BLM

High Desert District - Kemmerer Field Office

Environmental Assessment

Western American Resources, LLC.'s Yellowspur Federal #1 Well and Access Road

June 2014

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

DOI-BLM-WY-D090-2012-176-EA

Table of Contents

INTRODUCTION 2

1.1 Purpose and Need for the Proposed Action 1

1.2 Conformance with BLM Land Use Plan(s) 4

1.3 Relationship to Statutes, Regulations, Plans or Other Environmental Analyses 4

1.4 Scoping, Public Involvement and Issues 4

2.0 PROPOSED ACTION AND ALTERNATIVES 5

2.1 Alternative 1- Proposed Action 5

2.2 Alternative 2 – No Action Alternative 14

3.0 AFFECTED ENVIRONMENT 14

3.1 Introduction 14

3.2 Air Quality 15

3.3 Cultural Resources 16

3.4 Wildlife Resources 17

3.5 Livestock Resources 22

3.6 Soils 22

3.7 Vegetation 23

4.0 ENVIRONMENTAL EFFECTS 23

4.1 Direct and Indirect Effects 23

4.1.1 Air Quality 23

Alternative 1 – Proposed Action 23

Alternative 2 – No Action Alternative 24

4.1.2 Cultural Resources 24

Alternative 1 – Proposed Action 24

Alternative 2 – No Action Alternative 24

4.1.3 Wildlife Resources 24

Alternative 1 – Proposed Action 24

Alternative 2 – No Action Alternative 28

4.1.4 Livestock Management 28

Alternative 1 – Proposed Action 28

Alternative 2 – No Action Alternative 29

4.1.5 Soils 29

Alternative 1 – Proposed Action 29

Alternative 2 – No Action Alternative 29

4.1.6 Vegetation 29

Alternative 1 – Proposed Action 29

Alternative 2 – No Action Alternative 30
4.2 Cumulative Effects 31
4.2.1 Air Quality 31
4.2.2 Cultural Resources 31
4.2.3 Wildlife Resources 32
4.2.4 Livestock Management 32
4.2.5 Soils 32
4.2.6 Vegetation 32
4.3 Mitigation Measures Considered 33
4.3.1 Air Quality 34
4.3.2 Cultural Resources 34
4.3.3 Wildlife Management 35
4.3.4 Livestock Management 35
4.3.4 Soils 35
4.3.6 Vegetation 36
5.0 TRIBES, INDIVIDUALS, ORGANIZATIONS, or AGENCIES CONSULTED 37
6.0 LIST OF PREPARERS 37
6.1 List of Reviewers 37
7.0 REFERENCES 37

INTRODUCTION

This Environmental Assessment (EA) **DOI-BLM-WY-D090-2012-176-EA** has been prepared to analyze and disclose the environmental consequences of Western American Resources Energy, LLC's (Operator) proposal to construct, drill, test, and possibly complete the Yellowspur Federal #1 gas well, including an access road located approximately twenty miles southeast of Mountain View, Wyoming in Section 24, Township 15 North, Range 113 West, 6th Principal Meridian, Uinta County, Wyoming (Figure 1-1).

This EA is a site-specific analysis of potential impacts that could result from the implementation of the Proposed Action and alternatives to the Proposed Action. The EA incorporates by reference the Kemmerer Resource Management Plan Record of Decision (KRMP ROD) (BLM 2010).

This EA also assists the Bureau of Land Management (BLM) in project planning, ensuring compliance with the National Environmental Policy Act (NEPA), and making a determination as to whether any "significant" impacts could result from the analyzed actions.

Significance is defined by NEPA and is found in regulation 40 *Code of Federal Regulations* (C.F.R.) 1508.27. An EA provides the analysis and basis for determining whether to prepare an environmental impact statement (EIS) or issue a Finding of No Significant Impact (FONSI). If the Authorized Officer (AO) of the BLM determines that this project will result in significant impacts following the analysis in the EA, then an EIS will be prepared for the project. If not, a Decision Record (DR) may be signed by the AO, approving the selected alternative, whether the Proposed Action or another alternative. A DR, including a FONSI, documents the reasons why implementation of the selected alternative will not result in significant environmental impacts.

1.1 Purpose and Need for the Proposed Action

Mineral rights underlying the project area have been leased to the Operator for oil and gas development. The lease grants certain rights and obligations to the Operator to explore, develop, and produce oil and gas resources underlying the lease, allow ingress and egress, and identifies a royalty interest to be paid to the federal and state governments on any oil and gas produced.

The purpose of the project is to allow Western American Resources Energy, LLC access to their valid oil and gas lease to drill an exploratory well and to legally develop and maintain an access road to the site.

The need for the Proposed Action is established by the Bureau of Land Management's (BLMs) responsibility under the *Mineral Leasing Act of 1920* (MLA) and the *Federal Land Policy and Management Act of 1976* (FLPMA) to respond to the Application for Permit to Drill (APD) filed

by Western American Resources Energy LLC for permission to drill the wells on their valid oil and gas lease.

Decision to be made

This EA is to provide the Kemmerer Field Office AO the necessary information to render a decision that will approve or reject the Proposed Action or any other alternative presented in this analysis after evaluating the anticipated impacts.

The BLM will decide whether or not to issue a permit to drill the Yellowspur Federal #1 well and construct the access road; and if so, under what terms and conditions.

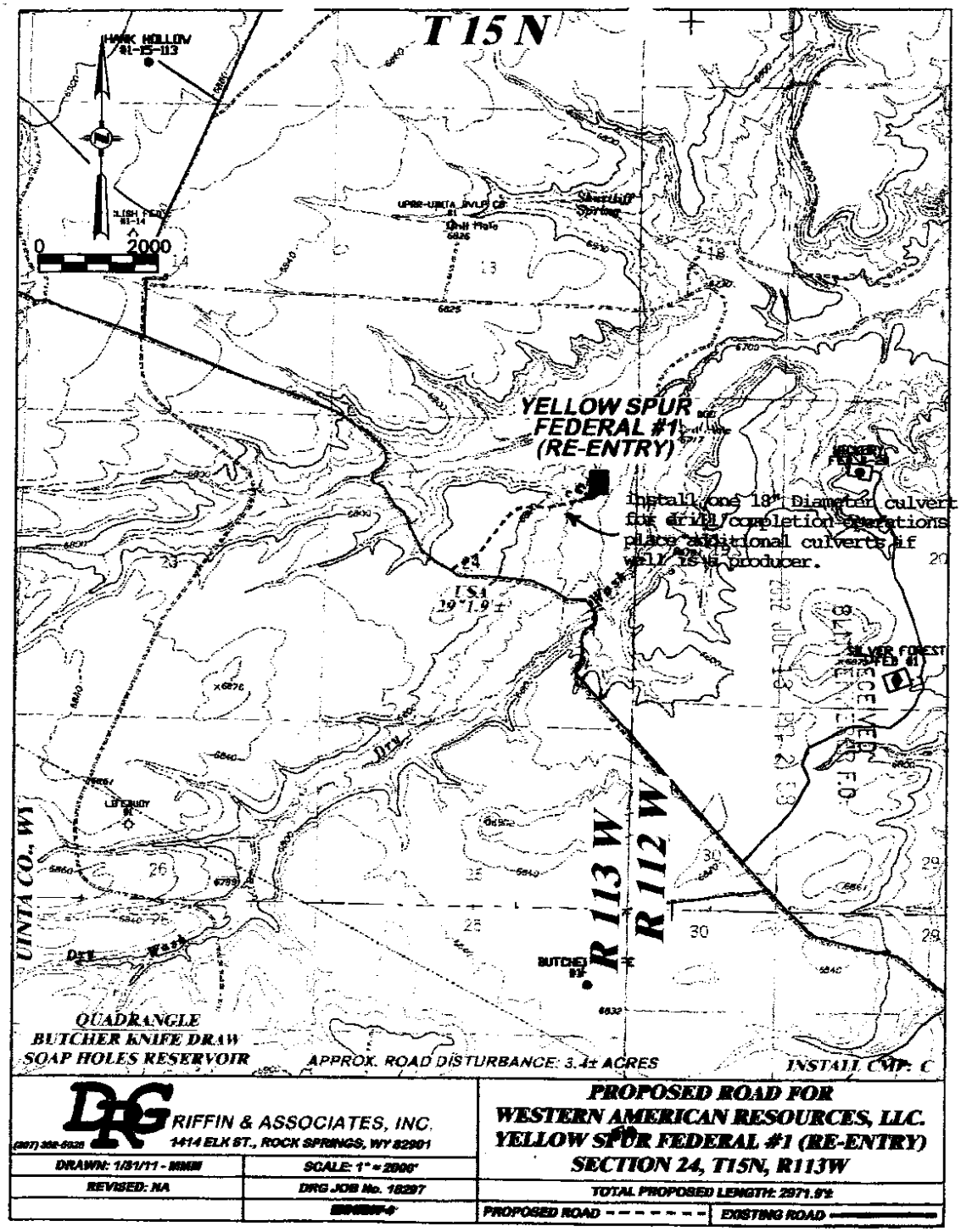
T 15 N
HANK HOLLOW
#1-15-113
0
2000
YELLOW SPUR
FEDERAL #1
(RE-ENTRY)
install one 18" Diameter culvert
for drill/completion operations
place additional culverts if
well is a producer.
USA
29°1.9'±
SILVER FOREST
FED #1
R 113 W
R 112 W
UINTA CO., WY
QUADRANGLE
BUTCHER KNIFE DRAW
SOAP HOLES RESERVOIR
APPROX. ROAD DISTURBANCE: 3.4± ACRES
INSTALL CMP: C
DRG RIFFIN & ASSOCIATES, INC.
1414 ELK ST., ROCK SPRINGS, WY 82901
PROPOSED ROAD FOR
WESTERN AMERICAN RESOURCES, LLC.
YELLOW SPUR FEDERAL #1 (RE-ENTRY)
SECTION 24, T15N, R113W
DRAWN: 1/31/11 - MMM
SCALE: 1" = 2000'
REVISED: NA
DRG JOB No. 18297
TOTAL PROPOSED LENGTH: 2971.9'±
PROPOSED ROAD
EXISTING ROAD

FIGURE 1-1

1.2 Conformance with BLM Land Use Plan(s)

Oil and gas exploration and development is recognized as an appropriate use of public lands in the KRMP ROD (BLM 2010) which provides management direction for the leased area. The Proposed Action is in conformance with the KRMP and to the policies, regulations, and lease stipulations pertaining to oil and gas exploration and development activities.

