mates and defend territory, and the ability to recognize calls from conspecifics (BLM 2003). Habitat fragmentation will result in more than just a quantitative loss in the total area of habitat available; the remaining habitat area will also be qualitatively altered (Temple and Wilcox 1986). Ingelfinger (2004) identified that the density of breeding Brewer's sparrows declined by 36% and breeding sage sparrows declined by 57% within 100 m of dirt roads within a natural gas field. Effects occurred along roads with light traffic volume (<12 vehicles per day). The increasing density of roads constructed in developing natural gas fields exacerbated the problem creating substantial areas of impact where indirect habitat losses through displacement were much greater than the direct physical habitat losses.

Those species that are edge-sensitive will be displaced further away from vegetative edges due to increased human activity, causing otherwise suitable habitat to be abandoned. If the interior habitat is at carrying capacity, then birds displaced from the edges will have no place to relocate. One consequence of habitat fragmentation is a geometric increase in the proportion of the remaining habitat that is near edges (Temple 1986). In severely fragmented habitats, all of the remaining habitat may be so close to edges that no interior habitat remains (Temple and Cary 1988). Over time, this leads to a loss of interior habitat species in favor of edge habitat species. Other migratory bird species that utilize the disturbed areas for nesting may be disrupted by the human activity, and nests may be destroyed by equipment.

4.5.2.2. Cumulative Effects

The cumulative effects associated with alternative B are within the analysis parameters and impacts described in the PRB FEIS. Refer to the PRB FEIS, p. 4-235, for details on expected cumulative impacts.

4.5.2.3. Mitigation Measures

Specific conservation measures to protect migratory birds are not included in the current land use plan, as updated and amended. Although the PRB FEIS ROD addressed the potential impacts from oil and gas

development to migratory birds, it did not specifically identify activities to help mitigate those impacts. The RMP is currently under revision, and a change in management for migratory birds is being considered among the alternatives. Until the revision is complete, the BFO will provide project level site-specific analysis of conservation measures implemented for migratory bird protection, and compliance with the MBTA.

BLM provided some level of protection for migratory bird nesting through timing limitations applied to CBNG plans of development for GSG and raptor nesting. Many CBNG projects (consisting of multiple wells) covered large areas that either encompassed GSG nesting habitat or raptor nests. Timing limitations applied as COAs for those projects were likely to also protect migratory birds during the nesting season by effectively limiting the development in a project area during grouse and raptor breeding seasons. Operators were likely to wait to construct facilities until limitations had been lifted for the entire area, in order to cut down on labor costs and difficulties from completing only small portions of the project at a time. With conventional oil projects, where fewer wells are proposed and development is more complicated, operators will most likely start construction as soon as possible, which could be during the migratory bird nesting season if the proposed area is not within 2 miles of a GSG lek or no active raptor nests are within 0.5 miles. The shift in proposed projects from multi-well CBNG projects to single conventional wells, and in turn reducing secondary protections to migratory birds, constitutes a "change in circumstances" (43 CFR 1610.5-6) that should be addressed at the project level until issues can be resolved in a land use plan.

To reduce the likelihood of a "take" under the MBTA, the BLM biologist recommends that pad construction (vegetation removal) occur outside of the breeding season for the greatest quantity of BLM sensitive passerines (May 1- July 31) where suitable nesting habitat for sagebrush obligates is present. This restriction would apply to habitat removal, unless a pre-construction nest search (within approximately 10 days of construction planned May 1-July 31) is completed. If surveys will be conducted, the operator will coordinate with BLM biologists to determine protocol. The nest search will consist of in areas where vegetation will be removed or destroyed. The BLM recommends the Nimitz Federal #39 well pad and associated infrastructure have timing limitations applied for well pad construction during the nesting season for sagebrush obligate passerines (May 1 to July 31).

The BLM also recommends that measures are taken to ensure that migratory birds are excluded from all facilities that pose a mortality risk, including, but not limited to, heater treaters, flare stacks, secondary containment, and standing water or chemicals where escape may be difficult or hydrocarbons or toxic substances are present.

4.5.2.4. Residual Effects

If restrictions on habitat removal, or clearance surveys, are not applied, the BLM would not conform to the MBTA, the BLM-FWS MOU, or BLM IM No. 2013-005. If the restriction on habitat removal is applied, it is unlikely that active nests will be destroyed, as most nestlings will have fledged by August 1. Nests initiated after the first week in July may be destroyed by construction after August 1st. Migratory birds nesting adjacent to the well pad or road may be disturbed by construction and production activities. A timing limitation does nothing to mitigate loss and fragmentation of habitat. Suitability of the project area for migratory birds will be negatively affected due to habitat loss and fragmentation and proximity of human activities associated with oil and gas development. Reclamation and other activities that occur in the spring may be detrimental to migratory bird survival. Prompt re-vegetation of short-term disturbance areas should reduce habitat loss impacts.

