

DECISION RECORD
Section 390, Energy Policy Act of 2005
Categorical Exclusion 3 (CX3), WY-070-390CX3-13-310 to -312
Applications for Permit to Drill (APDs), Yates Petroleum Corporation
Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H
Bureau of Land Management, Buffalo Field Office, Wyoming

DECISION. The BLM approves the applications for permit to drill (APDs) from Yates Petroleum Corporation (Yates) to drill 3 horizontal oil and gas wells and construct their associated access road and infrastructure as described in the Section 390, Energy Policy Act of 2005 Categorical Exclusion 3, WY-070-CX3-13-310, WY-070-CX3-13-311, and WY-070-CX3-13-312 incorporated here by reference.

Compliance. This decision complies with:

- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701); DOI Order 3310.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- National Historic Preservation Act of 1966 (16 USC 470).
- Endangered Species Act of 1974 (16 USC 1531).
- Buffalo and Powder River Basin (PRB) Final Environmental Impact Statement (FEIS), 1985, 2003.
- Buffalo Resource Management Plan (RMP) 1985, Amendments 2001, 2003, 2011.

A summary of the details of the approval follows. The consolidated CX3 analysis for the 3 oil and gas wells, above, includes the project description, including site-specific mitigation measures which are incorporated by reference into this CX3 from earlier analysis. The proposed wells are approximately 26 miles east of Buffalo, in Johnson County, Wyoming. This Yates’ proposal has 3 APDs along with associated access road and infrastructure, to develop and produce oil and gas from the Shannon Formation of the PRB. The wells are a horizontal bores proposed on a 640 acre spacing pattern.

Approvals: BLM approves the following APDs and associated infrastructure:

#	Well Name/ #	Qtr	Sec	Twp	Rng	Surface Lease	CX Number
1	Nemesis Federal #15H	NENW	14	49N	78W	WYW146909	WY-070-390CX3-13-311
2	Nemesis Federal #16H	NENE	14	49N	78W	WYW146909	WY-070-390CX3-13-312
3	Router Federal COM #24H	SWSW	12	49N	78W	WYW137115	WY-070-390CX3-13-310

Rights of way (ROW) applications are necessary for all non-unitized off lease actions occupying or crossing federal surface in the project area. BLM identified multiple ROW grants needed for access roads, buried water pipelines, power lines, and buried gas pipelines. At this time, BLM-BFO has not received an application for ROWs for the Nemesis Federal #16H well pad, access road and buried powerline. Construction associated with those ROWs is prohibited until BLM receives, processes, and approves applications.

Limitations. See conditions of approval (COAs) and see, above, ROW.

THE FINDING OF NO SIGNIFICANT IMPACT (FONSI). Congress, the Department of Interior and BLM affirmed there was no significant impact of a like-structured project when they created this CX3 analysis process and its limiting parameters. Thus a FONSI and EIS are not required.

Summary of New Information. BLM posted the APDs for 30 days and received no public comments. Since BLM received these APDs it also received a clarification of the Greater Sage-Grouse (GSG) Density and Disturbance Calculation Tool, Instruction Memorandum (IM)-WY-2013-035.

DECISION RATIONALE. The approval of this project is because:

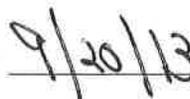
1. Mitigation measures and COAs analyzed in the consolidated CX3 analysis, in environmental impact statements, or environmental analysis to which the CX3 analysis tiers or incorporates by reference, will reduce environmental impacts while meeting the BLM's need.
2. The approved project conditioned by its design features and COAs, will not result in any undue or unnecessary environmental degradation. The PRB FEIS analyzed and predicted that the PRB oil and gas development would have significant impacts to the region's GSG population. The impact of this development cumulatively contributes to the potential for local extirpation of GSG; yet its effect is acceptable because it is outside priority habitats and is within the parameters of the PRB FEIS/ROD and current BLM and Wyoming GSG conservation strategies. There are no conflicts anticipated or demonstrated with current uses in the area. This decision approving these APDs complies with the Energy Policy Act of 2005, Section 390, 43 CFR 1610.5, 40 CFR 1508.4, and 43 CFR 46.215.
3. To reduce the likelihood of a "take" under the Migratory Bird Treaty Act, BLM sensitive species nesting habitat removal will occur outside of the breeding season or be cleared by survey.
4. Approval of this project conforms to the terms and the conditions of the 1985 Buffalo RMP (BLM 1985) and subsequent update (BLM 2001) and amendments (BLM 2003, 2011). This project complies with the breadth and constraints of CX3, Energy Policy Act of 2005, and subsequent policy.
5. The selected alternative will help meet the nation's energy need, revenues, and stimulate local economies by maintaining workforces.
6. The operator, in their APDs, 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 APD (PRB FEIS ROD, p. 7).
 - Provide water analysis from a designated reference well in each coal zone.
7. The project is clearly lacking in wilderness characteristics because it is amidst mineral development.
8. This decision does not foreclose the lessee or operator to propose a new or supplementary plan for developing the federal oil and gas lease(s) in this project area, including submission of additional APDs to drain minerals in accord with lease rights and law. This decision does not foreclose the lessee or operator to propose using external pumping units via a sundry application process.
9. Yates certified it has a surface use access agreement with the landowners or it posted a bond.
10. This approval is subject to adherence with all of the operating plans, design features, and mitigation measures contained in the Surface Use Plan of Operations and Drilling Plan information in the individual APDs.

ADMINISTRATIVE APPEAL: This decision is subject to administrative appeal in accord with 43 CFR 3165. Request for administrative appeal 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. Any party who is 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.

Acting Field Manager:



Date:



**Categorical Exclusion 3 (CX3), WY-070-390CX3-13-310 –to -312
Section 390, Energy Policy Act of 2005, Applications for Permit to Drill (APDs)
Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H
Yates Petroleum Corporation
Bureau of Land Management, Buffalo Field Office, Wyoming**

Description of the Proposal. Yates Petroleum Corporation (Yates) proposes to directionally drill 3 conventional oil and gas wells on 3 separate well pads including construction of associated access roads and infrastructure as follows:

Table 1.1. Proposed Wells

#	Well Name/ #	Qtr	Sec	Twp	Rng	Surface Lease	CX Number
1	Nemesis Federal #15H	NENW	14	49N	78W	WYW146909	WY-070-390CX3-13-311
2	Nemesis Federal #16H	NENE	14	49N	78W	WYW146909	WY-070-390CX3-13-312
3	Router Federal COM #24H	SWSW	12	49N	78W	WYW137115	WY-070-390CX3-13-310

The proposal is to explore by drilling for, and possibly develop, oil reserves in geologic mineral formations leased by Yates using standard split jurisdiction rules. The proposed locations are approximately 26 miles east of Buffalo, Wyoming, in Johnson County. One proposed oil well will be on a single well pad. BLM’s need for this project is to determine whether, and if so, how and under what conditions to balance natural resource conservation with allowing the Operator to exercise lease rights to develop fluid minerals by drilling the 3 horizontal oil wells, Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H, with surface hole locations on federal leases WYW146909 and WYW137115 as described in their APDs, surface use plans of operation (SUPO), and drilling plans, incorporated here by reference. The fluid mineral leasing programs fall under the authority of the Mineral Leasing Act of 1920, the Federal Land Policy Management Act (FLPMA), and other laws.

Reasonably foreseeable development is found in the Crown Prospect Federal 41-28-4978SHEH Environmental Assessment (EA), WY-070-EA13-25, 2012. This locality includes but is not limited to the approved Crown Prospect Federal 41-28-4978SHEH well and with 640 acre spacing. This supports the development anticipated in the Powder River Basin Final Oil and Gas Project Environmental Impact Statement (PRB FEIS), (see Section 2, No Action Alternative). The surface owners are in Table 1.2.