1.3 Relationship to Statutes, Regulations, Plans or Other Environmental Analyses

This EA was prepared in accordance with NEPA, and in compliance with all applicable regulations, including Council of Environmental Quality (CEQ) regulations, U.S. Department of the Interior requirements (Department Manual 516, Environmental Quality), and guidelines listed in BLM's *NEPA Handbook, H-1790-1*.

Legal guidelines for the implementation of the National Environmental Policy Act state that any federal action that has the potential to affect the human environment must be analyzed in an environmental document. In pursuing the environmental analysis there are many non-discretionary laws and executive orders (EO) that need to be considered. Some of those are:

- American Indian Religious Freedom Act
- Americans with Disabilities Act
- Archaeological Resources Protection Act
- Endangered Species Act
- Federal Noxious Weed Act
- Mineral Leasing Act
- Clean Water Act
- Energy Policy Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- Native American Graves Protection and Repatriation Act
- EO 11593 Protection and Enhancement of Cultural Environment
- EO 13007 Indian Sacred Sites
- EO 13175 Consultation & Coordination with Indian Tribal Governments

1.4 Scoping, Public Involvement and Issues

Scoping is an important part of the NEPA process and determines the scope of key issues related to a proposed action (40 CFR 1500.7). Scoping can involve federal, state, and local government agencies, tribal governments, resource specialists, industry representatives, local interests groups, and other members of the public.

The subject APD was posted within the BLM Kemmerer Field Office (KFO) common area for the necessary 30-day timeframe 43 CFR 3162.3-1(g). Below is a list of the issues identified during this scoping period.

Key issues were defined as issues by the Interdisciplinary Team that (1) drive the analysis of environmental effects; (2) prescribe or necessitate the development of mitigation measures; and/or (3) drive the development of additional project alternatives. These issues are carried forward for analysis in Chapter 4.0 of this EA.

- **Air quality**
  Implementation of the Proposed Action could increase air emissions in the project area.

- **Cultural Resources**
  The Proposed Action could affect significant cultural and paleontological resources in the area.

- **Wildlife Resources**
  Implementation of the Proposed Action could disrupt and displace wildlife and reduce available habitat.

- **Soils**
  The Proposed Action could increase the potential for increased erosion potential and loss of soil productivity.

- **Vegetation**
  Implementation of the Proposed Action could result in the occurrence of nonnative invasive plant species.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative 1- Proposed Action

The Operator submitted an Application to Drill (APD) in July 2013 to develop the Yellowspur Federal #1. The Operator proposes to re-enter the previously plugged and abandoned (4/1988) Sun Exploration and Production Company's Yellowspur #1. They plan to drill out plugs and complete the well as a gas producer on Federal land, located in Section 24, Township 15 North, Range 113 West, 6th Principal Meridian, Uinta County, Wyoming. The well would be cleaned out to a total vertical depth of 13,149 feet. The well would be completed in Federal minerals of their leasehold #WYW152276, located approximately twenty miles southeast of Mountain View, Wyoming (Figure 1-1). Drilling and completion of the well would take approximately 20-40 days.

The Operator would construct the proposed well as described in the 12 Point Surface Use Plan included as part of the Application for Permit to Drill (APD). The Proposed Action also includes

construction of an access road. Total surface disturbance, including the soil stockpiling area, would be approximately 2.5 acres (Table 1).

The Operator proposes to construct approximately 2,972 feet of road. The road would meet the minimum standards listed in BLM Manual Section 9113, the BLM Gold Book (BLM & USFS 2007). If the well is a producer, the running surface would be approximately sixteen (16) feet in width. The maximum grade on Federal land would not exceed three (3) percent.

Table 1. Proposed Action Disturbance

Type	Length (ft.)	Width (ft.)	Acres
Well Pad	120	120	.5
Road	2,972	30	2.0
TOTAL			2.5

Access Road Construction

Access to the proposed Yellowspur Federal #1 well location would utilize established oil field roads which access other wells in the area. No new reconstruction or improvement of these roads is anticipated. The proposed access road would leave an established road near the center of section 24 and extend in a northeasterly direction approximately 2,972 feet to the proposed well site. This re-disturbance of the previously reclaimed road would be flat bladed and one 18" culvert would be installed.

If the well is completed as a producer, the access road would be upgraded to meet the minimum standards listed in BLM Manual Section 9113 and under the direction of a qualified construction supervisor(s). Two additional 18" diameter culverts would be installed. The road and turnaround running surface would be approximately 16 feet in width and 2,972 feet in length. Construction of the road would necessitate a 30' maximum disturbance width. The maximum grade would not exceed three percent.

Clearing of vegetation and blading of soil materials would be limited to the required road alignment. Bladed vegetation and topsoil would be windrowed for future redistribution during interim and final reclamation. Roads would be constructed with adequate drainage, best management practices (BMPs) for erosion control features and hydrologic modification standards for channel crossings and road drainages (cut and fill slopes, drainage ditch stabilization, relief and drainage culverts, water bars, wing ditches and rip-rap) as required. Surfacing material, if necessary, would consist of native material from borrow ditches. Available topsoil would be spread in the borrow ditches or windrowed to the side. The borrow ditches would be backsloped 3:1 or shallower. Water utilized during construction would be obtained from a local permitted source.

The road and well pad turnaround areas must be graveled within one year of the completion of drilling activities. The Operator would maintain the road in as good or better conditions than at

present. The regular maintenance plan includes, but is not limited to blading, ditching and surfacing.

Well Pad and Facilities

The proposed pad for drilling operations would total approximately one half (1/2) acre (Figure 2-1). The travelled portion of the site would be gravel surfaced upon completion of drilling and prior to production. Site preparation for production would be completed with standard excavation equipment using native materials. Additional offsite surface material would be obtained from available permitted sources.

Approximately six inches of topsoil would be removed prior to pad and pit construction or any other disturbance areas. Topsoil would be stockpiled adjacent to the well site within the maximum disturbed area shown on the well site plat. Topsoil and spoil pile would be clearly separated. The topsoil pile would be reseeded with a BLM-approved weed free seed mix.

The physical dimensions of the production facility may vary according the actual discovered reservoir and would be engineered upon completion of well tests. This facility would be included in
a Sundry Notice if the well is a producer. No facilities would be placed in off pad locations.

All above ground permanent structures would be painted Covert Green (18-0617 TPX) to blend with the surrounding landscape and to reduce the view of production facilities from visibility corridors and private residences.

Drilling Operations

Drilling of this well would be within the former cased hole and cuttings would consist of cement from the previously placed plugs. The Operator would utilize a closed-loop drilling system in order to minimize the total disturbance area. A storage tank used to separate liquids and solids in a closed-loop drilling fluid system would replace a reserve pit. The closed-loop circulation system would include one tank and a 30’ x 15’ pit for cuttings and as a flare pit during completion. The pit would be lined with a 12 millimeter or thicker synthetic liner designed to sustain a hydraulic conductivity no greater than 1×10^{-7} cm/sec after installation and which is sufficiently reinforced to withstand normal wear and tear associated with the install and pit use. The liner shall be chemically compatible with all substances that may be put into the pit. If fractured rock is encountered, the liner would not be installed directly on the sharp rocks. The pit would first receive a layer of bedding material, such as sand, bentonite or clay soils, sufficient to prevent contact between the liner and any exposed rock. Cement cuttings would be disposed of in the pit and buried. All other associated wastes would be transferred off-site, if necessary, to a permitted oilfield waste disposal facility. Produced water would be confined to a tank for a period of 90 days after initial production.

Water required for drilling, completion, dust abatement, and plugging would be obtained from a source well located in the SESW of section 20-T15N-R112W with State Engineer permit U.W. 179423 or from the town of Mountain View, Wyoming municipal water source.

Solid Waste and Sanitation Management

Self-contained, chemical portable toilets would be provided for human waste disposal. Upon completion of operations, or as needed, the toilet holding tanks would be pumped and the contents thereof disposed of in the nearest, approved, sewage disposal facility.

Garbage, trash, and other waste materials would be collected in portable, self-contained, fully enclosed trash cages during operations. Accumulated trash would be disposed of at an authorized sanitary landfill. Trash would not be burned or buried on location. All debris and other waste materials not contained in the trash cage would be cleaned up and removed from the location promptly after removal of the drilling rig (weather permitting).