4.6. Threatened, Endangered, and Candidate Species

Based on the last species list for the Buffalo Field Office, dated July 22, 2011, the Ute Ladies'-tresses Orchid is the only listed species requiring an effects determination (ESA Section 7 (2)).

4.6.1. Threatened, Endangered and Candidate Species

4.6.1.1. Ute Ladies'-Tresses Orchid (ULT)

Based on the last species list for the Buffalo Field Office, dated July 22, 2011, the Ute Ladies'-tresses Orchid is the only listed species requiring an effects determination (ESA Section 7 (2)). Suitable habitat is not present in the project area and implementation of the proposed project will have "***no effect***" on ULT. The PRB FEIS discussed the cumulative effects to ULT, pp. 4-253 to 4-254). BLM proposes no mitigation and anticipates no residual effects.

4.6.1.2. Greater Sage-Grouse (GSG)

4.6.1.1.1. Direct and Indirect Effects

Implementation of the proposed project will impact GSG habitat and individuals. Impacts to GSG are generally a result of loss and fragmentation of sagebrush habitats associated with roads and infrastructure. The *12-Month Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered* (FWS 2010) and Chapters 15-21 of Greater Sage-Grouse Ecology and Conservation of a Landscape Species and its Habitats (Knick and Connelly 2011) – both discuss impacts to GSG associated with energy development in detail.

4.6.1.1.2. Cumulative Effects

The PRB FEIS states that "the synergistic effect of several impacts would likely result in a downward trend for the [GSG] population, and may contribute to the array of cumulative effects that may lead to its federal listing. Local populations may be extirpated in areas of concentrated development, but viability across the Project Area [PRB] or the entire range of the species is not likely to be compromised, p. 4-270.

4.6.1.1.3. Mitigation Effects

BLM proposes no mitigation.

4.6.1.1.4. Residual Effects

BLM anticipates no residual effects.

4.7. Cultural Resources

No historic properties will be impacted by the proposed project. Following the Wyoming State Protocol Section VI(A)(1) the BLM notified the SHPO on March 20, 2013 that no historic properties exist in the area of potential effect (APE). f any cultural values [sites, artifacts, human remains (Appendix L PRB FEIS and ROD)] are observed during operation of this permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. Further discovery procedures are in the Standard COA (General)(A)(1).

4.7.1. Direct and Indirect Effects

None.

4.7.2. Cumulative Effects

Construction and development of oil and gas resources impacts cultural resources through ground disturbance, unauthorized collection, and visual intrusion of the setting of historic properties. This results in fewer archaeological resources available for study of past human life-ways, changes in human behavior through time, and interpreting the past to the public. Additionally, these impacts may compromise the aspects of integrity that make a historic property eligible for the National Register of Historic Places. Recording and archiving basic information about archaeological sites and the potential for subsurface cultural materials in the proposed project area serve to partially mitigate potential cumulative effects to cultural resources.

Fee actions constructed in support of federal actions can result in impacts to historic properties.

Construction of large plans of coalbed natural gas development on split estate often include associated infrastructure that is not permitted through BLM. Project applicants may connect wells draining fee minerals, or previously constructed pipelines on fee surface with a federal plan of development. BLM has no authority over such development which can impact historic properties. BLM has the authority to modify or deny approval of federal undertakings on private surface, but that authority is limited to the extent of the federal approval. Historic properties on private surface belong to the surface owner and they are not obligated to preserve or protect them. The BLM may go to great lengths to protect a site on private surface from a federal undertaking, but the same site can be legally impacted by the landowner at any time. The cumulative effect of numerous federal approvals can result in impacts to historic properties. Archeological inventories reveal the location of sites and although the BLM goes to great lengths to protect site location data, information can potentially get into the wrong hands. BLM authorizations that result in new access can inadvertently lead to impacts to sites from increased visitation by the public.

4.7.3. Mitigation Measures

If any cultural values [sites, artifacts, human remains (Appendix L PRB FEIS and ROD)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. Further discovery procedures are in the Standard COA (General)(A)(1).

4.7.4. Residual Effects

During the construction phase, there will be numerous crews working across the project area using heavy construction equipment without the presence of archaeological monitors. Due to the extent of work and the surface disturbance caused by large vehicles, it is possible that unidentified cultural resources can be damaged by construction activities. The increased human presence associated with the construction phase can also lead to unauthorized collection of artifacts or vandalism of historic properties.