Table 1.2. Proposed Well location Information, Elevation and Distances are in Feet

#	Well Name/ #	Surface Elevation @ well stake	Total Vertical Depth	Total Wellbore Length	Total Lateral Length	Surface Owner
1	Nemesis Federal #15H	4,365.6	8,569	13,304	5,354	Tear Drop Cattle Company, LLC
2	Nemesis Federal #16H	4,331.8	8,443	14,327	6,477	
3	Router Federal COM #24H	4,328	8,507	13,503	5,603	

The project area is in the Powder River Basin (PRB) geographic area (Wyoming Geographic Landforms Map). Topography is moderately rough terrain characterized by moderately incised to rugged arroyos along ephemeral dendritic drainages. The landform is a combination of bedrock residuum and slope-wash deposits. The Powder River is 2.2 air miles east of the proposal. Yates proposes drilling to the Shannon formation. See Table 1.2 for the depths at each well location. The total wellbore length and the total length of the well laterals are in Table 1.2. Refer to Figures 1.1, below for a diagram of lease boundaries, well surface and bottom-hole locations, and lateral bore paths. See Table 1.3, below for APD processing information. BLM conducted initial onsite on June 26, 2013. The onsite evaluated the proposal and BLM made recommendations to modify the SUPO to avoid and/or mitigate environmental impacts.

Table 1.3. APD Submission and Processing Dates

#	Well Name/ #	Date APD received by BLM	APD Onsite Date	Date Deficiencies sent to Yates	Date Revisions received by BLM
1	Nemesis Federal #15H	May 9, 2013	June 26, 2013	July 16, 2013	August 14, 2013
2	Nemesis Federal #16H	June 7, 2013			
3	Router Federal COM #24H	June 6, 2013			

Full effects of the action and recommended mitigation measures are in the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H SUPO, Crown Prospect Federal 41-28-4978SHEH EA, WY-070-EA13-25, and BLM Conditions of Approval (COAs) for Conventional Application for Permit to Drill, Appendix A.

Drilling, Construction, and Production design features include:

- Construction of the drilling pad with dimensions of approximately 400 feet by 400 feet flat working area with additional disturbance to accommodate the cut and fill slopes
- Yates anticipates starting drilling as soon as possible upon permit approval however the permit is valid for 2 years. Approximately 60 days are needed for drilling and 90 days for completion. Drilling and construction is year-round in the region. Weather may cause delays but delays rarely last multiple weeks. Timing limitations agreements with surface owners may impose longer temporal restrictions.
- After drilling and completion, BLM requires fill material and remaining spoil to be used to reduce the back slope to at least 2:1 slope and reduce the fore slopes to at least 3:1 slope. This will decrease the pad surface area by up to 50 feet in width along these edges.
- A road network consisting of approximately 5.4 miles of existing improved roads; 1.8 miles existing improved access used for coalbed natural gas (CBNG) and oil field traffic will be upgraded. Another 3,391 feet of new crown and ditch road will be constructed as access onto the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H well pads. All roads will be constructed and/or maintained to meet BLM 9113 Manual road standards. Upgrades by widening road to 16 feet running surface and adding turnouts (150 feet by 10 feet) every 1,000 feet or intervisible and curve widening will be made to improve overall safety and match Operator’s anticipated use for larger trucks and increased traffic. Where existing, buried infrastructure limits road widening to 14 feet, the number of turnouts constructed will be doubled and warning signs installed to accommodate passing oncoming vehicles.
- During construction and drilling phases, truck traffic will include rig and ancillary equipment mobilization, drilling water and completion water hauling, and delivery of large production facility equipment such as 500 barrel fluid storage tanks, etc. The average daily traffic (ADT) for the roads associated with the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H is estimated to be less than 100 trips per day. Estimated ADT during production activities is two oil tanker trucks per day.
- The Operator will maintain roads, as required, to prevent soil erosion and accommodate all-weather traffic.
- Buried electrical cable from the meter drops to the pumping units at the 3 well locations will total 3,532.8 feet.
- There is existing 3-phase overhead power in the project area.
- The Operator proposes to drill wells using water-based mud (WBM).
- Best management practices (BMPs) to be employed:
 - o Salvaging topsoil and segregate from spoil material;
 - o installing erosion control measures and drainage ditches around the entire disturbance area;
- The entire well pad location will be fenced during drilling and completion operations so as to effectively keep out wildlife, livestock, unauthorized personnel, and unauthorized vehicle access.
- If determined to be economically viable, each well would be put into production. Production facilities that would be placed on each site include a pumping unit; separator; vertical heater-treater with

separator; 5 500-bbl production tanks, 1 500-bbl produced water tank, gas meter buildings and electric meter. A combustor with flare stack will be installed for flaring produced gas until the gas pipelines are installed. A generator will be set on location to power production facilities until permanent power is installed.

- Buried gas pipeline to an existing compressor station; 1,256 feet total. No produced oil or water pipelines are proposed for this project. Providing these items become necessary, the Operator will submit a sundry notice to the BLM to gain approval prior to construction.
- Produced water during the production phase will be stored in 1 produced water tank. These tanks will be emptied as needed using water tanker trucks. Produced water, including fracing flowback fluid, will be disposed at the 9 permitted facilities. See the SUPO, Attachment 3 for each of the 3 APDs.
- It is anticipated that 40,000 bbls of water will be needed for drilling and completion operations. The fresh water for drilling operations will be delivered via a 12 inch proposed surface pipeline 3.4 mile in length or trucked to the location from multiple sources; see p. 3 and 4 of the respective Surface Use Plan of Operations (SUPO) the for listed water sources.
- For completion (hydraulic fracturing) phase, the Operator intends use above ground tanks for onsite water storage on the well pad. The above-ground tanks do not require a separate location or additional disturbance.
- If the well is not found to be economically viable, all areas disturbed during construction would be reclaimed to approximate pre-disturbance condition, and the well bore would be plugged per State of Wyoming and BLM policy and regulations.

For a detailed description of design features and construction practices associated with the proposed project, refer to the SUPO and Drilling Plans included with the APD. Also, see the SUPO for maps showing the proposed well location, access roads and associated facilities described above. Table 1.4 below shows the total surface disturbance for the proposed action is 40.9 acres, reduced to 19.3 acres of long term disturbance after interim reclamation of 47% of the initial disturbance.

Table 1.4. Surface Disturbance Summary for the 3 APDs / Wells and Infrastructure

Facility	Construction Disturbance (Short Term)	Interim Disturbance (Long Term)
Number of Horizontal Wells	3	3
Engineered Pads	21 acres	11 acres
New Crown and Ditched Roads	3,391 feet (6.5 acres)	2.6 acres
Reconstruction of Existing Roads (Widen to 16 feet and add Turnouts)	9,493 feet (10.9 acres)	5.7 acres
Buried Gas Pipeline	1,256 feet (1.3 acres)	0 acres
Buried Electric Powerline	3,532.8 feet (1.2 acres)	0 acres
Overhead Power	Existing	Existing
Total Acre Disturbance	40.9 Acres	19.3 Acres

BLM incorporated and analyzed the implementation of committed mitigation measures in the SUPO and drilling plan, in addition to the COAs in the PRB FEIS ROD, as well as changes made at the onsite.

Plan Conformance, Compliance, and Justification with the Energy Policy Act of 2005

The Energy Policy Act of 2005, Section 390(a) subjects oil or gas exploration or development to a rebuttable presumption that the use of a categorical exclusion under the National Environmental Policy Act (NEPA) applies. Thus BLM must use an Energy Policy Act, Section 390(b), CX unless BLM rebuts the presumption. This CX worksheet is NEPA compliance categorically excluded from an EA or EIS or their analysis; it is not an exclusion from all analysis. (40 CFR 1508.4 and BLM H-1790, p. 17.) The proposal conforms to the terms and conditions of the Approved Resource Management Plan (RMP) for

the public lands administered by the BLM, BFO, 1985, the PRB FEIS, January 2003, and the Record of Decision (ROD) and Resource Management Amendments for the Powder River Oil and Gas Project, Amendments of 2001, 2011 as required by 43 CFR 1610.5, 40 CFR 1508.4, and 43 CFR 46.215. The Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H well locations are clearly lacking in wilderness characteristics as they are amidst natural gas development. BLM finds that the conditions and environmental effects found in the senior EA and PRB FEIS remain valid.