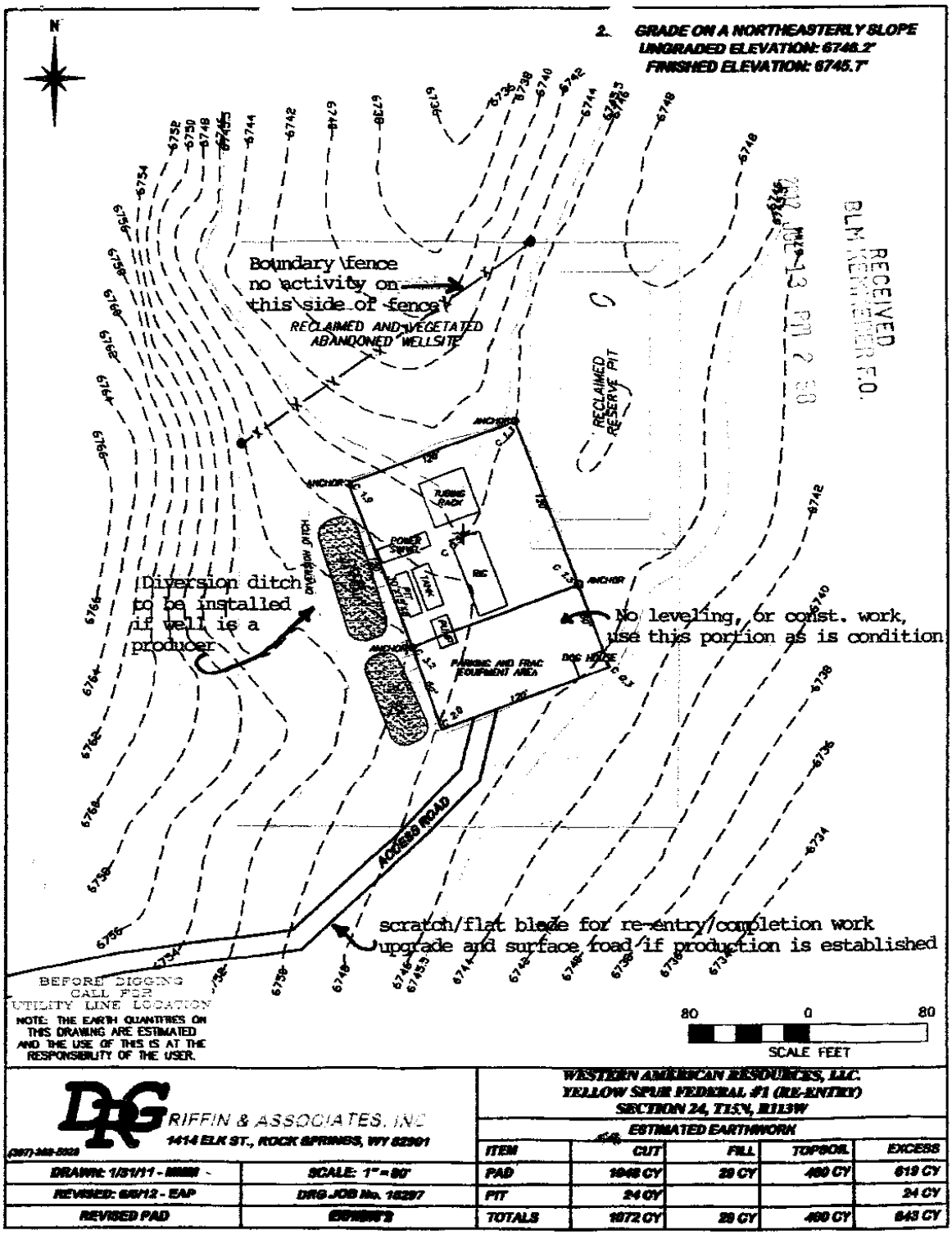
N
2. GRADE ON A NORTHEASTERLY SLOPE
UNGRADED ELEVATION: 6746.2'
FINISHED ELEVATION: 6745.7'
Boundary fence
no activity on
this side of fence
RECLAIMED AND VEGETATED
ABANDONED WELLSITE
RECLAIMED
RESERVE PIT
RECEIVED
BLM
Diversion ditch
to be installed
if well is a
producer
No leveling, or const. work,
use this portion as is condition
ACCESS ROAD
scratch/flat blade for re-entry/completion work
upgrade and surface road if production is established
BEFORE DIGGING
CALL FOR
UTILITY LINE LOCATION
NOTE: THE EARTH QUANTITIES ON
THIS DRAWING ARE ESTIMATED
AND THE USE OF THIS IS AT THE
RESPONSIBILITY OF THE USER.
80
0
80
SCALE FEET
DRIFFIN & ASSOCIATES, INC
1414 ELK ST., ROCK SPRINGS, WY 82901
WESTERN AMERICAN RESOURCES, LLC.
YELLOW SPUR FEDERAL #1 (RE-ENTRY)
SECTION 24, T15N, R113W
ESTIMATED EARTHWORK
ITEM | CUT | FILL | TOPSOIL | EXCESS
PAD | 1948 CY | 28 CY | 400 CY | 619 CY
PIT | 24 CY | | | 24 CY
TOTALS | 1972 CY | 28 CY | 400 CY | 643 CY
DRAWN: 1/31/11 - EAP
SCALE: 1" = 80'
REVISED: 6/6/12 - EAP
DRG JOB No. 16297
REVISED PAD

FIGURE 2-1

Hazardous Materials

Chemicals on the U.S. Environmental Protection Agency's (EPA) Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) that may be used or stored in quantities of over 10,000 pounds would be used in their entirety or disposed of annually. In the course of drilling, the Operator and/or its contractors may store and use diesel fuel, sand (silica), hydrochloric acid, and carbon dioxide (gas), all described as hazardous substances in 40 CFR Part 302, Table 302.4, in quantities exceeding 10,000 pounds. During production operations, H_2S scavenger, paraffin solvent, natural gas condensate and crude oil, described as hazardous substances in 40 CFR Part 302, Table 302.4, would be contained in tanks on location and in quantities exceeding 10,000 pounds.

Triethylene glycol, ethylene glycol mix (50 percent), and methanol, all described as hazardous substances in 40 CFR Part 302, Table 302.4, may be stored or used onsite in quantities less than 10,000 pounds during production operations. Small quantities of retail products (paint/spray paint, solvents [e.g., WD-40], and lubrication oil) containing non-reportable volumes of hazardous substances could be stored and used on site at any time. Any spills of oil, condensate, salt water or any other potentially contaminating substances would be cleaned up and immediately removed to an approved designated disposal site.

Produced oil would be stored in tanks surrounded by an impervious berm. The berm would be capable of containing, at a minimum, the contents of the largest single tank, gun barrel or treater in use, plus 10 percent freeboard for precipitation. All loading lines and valves would be placed inside the berm surrounding the tank or would be surrounded with berms to contain spills. Fluids and cuttings would be separated with a centrifuge. Fluids in the tanks would be hauled as necessary, to an approved disposal facility. The produced fluids (produced water and frac fluid) would be flowed back to the closed-loop system during well testing until such time as the well is cleaned sufficiently. Upon completion of drilling the cuttings would be hauled to an approved disposal facility. If weather constraints or other unforeseen issues arise where access is restricted to the well the well would be shut-in until all issues have been addressed.

As required by Federal and State regulation, the Operator would maintain and make available an emergency SPCC Plan that outlines the methodology to be used in the event of a spill. The SPCC Plan would describe how to contain a spill and how to facilitate rapid cleanup of any hydrocarbon spill prior to its contamination of either surface or subsurface waters. The SPCC would be included as part of the SUPO. The Operator would also maintain and make available a Hazardous Substance Management Plan.

BLM instruction Memoranda Numbers WO-93-344 and WY-94-059 require all NEPA documents to list and describe any hazardous materials that would be produced, used, stored,

transported and disposed of as a result of the Proposed Action. Hazardous materials anticipated to be used or produced from the Proposed Action might come from fuels, drilling materials, bore plugging materials, vehicle emissions, and other miscellaneous materials. Hazardous constituents potentially occurring in these products and materials include gasoline and diesel fuel.

If any spills of oil, condensate, salt water, or other fluids occur during the construction, drilling, completion, operation, or abandonment phase of the proposed project, the Operator or their contractors or sub-contractors would immediately contact the BLM and any other regulatory agencies (e.g., EPA National Response Center, State of Wyoming) as required by law or regulation. Strict cleanup efforts would be initiated immediately.

BLM-administered public lands contaminated with hazardous materials would be secured, reported, and cleaned up according to all applicable federal and state regulations. Parties responsible for contamination on public lands would be held liable for resource damage and cleanup costs as prescribed in federal and state regulations.

Interim Reclamation

Following drilling and completion operations, drilling equipment, supplies and trash would be removed from the well pad. If the well is successful, the pad would be reduced to a minimum size necessary to conduct safe operations. If the well is not determined successful and economic, the well pad would be subject to final reclamation.

The seedbed for reclamation would be prepared by disking or by using similar implement and a certified weed-free seed mixture, as recommended by BLM, would be used. For spring/summer construction and drilling, seeding would be performed in the fall following completion operations, after September 15 and before permanent snowfall. A surface mulch of certified weed-free straw would be applied to seeded areas where necessary. If monitoring shows that drilled-in or broad-cast seed has not germinated by July 15, re-seeding would be completed again after September 1 and before permanent snowfall. Broadcast seeding pounds per acre of seed would be higher. However, drilled-in seeding may have higher equipment costs.

Annual or noxious weeds would be treated as often as necessary on all disturbed areas as directed by the BLM. Weed treatment would be conducted using approved chemical and/or mechanical methods. Reclamation would be monitored for successful re-vegetation. Watering to establish vegetation may be required for successful reclamation as determined by monitoring. As previously stated, if the well is a dry hole or non-producer, the well pad would be reclaimed in its entirety.

Periodically, a work-over or recompletion on the well may be required to ensure that efficient production is maintained. Work-overs can include repairs to the well bore equipment (casing,

tubing, rods, or pump), the wellhead, or the production facilities. These repairs would usually be completed in several days per well, during daylight hours. The frequency for this type of work cannot be accurately projected because work-overs vary by project; however, an average work time may be one work-over per well, per year, after five years following drilling and completion for a period of seven days. Work-over operations could have an effect on interim reclamation efforts.

Interim reclamation would consist of backfilling, recontouring, and reseeding disturbed areas that are not needed once production begins. Well pad size would be reduced to a minimum size necessary to conduct safe production operations. Cuts and fills would be reduced to 3:1 or shallower. Back sloping and contouring all cut and fill slopes is required. Portions of the cleared well site not needed for operational or safety purposes would be recontoured to the original contour if feasible or if not feasible, to an interim contour that remain for setup of a workover rig and to park equipment. Rig anchors may need to be pulled and reset after recontouring to allow for maximum interim reclamation. The portion of the access road not needed for the production access, approximately 12 feet on either side of the running surface, would be reclaimed. Topsoil would be spread across this area outside of the borrow ditch for reclamation.

Reclamation would occur within 6 months of well completion. Rehabilitation of the cuttings pit would include backfilling and contouring as soon as the pit contents are dry enough to do so, or no later than the end of the next full summer following rig release, whichever comes first. If the pit is to remain open after this period would require written authorization by the AO.

Topsoil would be evenly spread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including road cuts and fills and to within a few feet of the production facilities, unless an all-weather, surfaced access route or small “teardrop” turnaround is needed on the well pad.

The re-spread topsoil would be revegetated with an interim reclamation certified weed-free seed mix designed and approved by the BLM. Prior to seeding, the seedbeds would be prepared by backfilling, leveling, and ripping all compacted areas. Ripping to a depth of 4 to 6 inches would be conducted within 24 hours prior to seeding. Any range management facilities or improvements altered by project-related activities would be repaired to BLM standards.

Criteria for successful reclamation would include 80 percent of predisturbance cover, 90 percent of dominate species consisting of species in the seed mix and/or found in the surrounding natural undisturbed vegetation, and erosion features equal to or less than surrounding area or any criteria specified by the BLM. A portion of the drill pad and approximately 1.1 acres of the initial road

disturbance would be reclaimed, leaving approximately 1.6 acres of disturbance remaining (Table 2).