5. CONSULTATION/COORDINATION:

BLM consulted or coordinated with the following on this project:

Contact	Organization	Onsite Presence?
Jeb Tachick	Yates Petroleum	Yes
Mary Hopkins	Wyoming SHPO	No

List of Preparers (BFO unless otherwise noted)

Position/Organization	Name	Position/Organization	Name
NRS/Team Lead	Dustin Hill	Archaeologist	G.L. “Buck” Damone III
Supr NRS	Casey Freise	Wildlife Biologist	Scott Jawors
Petroleum Engineer	Will Robbie	Geologist	Warren “Mike” Garrett
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NEPA Coordinator	John Kelley	Assistant Field Manager	Chris Durham
Supr NRS	Kathy Brus	Assistant Field Manager	Clark Bennett

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Appendix A. Summary of Sensitive Species Habitat and Project Effects Associated with Alternative B.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Amphibians				
Northern leopard frog (*Rana pipiens*)	Beaver ponds and cattail marshes from plains to montane zones.	NS	NI	Habitat is not present.
Columbia spotted frog (*R*anus pretiosa)	Ponds, sloughs, small streams, and cattails in montane zones. Confined to headwaters of the S Tongue R drainage and tributaries.	NP	NI	The project area is outside the species' range, and the species is not expected to occur .
Fish				
Yellowstone cutthroat trout (*Oncoryhynchus clarki bouvieri*)	Cold-water rivers, creeks, beaver ponds, and large lakes in the Upper Tongue sub-watershed	NP	NI	The project area is outside the species' range, and the species is not expected to occur.
Birds				
Baird's sparrow (*Ammodramus bairdii*)	Shortgrass prairie & basin-prairie shrub habitats; plowed / stubble fields; grazed pastures; dry lakes; sparse, bare, dry ground.	S	MIIH	Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Bald eagle (*Haliaeetus leucocephalus*)	Mature forest cover often within 1 mile of large water body with reliable prey source nearby.	NP	NI	Habitat is not present.
Brewer's sparrow (*Spizella breweri*)	Sagebrush shrubland	S	MIIH	Nesting and foraging may be impacted by dust, noise, human activities, & direct loss. Species may avoid area.
Ferruginous hawk (*Buteo regalis*)	Basin-prairie shrub, grasslands, rock outcrops	NS	NI	No documented nests occur within 0.5 miles of the project area. Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Loggerhead shrike (*Lanius ludovicianus*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Nesting and foraging may be impacted by dust, noise, human activities, & direct loss. Species may avoid area.
Long-billed curlew (*Numenius americanus*)	Grasslands, plains, foothills, wet meadows	NP	NI	Habitat is not present.
Mountain Plover	Short-grass prairie with slopes < 5%	NS	NI	Habitat is not present.
Northern goshawk (*Accipiter gentilis*)	Conifer and deciduous forests	NP	NI	Habitat not present.
Peregrine falcon (*Falco peregrinus*)	Cliffs	NP	NI	Habitat not present.
Sage sparrow (*Amphispiza billneata*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Nesting & foraging may be impacted by dust, noise, human activities, & direct loss. Species may avoid area.
Sage thrasher (*Oreoscoptes montanus*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Nesting and foraging may be impacted by dust, noise, human activities, & direct loss. Species may avoid area.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Trumpeter swan (*Cygnus buccinator*)	Lakes, ponds, rivers	NP	NI	Habitat not present.
Western Burrowing owl (*Athene cunicularia*)	Grasslands, basin-prairie shrub	NP	NI	Habitat is not present.
White-faced ibis (*Plegadis chihi*)	Marshes, wet meadows	NP	NI	Habitat not present.
Yellow-billed cuckoo (*Coccyzus americanus*)	Open woodlands, streamside willow and alder groves	NP	NI	Habitat not present.
Mammals				
Black-tailed prairie dog (*Cynomys ludovicianus*)	Prairie habitats with deep, firm soils and slopes less than 10 degrees.	NP	NI	Habitat is not present.
Fringed myotis (*Myotis thysanodes*)	Conifer forests, woodland chaparral, caves and mines	NP	NI	Habitat not present.
Long-eared myotis (*Myotis evotis*)	Conifer and deciduous forest, caves and mines	NP	NI	Habitat not present.
Swift fox (*Vulpes velox*)	Grasslands	NP	NI	Habitat is not present.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Caves and mines.	NP	NI	Habitat not present.
Plants				
Limber Pine (*Pinus flexilis*)	Mountains, associated with high elevation conifer species	NP	NI	Habitat not present.
Porter's sagebrush (*Artemisia porteri*)	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes 5300-6500 ft.	NP	NI	Habitat not present.
William's wafer parsnip (*Cymopterus williamsii*)	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides, 6000-8300 ft.	NP	NI	Project area outside of species' range.

Presence

K - Known, documented observation within project area.
S - Habitat suitable and species suspected, to occur within the project area.
NS - Habitat suitable but species is not suspected to occur within the project area.
NP - Habitat not present and species unlikely to occur within the project area.

Project Effects

NI - No Impact.
MIIH - May Impact Individuals or Habitat, but will not likely contribute to a trend towards Federal listing or a loss of viability to the population or species.
WIPV - Will Impact Individuals or Habitat with a consequence that the action may contribute to a trend towards Federal listing or cause a loss of viability to the population or species.
BI -Beneficial Impact