The applicable categorical exclusion from the Energy Policy Act of 2005, Section 390, is exclusion number (b)(3) which is *drilling an oil or gas well within a developed field for which an approved land use plan or any environmental document prepared pursuant to NEPA analyzed such drilling as a reasonably foreseeable activity, so long as such plan or document was approved within 5 years prior to the date of spudding the well.*

BLM has 3 requirements to use a Section 390 CX3, (BLM H-1790, Appendix 2, #3, p. 143):

- 1) The proposed APD is in a developed oil or gas field (any field with a completed confirmation well).

Table 1.5 is a list of existing/approved oil and gas development that is within or adjacent to the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H project area. This information shows the reader that BLM conducted analysis.

Table 1.5. Oil & Gas NEPA Analyses Adjacent to, Overlapping and Incorporated by Reference

NEPA Document Name	NEPA Document #	# Wells	Decision Date
Flying Federal #25H	WY-070-390CX3-13-172	1 Oil	8/9/2013
Aerial Federal #34H	WY-070-CX13-49	1 Oil	4/16/2013
Router Federal COM #23H	WY-070-CX13-79	1 Oil	4/16/2013
Flying Federal #26H	WY-070-CX13-43	1 Oil	4/16/2013
Tear Drop Federal 34-15W-SH	WY-070-EA13-82	1 Oil	1/31/13
Tear Drop Federal 34-15E-SH	WY-070-EA13-81	1 Oil	1/31/13
Sahara POD	WY-070-EA13-72	21 Oil	3/05/2013
Crown Prospect Federal 41-28-4978SHEH	WY-070-EA13-25	1 Oil	12/28/2012
Federal 21-10SH-4978SH	WY-070-390CX1-12-088	1 Oil	9/25/2012
Federal 23-4SH-4978SH	WY-070-390CX1-12-088	1 Oil	9/25/2012
Barlow Ranch Federal 074974-3NH	WY-070-EA12-173	1 Oil	8/10/2012
Mufasa Fed 11-31H	WY-070-EA12-062	1 Oil	4/20/2012
Wardner Ranch 24-23-4978SH	WY-070-390CX1-12-034	1 Oil	11/15/2011
Wardner Ranch 44-22-4978SH	WY-070-390CX1-12-034	1 Oil	11/15/2011
Aerial POD	WY-070-EA06-170	58 CBNG	5/08/2006
Juniper Draw Kestrel POD	WY-070-EA06-323	22 CBNG	9/29/2006
Router POD	WY-070-EA05-267	47 CBNG	6/17/2005
Juniper Draw Merlin POD	WY-070-EA05-262	13 CBNG	9/02/2005
Juniper Draw Addition POD	WY-070-EA-04-087	16 CBNG	5/05/2004
Federal W-67912 15-15(aka USA 15-15)	WY-3109/82-439-P	1 Oil	3/03/1982
Powder River Basin FEIS	FEIS (WY-070-02-065) & Record of Decision		4/30/2003

The area had historic conventional oil and gas exploration and production, and is adjacent to or inside the boundaries of 7 CBNG plans of development (PODs) that include 215 federal CBNG wells; see Table 1.5.). There are 501 existing oil and gas wells within a 4 mile radius of these 3 proposed wells (Wyoming Oil and Gas Conservation Commission as of August 30, 2013). There are existing NEPA analyses (and the RMP) containing reasonably foreseeable development scenario for this action. There are several

existing NEPA analyses that reasonably foresaw CBNG development with 80 acre well-spacing and 640 acre well spacing for conventional oil and gas wells. BLM reviewed these documents and determined they considered the potential environmental effects associated with the proposed activity at a site specific level. All approved EAs tier into the PRB FEIS (2003).

- 2) The PRB FEIS analyzed foreseeable development in the PRB. The PRB foreseeable development included 3,200 oil wells. The Spacing Unit dedicated to these 3 wells is 640 acres. The Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H well are in the foreseeable development scenario analyzed in EAs in Table 1.5 and in the PRB FEIS's Appendix A.

Table 1.6. EAs Which Account for Reasonably Foreseeable Development Scenario

#	APD Name	Environmental Assessment #	Approved Wells	Decision Date
1	Crown Prospect Federal 41-28-4978SHEH	WY-070-EA13-25	1 Oil	12/28/2012
2	Barlow Ranch Federal 074974-3NH	WY-070-EA12-173	1 Oil	08/10/2012
3	Sahara POD	WY-070-EA13-72	21 Oil	3/05/2013

- 3) The tiered NEPA document was finalized or supplemented within 5 years of spudding (drilling) the proposed well.

The Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H consolidated CX3 tiers to and incorporates by reference, as appropriate, to the NEPA analyses in Tables 1.5, 1.6, and 1.7.

Table 1.7. NEPA Document Finalized Within Anticipated Spud Date of the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H

#	APD Name	Environmental Assessment #	Approved Wells	Decision Date
1	Crown Prospect Federal 41-28-4978SHEH	WY-070-EA13-25	1 Oil	12/28/2012

In summary, the NEPA analyses in Tables 1.5. to 1.7 analyzed in detail the anticipated direct, indirect, residual, and cumulative effects that would result from the approval of these 3 APDs. Access roads, and associated supporting infrastructure in Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H project is similar to both the qualitative and quantitative analysis in the above NEPA analyses. The BFO reviewed those NEPA documents and considered potential environmental effects associated with the proposal at a site specific level. The APDs' SUPO and drilling plans are incorporated here by reference and show adequate protection of surface lands and ground water, including the Fox Hills formation. The APDs' acres of surface disturbances are within the PRB FEIS analysis parameters.

Plan of Operations

The proposal conforms to all Bureau standards and incorporates appropriate best management practices, required and designed mitigation measures determined to reduce the effects on the environment. BLM reviewed and approved a SUPO describing all proposed surface-disturbing activities pursuant to Section 17 of the Mineral Leasing Act, as amended. This consolidated CX3 analysis also incorporates and analyzes the implementation of committed mitigation measures contained in the SUPO, drilling plan, in addition to the Standard COAs found in the PRB FEIS ROD, Appendix A.

Traffic will increase with approval of the wells. Yates did not supply specific information related to traffic in the surface use plan therefore BLM made assumptions based on operations conducted by other operations on similar projects; see WY State Director Review, 2013-007, pp. 10-11. Mobilizing the

drilling rig and associated equipment requires 50 or more truckloads. The Operator estimate what the ADT would be 100 vehicle trips per day or less during well drilling and completion operations.

The other anticipated impact associated with hydraulic fracturing (HF) involves the large amount of heavy truck traffic (200-700 truck trips/well) to transport water storage containers, water and other HF materials to the location as well as truck traffic anticipated for removing the storage tanks and HF flow-back fluid from the HF. Yates' SUPO does not provide specific information of the HF operations but BLM anticipates the process to be a 24 hour operation lasting approximately 2-weeks. During the production phase of the well, heavy trucks are expected to visit the well every 1 to 2 days to haul oil or water from the location, in addition to pumper traffic from equipment inspections.

Well Pad

The well sites to facilitate horizontal well drilling and HF operations require constructed well pads including cut and fill slopes which are considerably larger in scale compared to typical CBNG well locations. Yates' proposed well pads have a 400 by 400 foot working area. Total disturbance area for each pad varies dependent upon topography, slope, and dirt balance but is estimated to be 7 acres by the Operator. Additional information on the impacts to soils, and its influence on cumulative effects from energy development can be found in the affected environment and environmental effects sections (Section 3.2 and 4.4) of the Barlow Ranch Federal 074974-3NH EA, WY-070-EA12-173, incorporated here by reference.