Table 2. Proposed Reclamation			
Site and facilities (including road)	**Cumulative Initial Disturbance (acres)**	**Interim Reclamation (acres)**	**Final Cumulative Disturbance (acres)**
• *Yellowspur #1*	2.5	.9	1.6

Well Pad Abandonment and Final Reclamation

In the event the well is incapable of producing natural gas or condensate in commercial quantities, or at such time that the well is plugged and abandoned, the Operator would submit a Notice of Abandonment to the BLM, and BLM would attach the appropriate surface reclamation conditions of approval. All drill holes would be plugged and abandoned in a timely manner and in accordance with Onshore Oil and Gas Order No. 2. At the time of final plugging and abandonment, all of the surface equipment would be removed and the surface disturbance associated with the well would be reclaimed according to BLM specifications and applicable COAs. The well pad would be graded back to approximate natural contours. Back-filling, leveling, and recontouring would be performed as soon as possible after plugging or cessation of production and removal of production equipment and facilities. Stockpiled topsoil would be redistributed evenly over the re-contoured surface in accordance with Onshore Oil and Gas Order No. 1, as revised in March 2007.

The area would be ripped to a depth of 12 inches to eliminate any compaction that may have occurred during final grading. The access road would be reclaimed in a similar manner as the pad. If necessary, water bars and physical barricades may be implemented to promote reclamation efforts. Pipelines and subsurface power lines would be abandoned in place. The reclaimed area would be reseeded with the appropriate BLM-approved seed mixture specifically designed to simulate adjacent undisturbed vegetation while maximizing utilization by both wildlife and domestic stock.

Operator-Committed Best Management Practices

Additional details regarding the development of the proposed Yellowspur Federal #1 well are included in the associated Surface Use Plans. In addition to the Conditions of Approval (Appendix A and B), the following applicant-committed environmental protection measures would be implemented during construction and operation of the wells and the access road.

- No cross-country travel is permitted.
- Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment.

- No vehicles will operate during periods of saturated soil conditions when surface ruts greater than 4 inches will occur along straight travel routes.

- Drivers are instructed to travel at slow speeds to limit dust.

- Portable self-contained chemical toilets will be rented from and maintained by a commercial supplier. Upon completion of operations, or as required, these toilets will be removed and the contents disposed of in an approved sewage disposal facility.

- Project personnel are subject to the following requirements: no harassing or shooting of wildlife or wild horses, no dogs in the project area, no firearms in the project area, and no littering.

- All vehicles and construction equipment are to be properly maintained to minimize exhaust emissions and properly muffled to minimize noise.

2.2 Alternative 2 – No Action Alternative

The No Action Alternative would require BLM to deny approvals associated with the Proposed Action. BLM's authority to implement the No Action Alternative is limited, since a lease gives the right to drill, extract, remove and dispose of all oil and gas deposits in the leased lands subject to the terms and conditions of the lease. Because BLM has authority and responsibility to protect the environment within the Federal oil and gas leases, reasonable restrictions can be imposed on the lease terms to avoid significant adverse impacts as long as they are consistent with the lessee's rights, but the BLM cannot deny development of the lease.

Although the No Action Alternative could be selected by the BLM, its selection must clearly demonstrate that the proposal and alternatives would cause significant adverse impacts resulting in unnecessary and undue degradation of the public lands and resources. If the impacts of the proposed action and alternatives are determined to be significant and the action cannot be modified to avoid significant impacts, BLM would be required to prepare an Environmental Impact Statement (EIS) to disclose the impacts anticipated from such an action.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

The EMA EIS provides a thorough description of the affected environment associated with the Proposed Action. The EMA EIS analysis provides an accurate depiction of the current affected environment. However, development has occurred since its authorization or Record of Decision (ROD). This section reflects the updated current conditions of those resource elements affected

by the Proposed Action and the environmental consequences of implementing the Proposed Action and the No Action Alternative.

The following are not present and will not be further analyzed:

- Areas of Critical Environmental Concern (ACEC)
- Environmental Justice
- Prime or Unique Farmlands
- Flood Plains
- Recreation
- Paleontological Resources
- Visual Resources
- Water Quality and Prime or Sole Source of Drinking Water
- Wetlands and Riparian Zones
- Wild and Scenic Rivers

3.2 Air Quality

Wyoming Ambient Air Quality Standards (WAAQS) have been promulgated for the purpose of protecting human health and welfare with an adequate margin of safety. Pollutants for which standards have been set include sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter less than 10 or 2.5 microns in effective diameter (PM_{10} and $PM_{2.5}$), and ozone. In addition, hazardous air pollutants (HAPS) emissions, such as benzene, are regulated by the Wyoming Division of Air Quality.

The proposed project site is located in a rural, relatively undeveloped area containing no substantial emission sources. The nearest community of Mountain View is relatively small and does not provide major emission sources. Although air quality monitoring has not been conducted within the proposed Yellowspur Federal #1 project area because potential emission sources in the airshed are few and widely dispersed and emission standards are not typically exceeded. However, the Wyoming Department of Environmental Quality has provided the existing air quality levels for southwest Wyoming (Table 3). When compared to the WAAQS, these values show that the background air quality in the general area is good.

Table 3. Ambient Air Quality for Southwest Wyoming

Pollutant and Averaging Period	WAAQS (µg/m3)	Background Concentration (µg/m3)	Percentage of WAAQS (%)	Source
CO 1-hour	40,000	3,336	8.3%	A
CO 8-hour	10,000	1,381	13.8%	A
NO_2 annual	100	3.4	3.4%	B
O_3 8-hour	160	147	91.9%	C

PM_{10} 24-hour	150	51	34.0%	D
PM_{10} annual	50	21	42.0%	D
$PM_{2.5}$ 24-hour	65	30	46.2%	D
$PM_{2.5}$ annual	15	8	53.3%	D
SO_2 3-hour	1,300	93	7.2%	E
SO_2 24-hour	260	32	12.3%	E
SO_2 annual	60	4	6.7%	E

A. Data collected by Amoco at Ryckman Creek for an 8 month period during 1978-1979, summarized in the Riley Ridge EIS (BLM 1983).
B. Data collected at Green River Basin Visibility Study site during the period January - December 2001 (ARS 2002).
C. Data collected at Green River Basin Visibility Study site during the period June 10, 1998 - December 31, 2001 (ARS 2001). Data represents the top tenth percentile maximum 1-hour value.
D. Data collected by WDEQ at Lander, WY, 2005 (Personal Communication with WDEQ, February 13, 2007).
E . Data collected at Lost Cabin Gas Plant (preconstruction monitoring) Fremont County, WY 1986-1987LaBarge Study Area at the Northwest Pipeline Craven Creek site, 1982-1983 (WDEQ).
**** All short-term data are second-maximum values unless otherwise specified. Annual data represent averages.***

As is shown in **Table 3**, air quality in the region area meets WAAQS.

3.3 Cultural Resources

The Proposed Action is located in the Bridger Valley Subregion, as defined in the KRMP (BLM 2010). As of 2012, approximately 9% of the subregion has been inventoried for cultural resources and over 900 sites are documented, demonstrating that the subregion is relatively rich in cultural resources. About 80% of the sites are prehistoric in age, with the majority representing campsites of diverse ages dating back to at least 9000 years before present, and debris from stone tool manufacture using the abundant sources available on the surface. The remaining 20% of the sites are from the historic period, representing a variety of historic resources, including homesteads, ranches and irrigation districts, as well as nationally significant properties like the Oregon, California, Mormon Pioneer and Pony Express National Historic Trails, Fort Bridger State Historic Site, the Union Pacific Transcontinental ("Golden Spike") Railroad, and the Lincoln Highway. Although the nationally significant historic properties are located more than 10 miles north of the Proposed Action, the Thornburgh Trail of regional significance is located approximately 6 miles west of the project area. The Thornburgh Trail has largely been destroyed by a modern highway. The Proposed Action could affect prehistoric campsites and stone alignments known to be present in the area, as well as historic stock herder camps common in this vicinity.

The Proposed Action was examined previously by a Class III cultural resource inventory which identified a prehistoric campsite which is evaluated as a significant "historic properties" as defined in 36 CFR 800.16(a) (l) (1). The well pad was redesigned to ensure preservation of the significant qualities of the historic property, located several hundred feet north of the well pad. Therefore, no historic properties were identified in the area of potential effects for the Proposed

Action. Because of the high site density in the Bridger Valley Subregion, there is a potential for buried cultural deposits not detected on the surface.

3.4 Wildlife Resources

The BLM has conducted a field investigation of the proposed well pad, access roads and pipeline to determine the potential impacts of the Proposed Action on identified wildlife species. The following section provides an overview of only those species that may be affected by the Proposed Action.

General Wildlife and Fish

Additional wildlife and fish species are present in the project area but their population sizes are stable on average and do not currently exhibit negative density or distribution trends which would warrant additional protection under the ESA. Mammals potentially occurring in the project area include: badger, red fox, coyote, desert cottontails, white-tailed jackrabbit, ground squirrels, chipmunks, mice, voles, shrews, pocket gophers and big game species. Additional information is provided below on big game species managed by the WGFD and migratory birds that may be present in the study area for brief periods.

Big Game

The proposed area is located out of designated crucial winter range for all big game species.

Migratory Birds

The Migratory Bird Treaty Act (MBTA), as amended, was implemented for the protection of migratory birds. Unless permitted by regulations, the MBTA makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including feathers or other body parts, nests, eggs, or migratory bird products. In addition, Executive Order 13186 sets forth the responsibilities of federal agencies to implement the provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that federal actions evaluate the effects of actions and agency plans on migratory birds. Wyoming BLM non-sensitive migratory birds that could nest in the project area include: vesper sparrow, horned lark, black-billed magpie, and common raven.

Special Status Species

Special Status Species (SSS) include those species federally listed under the Endangered Species Act (ESA) by the US Fish and Wildlife Service (USFWS) and the Wyoming BLM Sensitive Species (WBSS) designated by the BLM Wyoming State Director.

In accordance with Section 7 of the ESA, as amended, the lead agency in coordination with USFWS must ensure that any federal action to be authorized, funded, or implemented would not adversely affect a federally listed species, or its designated critical habitat. Within the Kemmerer Field Office boundaries, the USFWS requires eight threatened or endangered animal species,

three candidate animal species, two plant species and one candidate plant species to be analyzed for all proposed actions (USFWS 2012). Of these species, Colorado River Fish would be affected by the implementation of this Proposed Action. The other eight species (Black-footed ferret, Canada lynx, Ute Ladie's tresses, Blowout penstemon, Grizzly Bear, Yellow-billed Cuckoo, North American Wolverine, and the White Bark Pine) were not present within the project boundary; therefore. These eight species will not be discussed further within this EA.

