KEG SPRINGS WELL PROJECT ENVIRONMENTAL ASSESSMENT

DOI-BLM-OR-B060-2013-0023-EA

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CHAPTER I: INTRODUCTION: PURPOSE OF AND NEED FOR ACTION 1

A. Introduction 1

1. Overview of Keg Springs Allotment #06029 1
2. Rangeland Health Assessment 1
3. Overview of East Warm Springs Allotment #07001 2
4. Rangeland Health Assessment 2

B. Purpose of and Need for Action 3

1. Goals and Objectives 3
2. Decision to Be Made 4

C. Conformance with Land Use Plans 4
D. Consistency with Laws, Regulations and Policies 5
E. Consistency with Sage-grouse Guidance 5
F. Issues Considered but not Analyzed Further 6

1. Wilderness Characteristics 6
2. Greenhouse Gas Emissions and Climate Change 7

CHAPTER II: ALTERNATIVES INCLUDING THE PROPOSED ACTION 7

A. Actions Common to All Alternatives 7

1. General Project Design Elements 7

B. Alternative A: No Action Alternative 9

C. Alternative B: Proposed Action – Well Installation 9

D. Alternative C: Water Hauling 10

CHAPTER III: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 11

A. Resources/Issues 13

1. Grazing Management and Rangelands 13
2. Migratory Birds 18
3. Noxious Weeds 19
4. Soils and Biological Soil Crusts 20
5. Special Status Species 23
6. Upland Vegetation 30
7. Wild Horses 32

8. Wildlife and Locally Important Species 36

B. Cumulative Effects....37

CHAPTER IV: CONSULTATION AND COORDINATION....38

A. List of Preparers....38
B. Persons, Groups and Agencies Consulted 39
C. Advisory....39
D. References....39

Map A – Keg Springs and East Warm Springs Allotment Overview....46
Map B – Keg Springs Existing Use Area 47
Map C – Keg Springs – Proposed Use Area....48

Appendix A: - Wilderness Characteristics Inventory for Keg Springs Area....49

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CHAPTER I. INTRODUCTION: PURPOSE AND NEED FOR ACTION

A. Introduction

The Burns District Bureau of Land Management (BLM) is proposing to drill a new well and install necessary infrastructure to provide water for two new 30-foot bottomless troughs; one in the Keg Springs Pasture of Keg Springs Allotment #06029 and the second in the Native Pasture of East Warm Springs Allotment #07001.

1. Overview of Keg Springs Allotment #06029

Keg Springs Allotment is located 54 miles south of Burns, Oregon, in Harney County, Oregon and managed by Andrews/Steens Resource Area of Burns District BLM (Map A). The allotment contains 40,665 acres of BLM-managed land and 503 acres of private land. The allotment is divided into two pastures: Keg Springs and Walls Lake Seed. The proposed well with fence exclosure, solar panel and self-containing mobile fuel type generator, 800 feet of new pipeline, and trough is located in the north end of Keg Springs Pasture. Keg Springs Pasture contains 35,012 acres of BLM-managed land, and 492 of private land respectively (Map B).

The Term Grazing Permit authorizes 1,791 Animal Unit Months (AUMs) of Permitted Active Use for cattle grazing on the allotment from February 1 to September 31 each year. Other forage allocations on the allotment include 16 AUMs for wildlife.

2. Rangeland Health Assessment

A BLM Interdisciplinary Team (IDT) completed an assessment of rangeland health standards during a 2006 Keg Springs Allotment Evaluation. The BLM IDT's rangeland health assessment for Keg Springs Pasture determined:

- Rangeland Health Standard #1 (Watershed Function – Uplands) is being achieved. Soil surface is stable, plant community is vigorous, and uplands are capturing, storing and releasing nutrients efficiently.
- Rangeland Health Standard #2 (Watershed Function – Riparian/Wetland Areas) not present.
- Rangeland Health Standard #3 (Ecological Processes) is being achieved. Site dominated by deep-rooted shrubs that produce abundant litter and transport nutrients at multiple soil levels.
- Rangeland Health Standard #4 (Water Quality) is not present

- Rangeland Health Standard #5 (Native, Threatened and Endangered and Locally Important Species) is being achieved. Site provides forage for pronghorn, mule deer, sage-grouse, and numerous sensitive reptile species.

Utilization of herbaceous vegetation in Keg Springs has remained light (<40 percent) to moderate (<60 percent) every year since 2000.

3. Overview of East Warm Springs Allotment #07001

East Warm Springs Allotment is located 36 miles South of Burns, Oregon, in Harney County and managed by Three Rivers Resource Area of Burns District BLM (Map A). The allotment contains 175,181 acres of BLM-managed land, 3,764 acres of private land, and 1,136 acres of Fish and Wildlife Service land. The allotment is divided into thirteen pastures: Northwest, Northeast, Middlewest, Middleeast, Southwest, Southeast, Saddle Butte Basin, Saddle Butte Highway, Plateau, Spite Field, Jack Creek, Weed Lake, and Native. The proposed pipeline and trough is located in the south end of Native Pasture. Native Pasture contains 145,585 acres of BLM-managed land, 78 acres Fish and Wildlife Service land, and 4,100 acres of private land respectively. This pasture lies within Warm Springs Wild Horse Herd Management Area (HMA).