Typical industry practice of a combination of horizontal drilling and HF allows for greater well bore to oil production zone contact and thereby reduces the number of surface locations needed to effectively recover the fluid mineral resource. Initial pad size is reduced through interim reclamation if the wells produce. If the wells are unsuccessful, then reclamation accounts for the entire surface disturbance.

Anticipated impacts include soil rutting and mixing, compaction, increased erosion potential (from wind and runoff) and loss of soil productivity. The most notable impacts would occur in association with the construction of well pads and roads. Construction of these facilities requires grading and leveling, with the greatest level of effort required on more steeply sloping areas. 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 of the disturbance area.

Rutting affects the surface hydrology of a site as well as the rooting environment. The process of rutting physically severs roots, thus reducing soil aeration and infiltration thereby degrading the rooting environment. Rutting may result in topsoil and subsoil mixing, thereby reducing soil productivity. Rutting also disrupts natural surface water hydrology by diverting and concentrating water flow thus accelerating erosion. Soil mixing typically results in a decrease in soil fertility and a disruption of soil structure.

Soil compaction results from the construction of wells and associated facilities, continued vehicle and heavy equipment traffic during 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.

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. An important component of soils in Wyoming's semiarid rangelands, especially in the Wyoming big

sagebrush/grassland cover type, are biological soil crusts, or cryptogamic¹ soils that occupy ground area not covered with vascular plants. Biological soil crusts are important in maintaining soil stability, controlling erosion, fixing nitrogen, providing nutrients to vascular plants, increasing precipitation infiltration rates, and providing suitable seed beds (Belnap et al. 2001). They are adapted to growing in severe climates; however, they take many years to develop (20 to 100) and can be easily damaged or destroyed by surface disturbances associated with construction activities. These impacts, singly or in combination, could increase the potential for valuable soil loss, reduction in soil quality, invasive/noxious/poisonous plant spread, invasion and establishment, and increased sedimentation and salt loads to the watershed system, if applicable mitigation measures are not used.

To minimize the impacts to the soil resources and to promote successful reclamation consistent with the Wyoming BLM Reclamation Policy, BLM will require that interim reclamation be implemented as soon as is practicable. Re-contouring and interim reclamation will be initiated as soon as is practicable but not more than 6 months from the date of the last well completion incorporating stored soil material into that portion of the well pad not needed for well production. The entire project area is dominated by soils that have been identified to have severe erosion potential that will require disturbed areas to be stabilized (stabilization efforts may include mulching, matting, soil amendments, etc.) in a manner which eliminates accelerated erosion until a self-perpetuating native plant community has stabilized the site in accordance with the Wyoming Reclamation Policy. Stabilization efforts shall be finished within 30 days of the initiation of construction activities.

Open Reserve Pit versus Closed Loop Drilling System

It is the Operator's intent to use a drilling mud system with an open reserve pit excavated on location 100 by 150 feet and 12 feet deep. Drilling fluid and drill cuttings would be caught and disposed of on location in the reserve pit. Yates' SUPOs for these APDs and associated well pad diagrams included plans for managing drilling fluid. Following drilling operations, drilling mud and cuttings in the pit will be allowed to dry prior to back filling and will be closed as soon as is practicable but not more than 6 months from the date of the well completion.

The material excavated from the reserve pits is calculated to be approximately 4,810 cubic yards of spoil material (substratum not soil) that will need to be stored on the surface until the pit is closed. Cuttings contained in the pit will total approximately 1,120 cubic yards and in addition to 19,300 barrels of drilling fluid. Once the pits are sufficiently dried and tested to meet Wyoming Department of Environmental Quality (WDEQ) standards, they will be backfilled with the spoil material however the volume of cuttings captured in the pits will displace spoil material from being returned into the excavated pit.

An alternate option for managing drilling mud and BLM's preference would be using a closed loop or semi-closed loop drilling mud system. This alternative is consistent with Wyoming BLM's Instruction Memorandum No. WY-2012-007 (November 15, 2011), incorporated here by reference. Drilling water would typically be stored on location in three, 500-bbl tanks and drilling fluids would be stored in two, 500bbl frac tanks. A "shaker" separates the cutting from the fluids which are removed to a lined and bermed containment area on location. Minimal additional excavation is required to construct the containment areas. After the well is drilled and completed, the dried cuttings would either be buried on location or disposed of at an authorized facility. Drilling fluids may be disposed of at an authorized facility or recycled; transported to another well location for subsequent drilling operations.

Use of enclosed tanks and closed loop or semi-closed loop systems is environmentally preferable over the use of open pits and is to be encouraged by the BLM. Closed tanks and systems minimize waste, entry by wildlife, fugitive emissions that affect air quality, and reduce the risk of soil and groundwater

¹ A brown crust composed of an association between algae, lichen, mosses, and fungi.

contamination. In addition, the use of tanks instead of pits expedites the ability to complete interim reclamation. BLM recommended this option to Yates but the Operator chose not to pursue it. Benefits to the Operators utilizing closed loop and semi-closed loop systems include but are not limited to considerable cost savings through the recycling and reuse of drilling fluids and expedient reclamation reducing surface damage payments. Additional costs may be reduced with the use of tanks, particularly when open pits require netting (to exclude migratory birds) and/or solidification.

Yates anticipates 6-12 months for the pits to dry naturally. BLM's will require reserve pits to be closed as soon as practical but no later than 6 months after the well is completed.

Access Road

The other anticipated impact associated with hydraulic fracturing involves the large amount of heavy truck traffic (200-700 trucks/well) to transport water storage containers, water and other HF materials to the location as well as truck traffic anticipated for removing the storage tanks and flow-back fluid from the HF.

There is increased soil disturbance associated with construction and/or upgrade of the roads with a 16-22 foot running surface and 18-24 foot sub-grade greatly increasing the soil disturbance depending on site topography. 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. The Operator proposes to construct 3,391 feet of new access road and re-construct 1.8 miles of existing roads. The Operator is responsible for the construction of the road to meet Bureau 9113 Manual road standards. The road reconstruction should be completed, including road widening, rebuilding ditches, adding turnouts, culverts, and gravel surfacing before the drilling rig or other drilling equipment moves onto the pad in order to protect highly erodible soils as well as to maintain safe operations.

Pipelines

The Operator proposes 1,256 feet buried gas pipes. This disturbance will be recontoured and reclaimed once the pipeline installation is complete. The new gas pipeline will connect to an existing pipeline approximately 2500 feet in length to move the produced gas to the existing compressor station located SWSW Section 12, T49N/R78W. The new pipelines will run cross country from the well pads to the existing gas pipeline, See Figure 1.2. These pipeline will impact soils that with severe erosion potential and steep slopes. Mitigation measures are warranted to avoid accelerated erosion and soil losses. BLM has applied the COAs to ensure the Operator implements the appropriate measures.

The Operator proposes approximately 3.4 miles of surface water pipeline to supply water to the 3 well locations for the purpose of drilling and completion operations. No clearing or additional surface disturbance is anticipated with the installation of the surface pipeline. The surface pipeline will be constructed of 3 inch polyline and will follow the existing and proposed access roads. The Operator has committed to placing 6 inches of cribbing under the surface pipeline every 300 feet to allow small animals to pass freely under it.