Special Status Species Management Policy 6840 requires the BLM not only to manage species listed under the ESA, but to also manage WBSS to prevent the need for future listing under the ESA. A total of forty-two WBSS animals potentially occur within the KFO; twelve are either known to occur or the habitat is present for the species to potentially occur, within the action area (BLM 2010; Table 4). The other thirty species will not be discussed further within this EA.

Table 4. Special Status Species potential occurrence in the project area.

Species	Scientific name	Status	Habitat	Habitat Type
Greater Sage-grouse	*Centrocercus urophasianus*	SSS[2]; Candidate[3]	habitat present	basin-prairie shrub and mountain-foothill shrub
Mountain Plover	*Charadrius montanus*	SSS[2]	habitat present	Prairie dog towns, vegetation sparse or absent, level terrain, dry
pygmy rabbit	*Brachylagus idahoensis*	SSS[2]	habitat present	basin-prairie and riparian shrub
Idaho pocket gopher	*Thomomys idahoensis*	SSS[2]	habitat present	shallow stony soils
sage thrasher	*Oreoscoptes montanus*	SSS[2]	habitat present	basin-prairie shrub and mountain-foothill shrub
Brewer's sparrow	*Spizella breweri*	SSS[2]	habitat present	basin-prairie shrub
sage sparrow	*Amphispiza belli*	SSS[2]	habitat present	basin-prairie shrub and mountain-foothill shrub
loggerhead shrike	*Lanius ludovicianus*	SSS[2]	habitat present	basin-prairie shrub and mountain-foothill shrub
bonytail chub	*Gila elegans*	SSS[2]; Threatened[1]	None - no habitat present	Colorado river drainages
Colorado pikeminnow	*Ptychocheilus lucius*	SSS[2]; Threatened[1]	None - no habitat present	Colorado river drainages
humpback chub	*Gila cypha*	SSS[2]; Threatened[1]	None - no habitat present	Colorado river drainages
razorback sucker	*Xyrauchen texanus*	SSS[2]; Threatened[1]	None - no habitat present	Colorado river drainages

[1]USFWS ESA-listed species

[2]Wyoming BLM Special Status Species

[3]Proposed for listing as threatened under the ESA

Greater Sage-grouse

Greater Sage-grouse (*Centrocercus urophasianus*) were originally proposed for protection under the endangered species list on July 2, 2002. Most recently, after several 90-day findings, the USFWS issued a proposed rule of, "Warranted, but precluded by higher priority listing actions" (USDI 2010). Due to this rule, the sage grouse is not listed at this time; however, precautions should be taken to avoid listing. Several factors could move the species higher on the ranking list and closer to listing.

Currently, Greater Sage-grouse distribution and sagebrush habitat encompasses parts of 11 states in the western United States and 2 Canadian provinces, occupying approximately 56% of their historical range (Schroeder et al. 2004). Greater Sage-grouse distribution is strongly associated with distribution of sagebrush (*Artemisia* spp.), and in particular, big sagebrush (*A.tridentata*) (Schroeder et al. 2004). Greater Sage-grouse show high fidelity to an area. During the breeding season (March–May), male sage-grouse gather together to perform courtship displays at know locations called "leks." Leks are generally areas of little or no vegetation or cushion plant communities. Leks can be formed opportunistically or near nesting habitat (USDI USFWS 2010). Females have been documented to travel more than 12.5 miles to their nesting site after mating (Connelly et al. 2000), however, studies conducted in Wyoming indicate that 45% of sage-grouse hens nest within 1.86 miles of the lek while 64% nest within 3.11 miles (Holloran and Anderson, 2005). Greater Sage-grouse nesting habitat is generally described as sagebrush that has a canopy cover between 15 and 30%, and heights between 11 and 32 inches (USDI BLM 2004). During the first 2-3 weeks, hens rear their broods in what is considered early brood-rearing habitat (within 1.2 miles of the nest in Wyoming, on average (Cagney et al. 2010)).

The project is located within two miles of active sage-grouse leks and in the Sage core area. Literature indicates that 75 percent of the hens nest within 4 miles and 66 percent within 3 miles of the lek where they are bred. This area has sufficient cover and is adjacent to foraging areas containing forbs and insects; therefore is classified as nesting and brood-rearing habitat. There are 6 known sage-grouse leks within the vicinity of the project area, all of which are within the core area. Leks, along with 10 year average attendance by males, are listed in the following table (Table 5)

Table 5. Lek name, attendance by ten year averages

Lek Name	Lek attendance by males 10 year average (1991-2000)	Lek attendance by males 10 year average (2001-2010)
Big Hollow Bench*	0	11
Hank Hollow 2	11.6	35.1
Main Road	19.4	0
Standard Reservoir**	0	13
Upper Dry Wash 1	11.5	14.1

Upper Dry Wash 2	0	1.1
* indicates lek was discovered in 2009		
** indicates lek was discovered in 2008		

Mountain Plover

Mountain plover are small terrestrial shorebirds that inhabit short grass prairie and shrub-steppe landscapes. Unlike other members of the plover family, they are rarely found near bodies of water or riparian areas. These birds are migratory, arriving in Wyoming in early April to breed and departing for their wintering grounds during September. Their nests are located on the ground, often in areas used historically or currently by prairie dogs, bison, domestic livestock or pronghorn antelope. Other positive indicators for mountain plover habitat include near-level terrain with less than 5% slope, bare ground, cactus, sparse or widely spaced plants, and short vegetation (<10cm). The project area for the Yellowspur Federal well #1 has been identified as suitable nesting habitat for mountain plover.

On 29 June 2010, the USFWS proposed listing the mountain plover as a threatened species under the ESA. Population estimates for mountain plover range between 8,000 and 10,000 with fewer than 1500 reported in Wyoming (USFWS 2010). Since 1966, populations of mountain plover have declined by an estimated 63% due to conversion of grassland habitat in the breeding range, agricultural practices, livestock management, burrowing mammal declines, energy development and pesticide use (causing harmful exposure from the chemicals and reducing plover food supply)(75 FR 37354).

Pygmy rabbit

The pygmy rabbit (*Brachylagus idahoensis*) is the smallest of any North American rabbit species (Keinath and McGee 2004). The pygmy rabbit is distinguishable from other Leporids by its small size, short ears, gray color, small hind legs, distinctive hopping motion, and lack of white on the tail (Keinath and McGee 2004). Pygmy rabbits are distributed across most of the Great Basin and parts of adjacent areas in the intermountain western United States (Keinath and McGee 2004). Pygmy rabbits depend upon stands of tall, dense sagebrush in conjunction with deep, friable soils, the combination of which provides cover, food, and burrows (Keinath and McGee 2004), (Purcell 2006), found that pygmy rabbits occurred within areas mostly comprised of Wyoming big sagebrush, however, habitats dominated by mountain big sagebrush, shrub dominated riparian, black sage steppe, or desert shrub also had pygmy rabbit occurrences. The distribution of this species is not continuous but is patchy within this range, thus the distribution of pygmy rabbits likely shifts over time in response to disturbances such as fire, flooding, grazing, and crop production as well as weather patterns (Keinath and McGee 2004). At this time, habitat mapping has not occurred within the project area, however, evidence of use was observed while conducting field visits for the project area. Efforts are ongoing to map habitat and gather distribution data.

Idaho pocket gopher

There are several species of pocket gophers in Wyoming and the surrounding states. All look very similar, making it difficult to distinguish specimens to species. Reliable identification has to involve chromosomal analysis (i.e., karyotyping to count chromosome number), with supporting information from geographic location, pelage characters, and overall morphology (Beauvais and Dark-Smiley 2005). Idaho pocket gophers (*Thomomys idahoensis*) are very small, with yellowish to dark brown fur; they lack ear patches and contrasting cheeks, and dorsal regions are uniform in color (Clark and Stromberg 1987). *T. idahoensis*, along with other members of the pocket gopher family are highly adapted to fossorial (underground) living (Beauvais and Dark-Smiley 2005, Griscom et al. 2010).

T. idahoensis occurs from southwestern Montana, through eastern Idaho to southwestern Wyoming. Little is known about its habitat but its distribution suggests a preference for mountain foothill shrubland and a higher tolerance for rocky soils (Griscom et al. 2010). In Wyoming, the species occupies shallow, stony soils and has been documented in open sagebrush, grassland plains, and subalpine mountain meadow habitats in Wyoming (Beauvais and Dark-Smiley 2005). The Biotics database maintained by the Wyoming Natural Diversity Database (WYNDD) contains only 33 known occurrences of *T. idahoensis* in Wyoming, all falling within the sagebrush foothills zone of the Wyoming Range, Uinta, and Wind River Mountains (Beauvais and Dark-Smiley 2005, Griscom et al. 2010). Very little is currently known about its biology and ecology (Griscom et al. 2010), but the species is assumed to be rare and has a limited distribution (Beauvais and Dark-Smiley 2005). Even though Idaho pocket gophers have not been observed, current habitat projections indicate that the species has the potential to occur throughout the project area.

Colorado River Fishes

Four federally endangered fish species, the bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker occur downstream in the Green River. These fish were once abundant in the upper and lower Colorado River Basins but their distributions are currently limited to a small portion of their historic range. Habitat for these species include backwaters, sloughs, oxbow lakes, seasonally inundated flood plains, and reservoirs. The nearest habitat for the endangered Colorado River fishes occurs downstream of the project below Flaming Gorge Reservoir, Utah in the Green River and its associated 100-year floodplain; this area has been designated by the USFWS as critical habitat (USFWS 1994). Even though these species do not occur within the project area, they are sensitive to water depletions and thus are addressed in section four of the current document.

Sage obligate songbirds

Sage thrasher (*Oreoscoptes montanus*), Brewer's sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*) and loggerhead shrike (*Lanius ludovicianus*) are considered sage-obligate species, meaning they require sagebrush ecosystems for reproduction and survival. Loggerhead

shrikes are shrub-nesting sagebrush obligates meaning they require sagebrush for successful reproduction but not necessarily for food or other resources. Slight variation in habitat preference exists among these species. Even with slight variability, all of these species inhabit prairie and foothill shrublands where sagebrush is present, often using tall shrubs with low grass cover and clumped sagebrush in a patchy landscape. This type of habitat occurs throughout the action area. In addition, sage sparrows, Brewer's sparrows and sage thrashers were observed at different locations throughout the project area during surveys for a large pipeline project.