Wildlife

ICF International, formerly known as Thunderbird Wildlife Consultants completed a habitat assessment and wildlife surveys of the area in 2004 as part of Yates' CBNG Router POD. Inventory surveys were completed for sharp-tailed grouse, Greater Sage-Grouse (GSG), raptor nests, mountain plover, and prairie

dog colonies as well as other BLM special status (sensitive) species (SSS). Thunderbird conducted surveys per the PRB Interagency Working Group's protocols; see: http://www.blm.gov/wy/st/en/field_offices/Buffalo/wildlife.html. The area has been surveyed annually by other wildlife consultants as well including Western Lands Services and Big Horn Environmental Consultants. ICF International and Big Horn Environmental Consultants submitted the most recent wildlife reports to BLM-BFO for survey completed in the area in the spring of 2012.

Yates completed a survey of existing raptor nests and GSG use on February 11, 2013 within 0.5 miles of the well location. This survey completed by Yates was not complete during the appropriate time of year or with standard protocol.

The affected environment within 4 miles of the proposed well has 501 existing oil and gas wells (35 of which are plugged and abandoned) and associated access road and infrastructure to support the wells' production. There are also 16 approved APDs for new wells. Habitat quality in the area is highly impacted by oil and gas development with an average of 9.9 wells square mile currently on the landscape.

Raptors

BLM analyzed affects to raptors in the Crown Prospect Federal 41-28-4978SHEH EA which includes a requirement to survey known raptor nests following the current BLM protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist. A 0.5 mile timing restriction (February 1 through July 31) will be applied if a nest is identified as active. Measures intended to avoid, minimize, and mitigate impacts to raptors are outlined in the COAs, including Operator committed measures and site-specific COAs. For example, to reduce the risk of adverse impacts to nesting raptors, no surface-disturbing activity will occur within 0.5 mile of all identified raptor nests from February 1 through July 31, annually, prior to a raptor nest occupancy survey. Nesting raptor may not utilize specific nests for a number of years but will maintain the nests within their nesting territory as alternate nest sites. The condition of the nest BLMID# 1288 and 3758 indicated this type of behavior. Some raptor nests in the PRB have gone 8 years between periods of nesting activity. There are 2 known raptor nests within 0.5 mile of the Nemesis Federal #15H and 2 other known raptor nest within 0.5 mile of proposed surface disturbing activities associated with access roads construction to the Nemesis Federal #16H and Router Federal COM #24H. The status of these nests is in Table 1.8.

Table 1.8 Survey Results for Nests Within 0.5 Miles of the Project Area.

BLM ID	Year	Species	Status	Condition
3039	2012	Ferruginous Hawk	Inactive	Nest Gone
10234	2012	Great Horned Owl	Inactive	Poor
1288	2012	Ferruginous Hawk	Inactive	Fair
3758	2012	Long-Eared Owl	Inactive	Good

(BLM Raptor Nest Database, 2012)

The PRB FEIS analyzed direct and indirect effects to raptors, pp. 4-216 to 4-221. This project will result in a direct loss of foraging habitats (approximately 40.3 acres). The cumulative effects associated with the project are within the analysis parameters and impacts described in the PRB FEIS. Refer to the PRB FEIS for details on expected cumulative impacts, p. 4-221. The BLM BFO requires a 0.5 mile radius timing limitation (TL) during the breeding season around active raptor nests to reduce the risk of decreased productivity or nest failure. This timing limitation will only apply to surface disturbing activities within NWNW Section 13, NWNW and SWNE Section 14, T49N/R79W which are located 0.5 mile of the nests listed in Table 1.8.

Greater Sage-Grouse (GSG)

Effects to GSG from surface disturbing and disruptive activities associated with development of horizontal oil wells were analyzed in the Sahara POD EA, WY-070-EA13-72, 2013, Section 4.6.4.1, pp. 34-37, incorporated here by reference. Activities associated with development of Yates' Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H wells are anticipated to be similar in nature, with the following additional site-specific information.

The Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H well and proposed access roads occur in an area of suitable nesting and brood rearing habitat for GSG - using a geospatial habitat model. The onsite inspection confirmed that the sage brush habitat at the well locations is of a stand height and density to meet the habitat needs of the species. There are 3 producing CBNG wells, an overhead powerline and a compressor site all within line of sight of each of the 3 proposed wells. The compressors can be heard from all 3 locations. U.S. Interstate 90 is 0.45 miles south of the project area. The surrounding area has moderately dense to dense sagebrush stands and rolling topography.

Construction of the well pad, access road and buried utilities will result in the removal of sagebrush. Drilling, HF activities and well production are also anticipated to negatively impact GSG nesting in suitable habitat within 0.6 mile of the project area.

The 2012 BLM-contracted population viability analysis for the Northeast Wyoming GSG found there remains a viable population of GSG in the PRB (Taylor et al. 2012). Threats from energy development and West Nile Virus (WNV) are impacting future viability (Taylor et al. 2012). The study indicated that effects from energy development, as measured by male lek attendance, are discernible out to a distance of 12.4 miles. Figure 1.3 below illustrates the distribution of existing and proposed wells in relation to those 26 leks that occur within 12.4 miles of these 3 proposed wells. Additional information regarding the population viability analysis, and its influence on cumulative effects from energy development is found in the affected environment and environmental effects sections (Section 3.7.12 and 4.8.2 – Candidate Species – Greater Sage-grouse (Sage-grouse)) of the Mufasa Fed 11-31H Well EA, WY-070-EA12-062, incorporated here by reference. The application of the timing limitation will minimize the impacts that would reduce connectivity between GSG leks within the vicinity of the project area.

In order to reduce the impacts to GSG associated with noise, construction, and human disturbance resulting from implementation of the proposed project, BLM will implement a timing limitation (March 15-June 30) on surface-disturbing activities within 2 miles of known GSG leks and adjacent to identified nesting habitat across the project area. Because nesting GSG are shown to avoid infrastructure by up to 0.6 miles, the intent of this timing restriction is to decrease the likelihood that GSG will avoid these areas and increase habitat quality by reducing noise and human activities during the nesting season. The known leks nearest to the proposed well location are listed below. The application of the timing limitation will minimize the impacts that would reduce connectivity between GSG priority habitat areas and leks within the vicinity of the project area.

The nearest leks to the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H is the Tear Drop I to the northwest at 3.4 miles. A timing limitation (March 15-June 30) on surface-disturbing activities in and adjacent to identified nesting habitat would typically apply, however, the extensive development in close proximity of the proposed well location is very likely to preclude the project area from being occupied by GSG during the breeding and nesting periods. Therefore, no timing limitation stipulation is recommended for this project. A clearance survey for breeding and/or nesting GSG, prior to surface disturbing activities is required March 15-June 30 for the duration of surface disturbing activities. The Operator is required to ensure that noise from their facilities at any nearby GSG leks does not exceed 49 decibels (10 dBA above background noise) at the display grounds.

Black-tailed Prairie Dog

The affected environment for black-tailed prairie dogs is discussed in the PRB FEIS, p. 3-179. The black-tailed prairie dog was added to the list of candidate species for federal listing in 2000 (USFWS 2000). It was removed from the list in 2004. Comparisons with 1994 aerial imagery indicated that black-tailed prairie dog acreage remained stable from 1994 through 2001, but aerial surveys conducted in 2003 indicated that approximately 47% of the prairie dog acreage was impacted by Sylvatic plague and/or control efforts (Grenier et al. 2004). Due to human-caused factors, black-tailed prairie dog populations are now highly fragmented and isolated (Miller et al. 1994). Most colonies are small and subject to potential extirpation due to inbreeding, population fluctuations, and other problems that affect long term population viability, such as landowner poisoning and disease (Primack 1993, Meffe and Carroll 1994, Noss and Cooperrider 1994). The BLM identified one prairie dog colony in the project area however. The colony was mapped by Wyoming Game and Fish Department in 2007 at 6.2 acres. Yates did not report any colony during the 2012 wildlife survey. Aerial imagery of the site supports that the colony is currently active but highly impacted by construction of a compressor station, an improved access road, and pipeline construction on the fringes of the colony. The PRB FEIS discusses impacts to black-tailed prairie dog on pp. 4-255 and pp. 4-256.

Migratory Birds

The PRB FEIS discussed direct and indirect effects to migratory birds on pp. 4-231 to 4-235. The PRB FEIS states on p. 4-231, "Surface disturbance associated with construction, operation, and abandonment of facilities, including roads, has the potential to result in direct mortality of migratory birds. Most birds would be able to avoid construction equipment; however, nests in locations subject to disturbance would be lost, as would any eggs or nestlings." Direct mortality of a bird or destruction of an active nest due to construction activities could result in a "take" as defined (and prohibited) by the Migratory Bird Treaty Act (MBTA), a nondiscretionary statute.

Habitat disturbance and disruptive activities (i.e. drilling, construction, completion, operations, and maintenance) resulting from implementation of the wells listed in Table 1.1 is likely to affect migratory birds. Native habitats will be lost directly with the construction of well pads, access roads, and power lines. Surface disturbing activities that occur in the nesting season may kill migratory birds. Prompt revegetation of short-term disturbance areas should reduce habitat loss impacts. Pad construction, drilling, and to a lesser degree production, will displace edge-sensitive migratory birds from otherwise suitable habitat adjacent to the well pads. 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 and Anderson (2004) identified that the density of breeding Brewer's sparrows declined by 36% and breeding sage sparrows declined by 57% within 100 meters of dirt roads in a natural gas field. Effects occurred along roads with light traffic volume (less than 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 use the disturbed areas for nesting may be disrupted by the human activity, and nests may be destroyed by equipment.

During the onsite, the BLM biologist identified suitable nesting habitat present for several BLM sensitive sagebrush obligates. The BLM confirmed sagebrush habitat, with shrubs in excess of 2 feet, at the 3 proposed well locations. Brewer's sparrows and sage thrashers both nest in sagebrush shrubs and occur in the area. Construction of the well pads, access roads and associated infrastructure will remove sagebrush habitat and could result in a "take" (as described above) of BLM sensitive migratory birds if removal occurs during the nesting season.

Migratory bird species in the PRB nest in the spring and summer and are vulnerable to the same effects as GSG and raptor species. Though no timing restrictions are typically applied specifically to protect migratory bird breeding or nesting, where GSG or raptor nesting timing limitations are applied, nesting migratory birds are also protected. Where these timing limitations are not applied and migratory bird species are nesting, migratory birds remain vulnerable. Since no GSG timing limitation will be applied to surface disturbing activities unless GSG breeding and/or nesting activity is observed during a clearance survey, no protection is afforded to migratory birds.

Nesting in Brewer's sparrows (a BLM special status (sensitive) species or SSS) typically occurs mid-May to mid-July. Some young fledge in late July. Sage thrashers (BLM SSS) may lay a second clutch of eggs as late as mid-July. Lark sparrows in northern latitudes lay eggs from early May to mid-July (information on breeding habits available on the Birds of North America Online website: <http://bna.birds.cornell.edu/bna>). When applied, GSG timing limitations on surface disturbing activities will mitigate impacts to nesting migratory birds from March 15 to June 30. However, several species of birds, listed above, are likely to still have eggs or nestlings into July. BLM biologists have observed active Brewer's sparrow nests containing eggs during the last week of June. The least restrictive measures (in this case only applying GSG timing limitations) are inadequate to protect BLM sensitive migratory birds that may inhabit the project area.

Raptor protections are put in place to avoid potential violations of the MBTA, making the guidance for seasonal timing relevant to the migratory bird issue as well. 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 timing limitations on surface disturbing activities to mitigate those impacts. The RMP is currently under revision, and BLM is considering a change in management for migratory birds among the alternatives. Until the revision is complete, the BFO will provide project 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, to conserve 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 assuming no GSG breeding or nesting activity or no active raptor nests are observed within 0.5 mile of the project area. The shift in proposed projects from multi-well CBNG projects to individual 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. WY BLM IM WY-2013-005 provides guidance regarding migratory

birds and compliance with MBTA. The IM states on p. 2 that, “For permitted activities, if voluntary or applicant committed measures are not adequate to insure that known risks can be mitigated or minimized and MBTA violations are likely to occur, then BLM shall apply stipulations or conditions of approval that would ensure that actions are in compliance with MBTA, EO [Executive Order] 13186, and the MOU between BLM and USFWS.”

In an effort to apply the least restrictive measures to be in compliance with the MBTA, while still conforming to EO 13186 and the BLM/FWS MOU regarding conservation of species of concern, the BLM prohibits habitat removal for only those habitats where BLM SSS migratory birds are likely to occur. The BLM has been applying a conditional surface use stipulation for all special status species to all oil and gas leases since 2008 (IM WY-2013-005, p. 2). To reduce the likelihood of a “take” under the MBTA, the BLM biologist recommends that well pad, access road and pipeline construction (vegetation removal) occur outside of the breeding season for the greatest quantity of BLM SSS migratory birds (May 1- July 31) where suitable nesting habitat for sagebrush obligates is present. The timing limitation would apply to habitat removal, unless a pre-construction clearance survey (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 a protocol. At a minimum, the surveys will consist of nest searches in areas where vegetation will be removed or destroyed. The BLM recommends construction activities for the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H well pads, access roads and associated infrastructure have timing limitations applied for during the nesting season for sagebrush obligate passerines (May 1 to July 31). Timing limitations for active raptor nests (Feb 1 to July 31) which begins prior to timing limitations for sagebrush obligates, and thus may provide additional protection where migratory bird nesting periods and habitats overlap.

Yates proposes using heater treaters in the production phase of the wells listed in Table 1.1. Heater treaters, and similar facilities with vertical open-topped stacks or pipes, can attract birds. Facilities without exclusionary devices pose a mortality risk. Once birds crawl into the stack, escape is difficult and the bird may become trapped (U.S. v. Apollo Energies Inc., 611 F.3d 679 (10th Cir. 2010); see also Colorado Oil and Gas Commission, Migratory Bird Policy, accessed February 13, 2012). The BLM 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 at the location of these 3 wells.

If the timing limitation on habitat removal is applied, it is unlikely that active nests (of BLM sensitive species) will be destroyed, as most nestlings will have fledged by the beginning of August. Nests initiated after the first week in July may be destroyed by construction after August 1st. Ground nesting birds using grassland habitats in the Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H proposed disturbance area, may have nests or young destroyed if construction occurs during the nesting season; BLM sensitive migratory bird species are not anticipated to nest in the disturbance area for the well post construction. Migratory birds nesting adjacent to the well pad or road may be displaced, abandon nests, or suffer reduced reproductive success due to 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.

Water Resources

The historical use for groundwater in this area was for stock or domestic water. A search of the Wyoming State Engineer’s Office (WSEO) Ground Water Rights Database showed no stock or domestic water wells within 1 mile of the proposed well in the project area but there are 22 CBNG wells dual permitted as stock water wells. For additional information on groundwater, refer to the PRB FEIS, pp. 3-1 to 3-36.

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. The Operator will run surface casing to 2,200 feet, total vertical depth to protect shallow aquifers.

Table 1.9. Casing Set and Cementing Depths in relation to the Fox Hills

#	Well Name/ Well #	Total Depth of Surface Casing (feet)	Total Depth of Intermediate Casing (feet)	Depth to Fox Hills (feet)
1	Nemesis Federal #15H	2,450	8,078	6,785-6,883
2	Nemesis Federal #16H	2,450	7,962	6,623-6,678
3	Router Federal COM #24H	2,450	8,015	6,654-6,709

The Fox Hills, the deepest known fresh water zone in the PRB lies well above the target Shannon formation. Table 1.9 shows the depths where the drill hole will have casing set and cemented in place above the Fox Hills. The operator will verify that cement is set above the Fox Hills with a cement bond log. This will ensure that ground water will not be adversely impacted by well drilling and completion. 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 wells 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. 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 3 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.