3.5 Livestock Resources

The Proposed Action would take place on the Lyman Cattle grazing allotment (#11303). There are currently two livestock operators who utilize this allotment. These operators run 558 head of cattle from May 1st to October 31st each year, utilizing a total of 2,313 Animal Unit Months (AUMs). An AUM is the amount of forage typically eaten by 1 cow over the course of 1 month.

3.6 Soils

The Proposed Action would be located within the area characterized as Cool Central Desertic Basin and Plateau rangelands with elevations ranging between 6,000 to 7,200 feet. Precipitation ranges from 7 to 9 inches per year (NRCS 2008).

Based on data down loaded on 4/11/2014 from the Web Soil Survey website (http://websoilsurvey.nrcs.usda.gov/app/), two soils complexes (Piezon-Tieside loams, 1 to 3 percent slopes and Polaris-Tisworth-Rockinchair complex, 0 to 80 percent slopes) are encountered within the project area. The Piezon, Tieside, Polaris and Rockinchair components all are Shallow Loamy ecological sites while the Sandbranch is a Saline Lowland site. The soils of this site are sensitive soil types that are moderately deep and very deep well-drained soils formed in alluvium (BLM 1996). These soils have moderate permeability and are somewhat saline and/or alkaline. Higher soluble salt concentrations may be found in the subsoils. The surface soil will be highly variable and vary from 2 to 8 inches in thickness. A fluctuating water table occurs in these areas greater than 5 feet.

The well pad and access road would be located on a rolling, gently sloped upland area. The pad is situated on a mostly level, slightly undulating site between hills with grade cut of less than 3.5 feet. Soils types of this area are generally loamy to sandy loam with moderate to high reclamation potential (BLM 2007). Reclamation potential in these soil types is likely to be successful if appropriate topsoil conservation, soil erosion prevention methods, and weed treatments are in place.

3.7 Vegetation

Vegetation consists primarily of mixed desert shrub and cover types. This area exhibits sparse to moderate vegetation density which is typical of semi-arid areas at elevations above 6,500 feet above sea level. The alkali scrub cover type is characterized by low growing to intermediate shrubs that exploit saline-alkaline areas. It occurs in both upland and lowland positions. Local flora consists primarily of Gardner saltbush, greenmolly, winterfat, rubber rabbitbrush, low sagebrush, budsage, shadscale, Wyoming big sagebrush, spiny horsebrush, spiny hopsage, silvery false sage. Understory plants include bottlebrush squirreltail, western wheatgrass, Thickspike wheatgrass, Indian ricegrass, Sandberg bluegrass, phlox, and buckwheat.

Some surface areas within the project are may be covered with cryptogamic soil crusts. Formed by living organisms and their byproducts, these organisms create a surface crust of soil particles bound together by organic materials. Crusts are predominately composed of cyanobacteria, green and brown algae, mosses, and lichens. Lichens of the genera *Collema* spp., and mosses from the genera *Tortula* spp are also common. Cryptogamic crusts primarily provide a less than half-inch cover on bare ground, protecting topsoil from wind and water erosion and contributing nutrients to plants that enhance seedling germination and plant growth (USGS 2003).

Invasive/Non-native Species

Invasive and non-native species are typically early colonizing species and can potentially increase once areas are disturbed or in areas were soil surfaces are exposed. Typical species occurring within the project area include black henbane, Russian thistle, and halogeton. While none of these species are identified as noxious weeds they are currently listed as species of economic concern.

4.0 ENVIRONMENTAL EFFECTS

4.1 Direct and Indirect Effects

Chapter 4 is an analysis of the environmental consequences of implementing the Proposed Action and the No Action Alternative.

4.1.1 Air Quality

Alternative 1 – Proposed Action

The primary criteria pollutants emitted from the Proposed Action would be oxides of nitrogen (NO_X), volatile organic compounds (VOC), particulates (PM_{10} and $PM_{2.5}$), and carbon monoxide (CO) resulting from drilling. Elevated dust levels and vehicle tailpipe emissions would increase along the existing access road and constructed access road associated with the vehicular traffic to and from the drilling site.

During the construction of the well pad and associated access road, vehicle and fugitive dust emissions would increase. These emissions would cause short-term increase in pollutant levels. Vehicle tailpipes would emit NO_X, SO_2, and CO as they travel to and from the site. Fugitive dust concentrations would also increase with additional vehicle traffic on the access road. Emissions would be the highest during pad construction and well completion operations resulting mainly in an increase of NO_X and CO emissions. Because of the limited size and scope of this project these activities are expected to be short in duration and therefore are anticipated to be insignificant and would not have long term effects to air quality.

Alternative 2 – No Action Alternative

Under the No Action Alternative, this project will not be constructed. No project-related disturbance will occur and therefore no impacts to air quality will occur as a result of the No Action Alternative.

4.1.2 Cultural Resources

Alternative 1 – Proposed Action

A Class III cultural resources inventory (KFO project no. 09012073) was conducted for the APE of the Yellowspur #1 well pad and access road following the Archeology and Historic Preservation Secretary of the Interior's Standards and Guidelines (48FR4471) and determined that no cultural resources occur within the APE. In addition, the undertaking will have no visual, auditory or atmospheric effects on historic properties located outside of the immediate project area.

The undertaking may proceed as planned without further consideration of cultural resources other than the inclusion of the standard stipulation regarding the discovery of unanticipated cultural resources on the authorizations.

Alternative 2 – No Action Alternative

Under the No Action Alternative, this project will not be constructed. No project-related disturbance will occur to cultural resources as a result of the No Action Alternative.

4.1.3 Wildlife Resources

Alternative 1 – Proposed Action

Construction, drilling and completion operations of the wells, road and pipeline could result in some direct habitat loss, animal displacement, and even mortality depending on the wildlife species. Increased roads and traffic caused by oil and gas field development can increase wildlife vehicle mortalities over the life of the project. The potential effects of the Proposed Action were evaluated for each species based on their habitat requirements and known distribution.

Special Status Species

Twelve of the forty-two SSS either listed under the ESA or designated as WBSS by the BLM Wyoming State Director may be impacted by the Proposed Action. They include Greater Sage-grouse, Mountain plover, pygmy rabbit, Idaho pocket gopher, sage thrasher, Brewer's sparrow, sage sparrow, loggerhead shrike, bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker.

Greater Sage-grouse

The area was assessed as per Wyoming Instruction Memorandum (IM) WY-IM-2012-019 (Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Lands including the Federal Mineral Estate). The IM directs the BLM to analyze sage grouse habitat out to a minimum of four miles for a relatively small project (i.e. exploratory well, individual rights-of-way, etc.) and out to a minimum of 11 miles for a large project (i.e. oil and gas full field development, large power lines, etc.). In addition, this analysis is to occur both within and outside of the sage grouse core areas, as designated by the Governor's Executive Order (EO 2011-5).

According to the Density and Disturbance Calculation Tool (DDCT) provided by the WGFD (dated 07/17/2013), the affected area encompasses roughly 66, 235.00 acres within the Uinta Sage Grouse Core area. The total area proposed for the project is 2.01 acres. In total, 64,873.47 acres (97.94%) of this identified area is considered undisturbed, while 1,361.53 acres (2.06%) is considered disturbed.

There are 6 leks that are known to occur within the analysis area. They are, Big Hollow Bench, Hank Hollow 2, Main Road, Standard Reservoir, Upper Dry Wash 1, and Upper Dry Wash 2. The percent of disturbed habitat for the Big Hollow Bench Lek is 2.47%, Hank Hollow 2 is 2.13%, Main Road is 2.39%, Standard Reservoir is 2.61%, Upper Dry Wash 1 is 2.85%, and Upper Dry Wash 2 is 2.81%. The disturbed habitat for each lek is under the 5% goal per 640 acres as stated in WY-IM-2012-019. Even though the amount of habitat disturbed is less than the 5% goal, this project would result in sagebrush loss and habitat fragmentation, and may or may not contribute to its decline and/or need for listing under the Endangered Species Act.

Colorado River Fishes

Endangered Colorado River fishes do not occur in the KFO area; however the USFWS has determined that any water exceeding 0.1 acre-foot taken from the Colorado River drainage would negatively impact Colorado River fishes. Since this project will consume less than 0.1 acre-feet per –year an informal consultation is not required. The USFWS Recovery Program will serve as conservation measures to minimize adverse effects to the endangered fishes. The major impact would be a potential loss of habitat within the Colorado River system due to the

depletion of water from the Colorado River System. Water usage is estimated to be at 1.15 acre feet over a two year period which will average approximately 0.058 acre-feet per-year for the average 20 year life of the well pad. However, 0.058 acre-feet per-year falls under the usual 100 acre-feet per year threshold, which would require mitigation and a biological opinion.

Mountain Plover

On 29 June 2010, the USFWS proposed listing the mountain plover as a threatened species under the ESA. Population estimates for mountain plover range between 8,000 and 10,000 with fewer than 1500 reported in Wyoming (WYNDD 2007). Since 1966, populations of mountain plover have declined by an estimated 63% due to conversion of grassland habitat in the breeding range, agricultural practices, livestock management, burrowing mammal declines, energy development and pesticide use (causing harmful exposure from the chemicals and reducing plover food supply)(75 FR 37354).

The Proposed Action would eliminate 4.7 acres of mountain plover breeding and nesting habitat but suitable habitat would remain intact surrounding the project area. If surface disturbing activities occur during the breeding/nesting season, mountain plover could be temporarily displaced, which may alter nest establishment or cause nest abandonment. To protect the breeding habitat and limit both auditory and visual disturbance associated with construction, drilling and completion activities, a seasonal stipulation restricting activities would be in effect from April 10 through July 10 when mountain plover are breeding. Mountain plovers arrive in late March to establish territories and begin courtship displays. In general, egg-laying begins in late April and precocial chicks hatch after a 29 day incubation (Graul 1975). Negative impacts to chick survival from construction activities may be limited by the ability of chicks to travel up to 2 km away from the nest site within 2-3 days after hatching (Knopf and Rupert 1996). The minimum area requirement for adult plovers to successfully raise chicks to fledging is 69 acres (Dinsmore 2003) with some pairs using a home range between 69 acres and 224 acres (Knopf and Rupert 1996) making the removal of 4.7 acres a relatively insignificant amount. Likewise, interim reclamation can often provide suitable habitat shortly after well completion. Although habitat alteration for the Yellowspur Federal #1 well location would directly affect mountain plover habitat, it is unlikely to contribute to federal listing due to the limited size of the disturbance, the aforementioned timing stipulation and general mountain plover breeding biology.