Cultural Resources

Previously reviewed and accepted Class III cultural resource inventories (BFO project nos. 070030067, 070030068, 070050023, 070070071) adequately cover the proposed Nemesis Federal #15H and Nemesis Federal #16H project areas. A Class III cultural resource inventory was performed for the Router Federal #24H project area prior to on-the-ground project work (BFO project no. 070130106). 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 Format, Guidelines, and Standards for Class II and III Reports was provided to BFO on behalf of Yates. Doug Tingwall, BLM Archaeologist, reviewed the report for technical adequacy and compliance with BLM standards, and determined it to be adequate. On September 13, 2013 the BLM notified the Wyoming State Historic Preservation Office (SHPO) following section VI(A)(1) of the Wyoming State Protocol, of a finding of no effect for the proposed project. The following previously recorded cultural resources and their eligibility for listing on the National Register of Historic Places (NRHP) are near the project area.

Site #	Site Type	NRHP Eligible	Site #	Site Type	NRHP Eligible
48JO1665	Homestead	N	48JO2495	Lithic Scatter/Stockherding Camp	N
48JO1666	Stockherding Camp	N	48JO2496	Lithic Scatter/Historic Artifacts	N
48JO1870	Lithic Scatter/Homestead	N	48JO2497	Historic Debris Scatter	N
48JO2494	Lithic Scatter	N	48JO2498	Lithic Scatter	N

There are no eligible sites in the area of potential effects (APE) of the proposed projects. Following the Wyoming State Protocol Section VI(A)(1) the BLM notified the Wyoming State Historic Preservation

Officer (SHPO) on September 13, 2013 that no historic properties exist in the APE. 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)(2).

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U.S. Department of the Interior 1985, Bureau of Land Management, Buffalo Field Office. Buffalo Resource Management Plan Final Environmental Impact Statement, Record of Decision; see also Approved Resource Management Plan for Public Lands Administered by the Bureau of Land Management Buffalo Field Office 2001; and see: Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment. 2003.

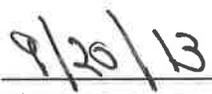
Persons & Agencies Consulted (YPC – Yates Petroleum Corp.)

Name	Agency	Title	Name	Agency	Title
Jeb Tachick	YPC	Federal Regulatory Agent	Tim Barber	YPC	Environmental / Federal Regulatory Supervisor
Denis Camino	YPC	Land Agent			
Jim Verplancke	BLM	NRS/Wildlife Biologist	Kerry Aggen	BLM	Geologist
Doug Tingwall	BLM	Archeologist	John Kelley	BLM	NEPA Coordinator
Amber Haverlock	BLM	Realty Specialist	Casey Freise	BLM	NRS Supervisor
Will Robbie	BLM	Petroleum Engineer	Bill Ostheimer	BLM	NRS Supervisor
Mark Thompson	BLM	Petroleum Engineer	Kathy Brus	BLM	NRS Supervisor
Arnie Irwin	BLM	Soil Scientist	Chris Durham	BLM	Asst Field Office Manager
Christine Tellock	BLM	LIE	Clark Bennett	BLM	Asst Field Office Manager
Karen Klaahsen	BLM	LIE	Duane Spencer	BLM	Field Office Manager

Decision and Rationale on Action

The COAs provide mitigation and further the justification for this decision and may not be segregated from project implementation without further NEPA review. I reviewed the plan conformance statement and determined that the proposed Nemesis Federal #15H, Nemesis Federal #16H, and Router Federal COM #24H APD and associated infrastructure conform to the applicable land use plans. I reviewed the proposal to ensure the appropriate exclusion category as described in Section 390 of the Energy Policy Act of 2005 is correct. It is my determination that there is no requirement for further environmental analysis.


 Acting Field Manager


 Signature Date

Contact Person, Jim Verplancke, Natural Resource Specialist, Buffalo Field Office, 1425 Fort Street, Buffalo WY 82834, 307-684-1100.

Figure 1.1 Lease Boundaries, Surface and Bottom Hole Locations, and Lateral Bore Paths for Nemesis Federal #15H, Nemesis Federal #16H and Router Federal COM #24H.

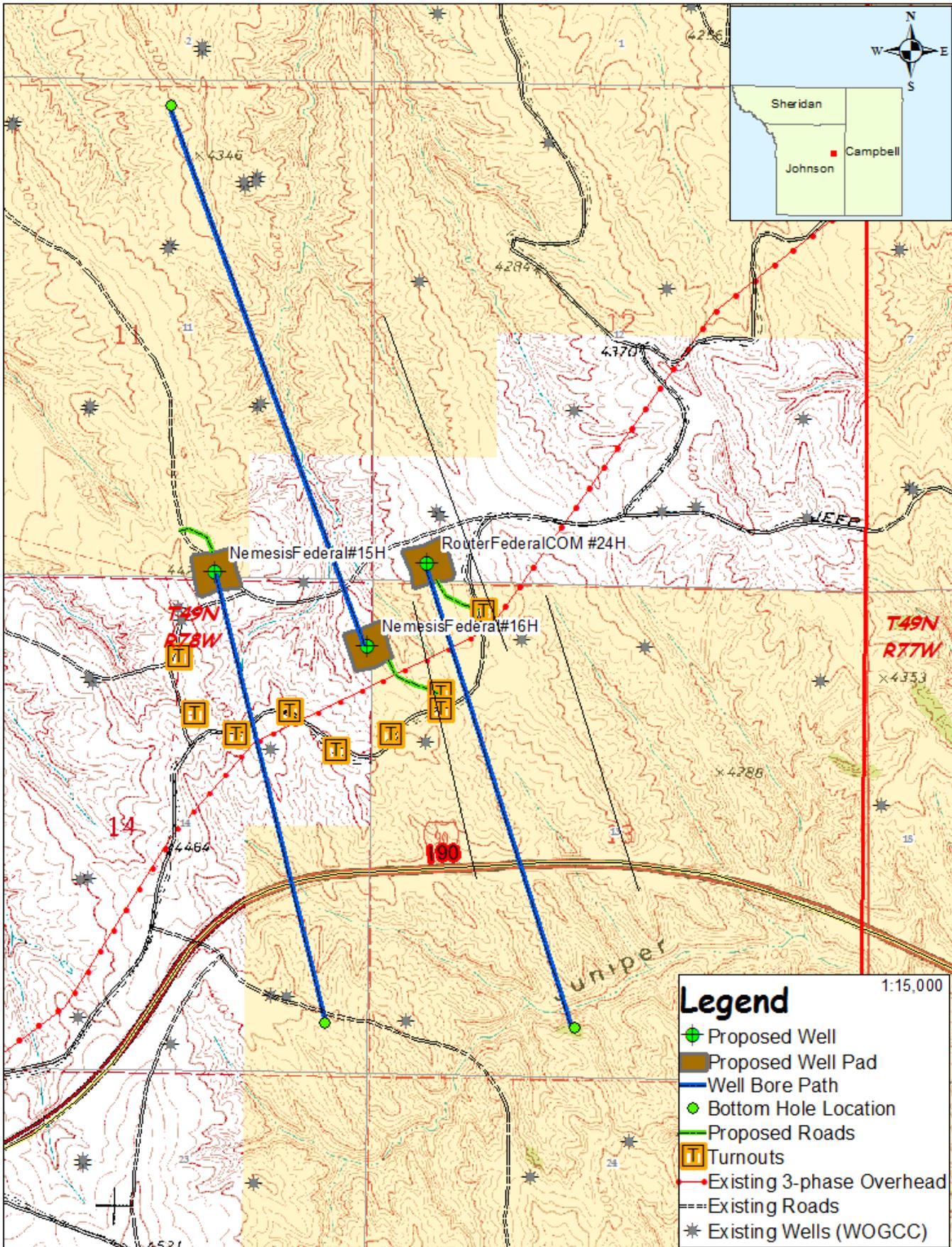


Figure 1.2 Severely Erosive Soils within the Project Area.