Idaho pocket gopher

Currently, habitat needs are poorly known for the Idaho pocket gopher making it difficult to determine the potential impacts of the proposed action on the population. However, pocket gopher habitat in general appears to be limited by a soil layer deep and tractable enough to hold burrow systems and enough plant material to form a food base (Beauvais and Dark-Smiley 2005). Using the most recent predictive model for Idaho Pocket Gopher distribution a medium

potential for the species is expected to preside in the project area. Direct impacts would include loss of habitat or removal of some individuals from the population due to construction activities.

Sage obligate songbirds

Sage obligate species require sagebrush stands in order to successfully reproduce and/or survive. The sage sparrow in particular requires large blocks of un-fragmented habitat to successfully reproduce. These species are considered to be especially at risk of habitat loss and subsequent population declines given the rapid habitat changes now occurring in sagebrush steppe ecosystems such as fragmentation and removal of sagebrush nesting habitat for human activities (WGFD 2010). Implementation of the Proposed Action would directly remove up to 23.63 acres of suitable habitat for sage obligate songbirds; however, due to the currently fragmented structure of the sagebrush stands in the project area, it would be unlikely to have significant effects on the songbird populations. In addition, the timing limitation stipulation that will be implemented for Greater Sage-grouse will also help minimize impacts to nesting and brood-rearing sage obligate songbirds.

General Wildlife and Fish

Most of the non-SSS wildlife populations in the project area are relatively stable. The direct impacts from the Proposed Action would not likely result in population declines that would require these species to be listed as sensitive species in the future. Additional information is provided on big game species as well as migratory birds.

Migratory Birds

If surface disturbing activities occur during the migratory birds nesting season, those species utilizing habitats in or near the project area could be temporarily displaced, which may alter nest establishment or cause nest abandonment. In addition to temporary displacement, the Proposed Action would also result in the removal of up to 2.5 acres of potential nesting and foraging habitats which could destroy nests and potentially kill migratory birds. Overall, implementation of the Proposed Action may affect individual migratory birds through displacement, habitat loss or death, but given the small area of impact, it would not likely result in a trend towards Federal listing of these species.

Wildlife Mitigation Measures

- For protection of Sage grouse Nesting/Brood Rearing areas; construction, drilling or other surface disturbing activities for which timing restrictions from March 15 through July 15 would be applied.

- For protection of Sage grouse winter areas; construction, drilling or other surface disturbing activities for which timing restrictions from November 15 through March 14 would be applied.

- For protection of Mountain Plover habitat; construction, drilling or other surface disturbing activities for which timing restrictions from April 10 through July 10 would be applied.

Alternative 2 – No Action Alternative

Under the No Action Alternative, this project would not be constructed or operated. No project-related disturbances would occur.

4.1.4 Livestock Management

Alternative 1 – Proposed Action

The Proposed Action would temporarily impact approximately 2.5 acres of forage initially, with 1.8 acres impacted after interim reclamation. The 1963 official adjudication map shows 4 AUMs in the approximately 40-acres of federal land within the Lyman Cattle Allotment in Section 24-T15N-R113W. This equates to approximately 10 acres per AUM. Assuming equal vegetative distribution, the initial 2.5 acre disturbance would eliminate 0.25 AUM and the long-term 1.8 acres would eliminate 0.18 AUMs after interim reclamation.

Federal land within the Lyman Cattle produces 2313 AUMs. The loss amounts represent much less than 1% of the available forage on the allotment. This impact from this project alone will not necessitate a change in the number of AUMs the BLM authorizes on this allotment. An accounting must be made for the cumulative impact resulting from all disturbances within the Moxa Arch gas field within the Leroy Allotment.

Mitigation Measures

- Damage to existing fences and other range improvements are to be repaired immediately.

- Removal or alteration of existing range improvements is prohibited unless prior approval is obtained from the AO of the BLM.
- Operator personnel and contractors will minimize contact with and avoid harassment of livestock.

Cumulative Impacts

While the impact of a single well pad would not necessitate a reduction in livestock AUMs in the allotment, if a large number of well pads are developed within the allotment in the future, then their impacts may cumulatively alter the availability of livestock forage to the point that a reduction of livestock AUMs may be necessary. If this occurs, then the BLM will address this issue through another environmental document, and associated decision.

Construction and operation would result in the temporary or permanent loss of 2.5 acres potentially impacting approximately 0.25 cattle AUMs on the allotment. Surface disturbance could reduce forage production, in the amount of forage feed to feed 1 cow and her calf for 7.5

days, until the disturbed areas are reclaimed and when a level of palatable native forage is re-established.

Surface disturbance could result in introduction and/or establishment of non-native and noxious weed species that are generally unpalatable to livestock and wildlife. The Proposed action could replace native vegetation communities reducing forage available to both livestock and wildlife.

Increased vehicle traffic in the area could result in increased vehicle livestock collisions, resulting in loss of livestock.

No impact on livestock movement or distribution is expected.

Alternative 2 – No Action Alternative

Under the No Action Alternative, this project would not be constructed or operated. No project-related disturbances would occur.

4.1.5 Soils

Alternative 1 – Proposed Action

Implementation of the Proposed Action would result in 2.5 acres of initial surface disturbance that would remove vegetation and leave exposed soil susceptible to erosion. Impacts include the short-term and long-term increased potential changes in water holding capacity of soils, changes in visual aesthetics of an area, soil exposure, mixing of soil horizons, soil compaction, loss of topsoil productivity, and an increase susceptibility of the soil to wind and water erosion. These impacts could increase runoff, erosion, and off-site sedimentation. Indirect impacts could result in spreading and increased occurrence of non-native invasive weed species.

Erosion could impede successful reclamation efforts, reduce site productivity, and impair water quality and air quality. Implementation of storm water controls and BMPs could reduce erosion. Additionally, gravel surfacing of the road and re-vegetation may minimize erosion.

Alternative 2 – No Action Alternative

Under the No Action Alternative, this project would not be constructed or operated. No project-related disturbances would occur.

4.1.6 Vegetation

Alternative 1 – Proposed Action

Construction of the Proposed Action would disturb 2.5 acres of vegetation. If the well is not successful, reclamation would begin immediately. If the well is successful interim reclamation would begin immediately also, depending on weather. The successful implementation of interim reclamation and revegetation actions on those disturbed areas not directly needed for production activities would reduce these direct impacts. The remaining acreage would remain devoid of

vegetation until completion of the project and final successful reclamation and revegetation. Both the total estimated short-term disturbance and the long-term disturbance acreage would be less than 1 percent of the public lands within the Lyman Cattle Allotment area.

Implementation of the Proposed Action could increase the potential for introduction and expansion of non-native, invasive plant species, reduce plant vigor due to changed soil characteristics, alternative species composition, change vegetation densities, reduce forage for wildlife, and reduce water holding capacity of soils. The duration and magnitude of these impacts on vegetation would depend on the success of reclamation, monitoring, and weed control measures.

Vegetation would be affected by wind-blown dust coming from bare ground on the well pad and access roadways. Dust would settle on the vegetation interfering with its natural transpiration actions, thus affecting this vegetation's affect its long-term health.

Non-native Invasive Species

Both short-term and long-term impacts could result in an increased occurrence of these species within the analysis area. Vegetation removal and soil disturbance during construction could create optimal conditions for the establishment of non-native, invasive plant species. Unwashed construction equipment or vehicles transporting noxious weed-inoculated soil or plant materials into previously un-infested areas, off-road driving and improper maintenance of temporary construction areas could result in the introduction or spread of noxious weed species. In addition, the linear nature of the road and pipeline disturbances can increase the introduction of noxious weed species into adjacent native plant communities.

Noxious weed species generally are fast-growing and could displace native species and inhibit the re-establishment of native grass, forb, and shrub species within the proposed surface disturbance areas. Impacts to the vegetation may persist for years after the original disturbance due to the sensitivity of the soils types and the moderate reclamation potential for this area. The location may require additional seed applications and erosion control methods after the 30 year life of the well. Implementation of the weed control plan and the following mitigation measures would minimize the potential for the establishment of noxious weeds.

Alternative 2 – No Action Alternative

Under the No Action Alternative, this project will not be constructed. Land uses will remain essentially the same. No project-related disturbance will occur to vegetation and soils. Impacts will continue at present levels as a result of natural conditions and existing development in the project area.

4.2 Cumulative Effects

Cumulative Analysis

Cumulative impacts are those effects to the human and natural environment that would potentially result from the incremental impacts of the Proposed Action when added to non-project-related impacts resulting from past, present, or reasonably foreseeable actions.

Past and existing activities within or in the vicinity of the Proposed Action that BLM has determined would have a major influence on the resources in the area include:

- Potential development of the Yellowspur Federal #1 area and full field development. Depending on spacing orders as defined by the Wyoming Oil and Gas Conservation Commission, there would be a yet undetermined number of wells and associated acres of initial disturbance if the Unit were fully developed.

- Disturbance from a gas gathering pipelines if the well is productive.

- Disturbance from additional pipelines right-of-ways and roads associated with future well development within the Unit.

Cumulative Impacts to Individual Resources

Cumulative effects are those determined by summarizing the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions in the Area of Influence (AOI). The AOI varies by resource. Cumulative effects can be identified both quantitatively and qualitatively, by magnitude of single actions, by the number of single actions combined, and by a time period in which the actions occur and have an effect on the environment. Unless otherwise noted, the AOI for this analysis is the combined width and length of past, present, and future activity for the Proposed Action.

4.2.1 Air Quality

Construction and reclamation activities are expected to produce dust, and vehicle emissions during the hours of operation for the length of the project. These activities are expected to be short in duration and would not have long term effects.

4.2.2 Cultural Resources

The overall trend is loss of cultural resources due to development, public access, natural weathering, and erosion and fire to list a few examples. Cultural resources are a non-renewable resource, and the increase in oil and gas development with the associated roads and facilities has the potential to adversely impact the cultural landscape. The long-term cumulative impacts could occur due to the indirect impacts related to increased public access and vehicle traffic.

To remedy some of these potential impacts, the following mitigation measures noted below need to be stressed to the proponent and their subcontractors and informing them of their responsibilities to protect and report any cultural resources encountered on public land during operations.

4.2.3 Wildlife Resources

The cumulative loss, degradation, and fragmentation of habitat over time, would likely negatively impact populations of SSS in the area which include sage obligate songbirds, Greater Sage-grouse and Idaho pocket gophers. If development is maximized, some populations of sensitive species may even be eradicated by the reasonably foreseeable cumulative oil and gas development in and around the project area. On Federal lands, however, surveys or mitigation measures are required in potential and known habitats of species listed under the ESA. Surveys would help determine the presence of any listed species, and thus require protective measures to be taken including avoiding or minimizing disturbance in these critical areas.

4.2.4 Livestock Management

While the impact of a single well pad would not necessitate a reduction in livestock AUMs in the allotment, if a large number of well pads are developed within the allotment in the future, then their impacts may cumulatively alter the availability of livestock forage to the point that a reduction of livestock AUMs may be necessary. If this occurs, then the BLM will address this issue through another environmental document, and associated decision.

4.2.5 Soils

Implementation of the Proposed Action would result in 2.5 acres of surface disturbance that would remove vegetation and leave exposed soil susceptible to erosion. Impacts include the short-term and long-term increased potential changes in water holding capacity of soils, changes in visual aesthetics of an area, soil exposure, mixing of soil horizons, soil compaction, loss of topsoil productivity, and an increase susceptibility of the soil to wind and water erosion. These impacts could increase runoff, erosion, and off-site sedimentation. Indirect impacts could result in spreading and increased occurrence of non-native invasive weed species.

Erosion could impede successful reclamation efforts, reduce site productivity, and impair water quality. Implementation of storm water controls and BMPs could reduce erosion. Additionally, gravel surfacing of the road and re-vegetation may minimize erosion.

4.2.6 Vegetation

Construction of the Proposed Action would result in 2.5 acres of damage or temporary loss of vegetative cover and productivity. Reestablishment of vegetative cover and control of weeds would be conducted by the implementation of BMPs for reclamation and revegetation.

Non-native Invasive Species

Establishment of invasive weed species has resulted in an increase to the local and regional cumulative effects of undesirable plant species in native ecosystems. Invasive species have caused a decrease in habitat quality and quantity for wildlife and livestock throughout the area. Additional disturbances in the area will contribute cumulatively to the local and regional increase

in invasive weed populations by increasing soil vulnerability to invasion and increasing the vectors for the introduction of invasive species.

Vegetation would be affected by wind-blown dust coming from bare ground on the well pad and access roadways. Dust would settle on the vegetation interfering with its natural transpiration actions, thus affecting this vegetation's affect its long-term health.

Both short-term and long-term impacts could result in an increased occurrence of these species within the analysis area. Vegetation removal and soil disturbance during construction could create optimal conditions for the establishment of non-native, invasive plant species. Unwashed construction equipment or vehicles transporting noxious weed-inoculated soil or plant materials into previously un-infested areas, off-road driving and improper maintenance of temporary construction areas could result in the introduction or spread of noxious weed species. In addition, the linear nature of the road and pipeline disturbances can increase the introduction of noxious weed species into adjacent native plant communities.

Noxious weed species generally are fast-growing and could displace native species and inhibit the re-establishment of native grass, forb, and shrub species within the proposed surface disturbance areas. Establishment of invasive weed species has resulted in an increase to the local and regional cumulative effects of undesirable plant species in native ecosystems. Invasive species have caused a decrease in habitat quality and quantity for wildlife and livestock throughout the area. Additional disturbances in the area will contribute cumulatively to the local and regional increase in invasive weed populations by increasing soil vulnerability to invasion and increasing the vectors for the introduction of invasive species. Implementation of the weed control plan and the following mitigation measures would minimize the potential for the establishment of noxious weeds.

4.3 Mitigation Measures Considered

Mitigation Measures

The Proposed Action will incorporate standard and selective mitigation measures. Mitigation typically involves one or more of the following:

- Avoiding the impacts by not taking a certain action or part of an action;
- Minimizing impacts by limiting the degree of magnitude of the action and its implementation;
- Rectifying impacts by repairing, rehabilitating, or restoring the affected environment;
- Reducing the impact; and/or

- Compensating for the impact by replacing or providing substitute resources or environments.

Project–Specific Mitigation Measures

The project-specific mitigation measures are outlined below by resource, and will be applied to the standard mitigation and permit's conditions of approval (Appendix A and B).

4.3.1 Air Quality

- Use of a water truck for dust abatement, if dry conditions persist, to reduce air particulate matter would be required during construction and reclamation activities for the access road and well pad.

4.3.2 Cultural Resources

- The Operator is responsible for informing all persons associated with this project that they shall be subject to prosecution for damaging, altering, excavating or removing any archeological, historical, or vertebrate fossil objects or sites. If archeological, historical, or vertebrate fossil materials are discovered, the Operator is to suspend all operations that further disturb such materials immediately and contact the Authorized Officer. Operations are not to resume until written authorization to proceed is issued by the Authorized Officer.

  Within five (5) working days, the Authorized Officer will evaluate the discovery and inform the Operator of actions that will be necessary to prevent the loss of significant cultural or scientific values. The Operator is responsible for the cost of any mitigation required by the Authorized Officer. The Authorized Officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the Authorized Officer that the required mitigation has been completed, the operator will be allowed to resume operations.

- Any cultural and/or paleontological resources (historical or prehistoric site or object) discovered by the holder, or any person working on his behalf, shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

- Pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA), the operator shall notify the Authorized Officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or

objects of cultural patrimony. The Operator shall immediately stop all activities in the vicinity of the discovery and protect it until notified to proceed by the Authorized Officer.

- A barrier fence, composed of metal "stake" fence posts connected by a single, smooth wire that is marked with brightly colored flags or flagging tape, must be constructed on the north edge of the well pad, as shown on the attached well pad plat, for the purpose of restricting all surface disturbing activities to the well pad. The fence must be erected prior to initiation of well pad construction and must remain in place until after final well pad abandonment and reclamation are complete. All equipment associated with construction, operation, maintenance and reclamation of the well pad, reserve pit spoil pile, topsoil stockpile and associated facilities must remain on the authorized side of the barrier fence and shall not cross the fence for any reason.

4.3.3 Wildlife Management

- Construction, drilling, completion and surface disturbing or disruptive activities will be prohibited during the period from November 15 through July 15 for the protection of sage grouse winter range and nesting / early brood rearing habitat.

- Construction, drilling, completion and surface disturbing or disruptive activities will be prohibited during the period from April 10 through July 10 for the protection of Mountain Plover habitat.

4.3.4 Livestock Management

- Any gates, fences and cattle guards encountered will be repaired as soon as possible if damaged on public lands.

- Any gates along the access road and related facilities need to be left as is. If they are closed, close them; if open, leave them open.

4.3.4 Soils

- Off-road vehicle use is prohibited.

- Implementation of the Storm Water Pollution Prevention Plan to reduce soil loss to wind and water erosion.

- Use of locally-adapted seed source to improve overall revegetation success.

- Installation of water bars, as necessary.

- Topsoil will be spread in borrow ditches or windrowed to the side. Borrow areas will be reseeded.

- Use of water to abate fugitive dust and reduce wind erosion would be required during all construction and reclamation activities if dry conditions dictate.

- Use of a water truck for dust abatement, if dry conditions persist, to reduce wind erosion would be required during all construction and reclamation activities.

4.3.6 Vegetation

- No cross-country travel is permitted.

- Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment.

- Areas will be seeded at twice the application rate and covered 0.25 to 0.5 inches deep with a harrow or drag bar or into imprints such as fresh dozer cleat marks. Fall seeding is preferable and will be conducted after the first frost and no later than November 15.

- The Operator is responsible for total control of all invasive/noxious weed including halogeton on the disturbed areas. The Operator is responsible for consultation with the Authorized Officer and/or local authorities for acceptable weed control method. An intensive noxious and non-native invasive plant monitoring and control program will be implemented beginning the first growing season after interim and final reclamation. Noxious weeds will be treated immediately once identified and monitored. A Pesticide Use Proposal (PUP) will be submitted to the BLM for approval prior to use of herbicides. All reclamation equipment will be cleaned prior to use to reduce the potential for introduction of noxious weeds and non-native invasive plant species.

- Applicant-committed dust control activities would reduce the amount of fugitive dust that could settle on vegetation. Interim reclamation and revegetation actions would further reduce the amount of bare ground and the amount of fugitive dust that could settle on down-wind vegetation.

- To help prevent the spread of existing populations of invasive and/or noxious weeds, information on the more common species with potential for occurrence in the project area, including photographs, would be distributed to the Operator. Personnel would be instructed to avoid any populations of these species that they encounter, and asked to report the locations of the populations to the AO.

- Use of pesticides shall comply with the applicable federal and state laws. Pesticides shall be used only in accordance with their registered uses within limitations imposed by the Secretary of the Interior. Prior to the use of the pesticides, the Proponent shall obtain from the AO written approval of a plan showing the type and quantity of material to be

used, pest(s) to be controlled, method of application, locations of storage and disposal of containers, and any other information deemed necessary by the authorized officer.

- Applicator(s) of chemicals used must have completed the pesticide certification training and have a current up-to-date Certified Pesticide Applicators license.

5.0 TRIBES, INDIVIDUALS, ORGANIZATIONS, or AGENCIES CONSULTED

None

6.0 LIST OF PREPARERS

The issue identification section of Chapter 1.0 identifies those issues analyzed in detail in Chapter 4.0. The issues were identified through the public and agency involvement process described below.

Rich Fleming	BLM/KFO – Physical Scientist
Jeanne Cattelan	BLM/KFO – Land Law Examiner
Lynn Harrell	BLM/KFO – Archaeologist
Steven Calkum	BLM/KFO – Range Management
Kaisa McKenna	BLM/KFO – Realty
Larry Ashton	BLM/KFO – Wildlife Biologist

6.1 List of Reviewers

The persons involved in the review of this EA are identified below.

Travis Chewning	BLM / KFO Planning and Environmental Coordinator
William Mack	BLM / KFO Assistant FM Minerals & Lands
Kyle V. Hansen	BLM / KFO Acting Field Manager

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