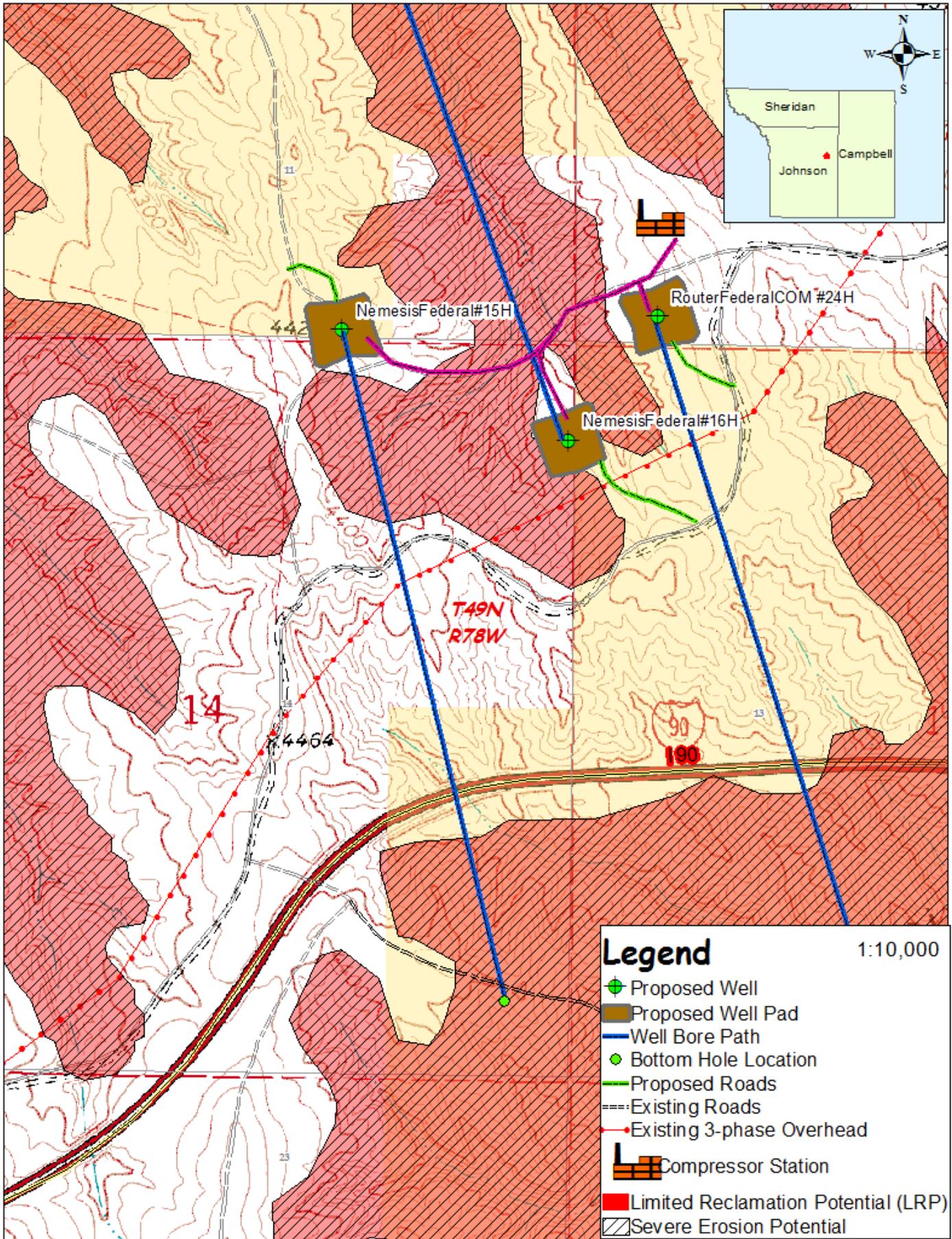


Figure 1.3 GSG Leks and Habitat within the Project Area.

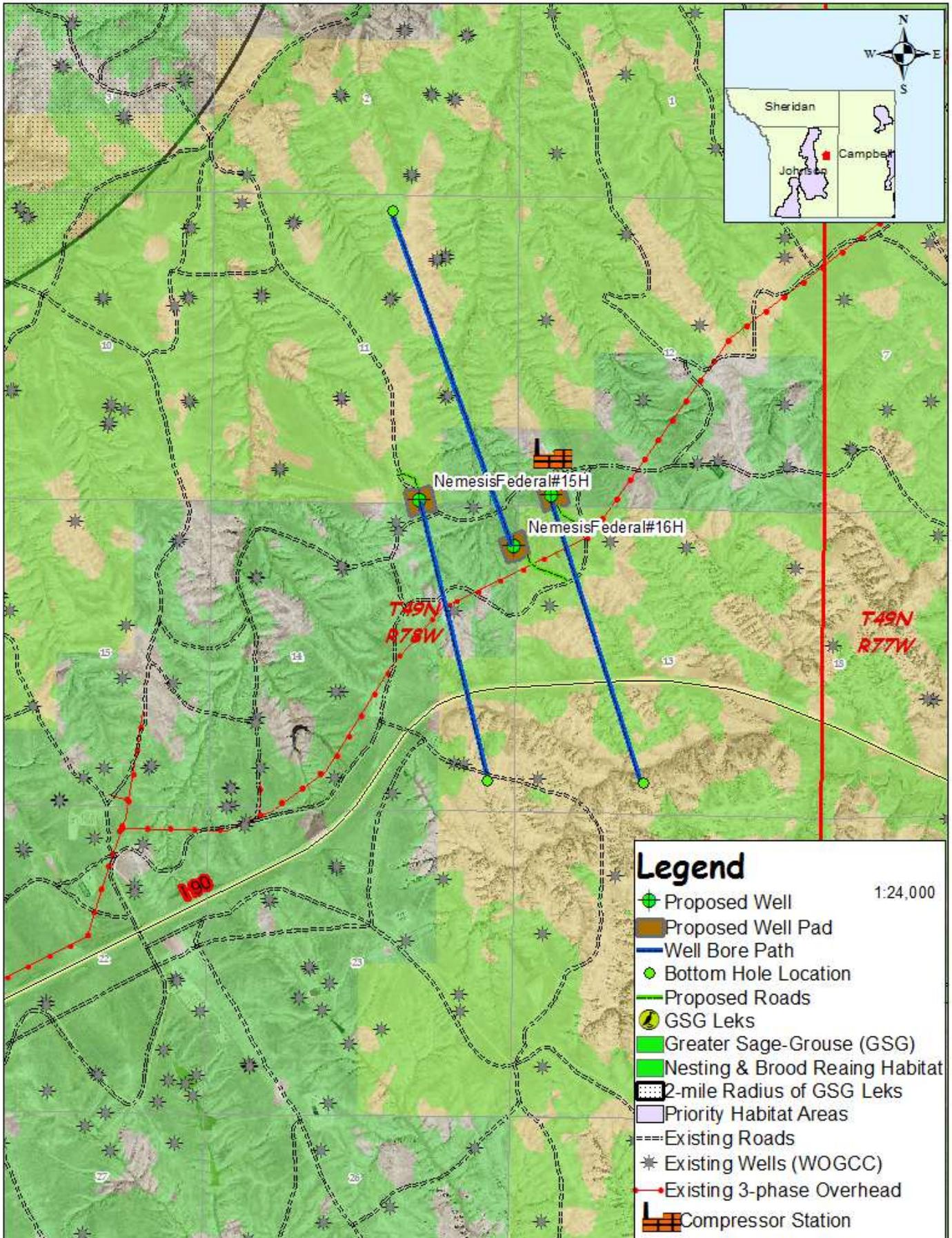


Figure 1.4 Known Raptor Nests within the Project Area.