The Term Grazing Permits authorize 7,593 AUMs of Permitted Active Use for cattle on the allotment from April 11 to August 31 each year. Other forage allocations on the allotment include 179 AUMs for wildlife and 1,200 AUMs for wild horses.

4. Rangeland Health Assessment

A BLM IDT completed an assessment of rangeland health standards during a 2004 East Warm Springs Allotment Evaluation. The BLM IDT's rangeland health assessment for Native Pasture determined:

- Rangeland Health Standard #1 (Watershed Function – Uplands) is being achieved. Vegetation in the allotment is progressing through seral stages in a predictable manner.
- Rangeland Health Standard #2 (Watershed Function – Riparian/Wetland Areas) is being achieved. Monitoring indicates improvement in riparian vegetation and stream bank stability since the Jack Creek Pasture was established in 1994.
- Rangeland Health Standard #3 (Ecological Processes) is being achieved. Plant roots are occupying the soil profile, organic matter is accumulating in the form of litter and is being incorporated into the soil, and there is good plant composition and community structure through the allotment.
- Rangeland Health Standard #4 (Water Quality) is not present.

- Rangeland Health Standard #5 (Native, Threatened and Endangered and Locally Important Species) is being achieved. Native plant community composition, age, class distribution and productivity are appropriate for the site potential of the allotment. Plant communities provide for habitat connectivity across most of the allotment.

Utilization of herbaceous vegetation in Native Pasture has remained light (<40 percent) to moderate (<60 percent) every year since 2000.

B. Purpose and Need for Action

The purpose of the action is to:

- Provide a reliable water source to aid in the prevention of wild horse, wildlife, and livestock use in the 2012 Miller Homestead Fire burn area.

- Provide a long-term reliable water source to wild horses, wildlife, and livestock to allow for greater distribution and more even utilization, upon return to normal grazing practices once fire recovery efforts are met.

The need for the action is:

- A reliable water source for wild horses, wildlife, and livestock is important to implement the Miller Homestead Fire Recovery Plan.

- Provide more uniform and evenly distributed utilization patterns within Native Pasture in East Warm Springs Allotment, and Keg Springs Pasture in Keg Springs Allotment, as a whole once fire recovery objectives have been met, by ensuring distribution of reliable water sources for livestock, wild horses, and wildlife.

1. Goals and Objectives

The objective of this project is to provide a reliable water source for continued use of Keg Springs and Native Pastures while the Miller Homestead Fire burned area recovers, to support the current grazing system, and provide water for wild horses, and wildlife once fire objectives have been met and the burned area is returned to normal grazing practices. The Action Alternative must meet the project objectives listed below, from the 2005 Andrews Management Unit Record of Decision (ROD) and Resource Management Plan (RMP) and the 1992 Three Rivers RMP/ROD. RMP direction:

The following objectives are from the 2005 Andrews Management Unit ROD and RMP.

- Manage mineral soil to limit accelerated erosion on critical sites, protect soil characteristics on noncritical sites, and maintain or improve existing infiltration and permeability rates (RMP-21).
- Manage vegetation to achieve and maintain healthy watersheds (RMP-24).
- Maintain or restore native vegetation communities through sound landscape management practices (RMP-30).
- Manage desirable nonnative seedings to meet resource objectives (RMP-30).
- Maintain a thriving natural ecological balance within HMAs (RMP-50).
- Maintain/improve year-round water sources to sustain wild horse herds (RMP-50).
- Provide for a sustained level of livestock grazing in the AMU, while meeting resource objectives and requirements for Standards and Guidelines (S&Gs) (RMP-54).
- Implement administrative solutions and rangeland projects to provide proper management for livestock grazing while meeting resource objectives and requirements for S&Gs (RMP-54).

The following objectives are from the 1992 Three Rivers Management Unit Record of Decision and RMP.

- Provide facilities and water sources necessary to ensure the integrity of the individual herds (Wild Horse and Burro Program, WHB 2.4, 1992 Three Rivers RMP/ROD, page 2-45).

The following resource objectives are from the 1993 East Warm Springs Allotment Management Plan (AMP) (most recent).

- A well is recommended to provide a dependable source of water to horse and livestock on native range (page 5)

2. Decision to be Made

Both the Andrews/Steens Resource Area and the Three Rivers Resource Area Field Managers are the responsible officials who will decide which alternative analyzed in this document best meets the purpose and need for action based on the interdisciplinary analysis presented in the Environmental Assessment (EA). The Field Managers will decide whether or not to construct range improvements and identify construction specifications of range improvements and measures (terms and conditions).

C. Conformance with Land Use Plans

The Proposed Action and alternatives are in conformance with the 2005 Andrews Management Unit RMP/ROD, and the 1992 Three Rivers RMP/ROD, even though they are

not specifically provided for, because they are clearly consistent with the RMP decisions outlined above under Section B.1.: Goals and Objectives.

D. Consistency with Laws, Regulations, and Policies

The Proposed Action has been designed to conform to the following documents, which direct and provide the framework for management of BLM lands within Burns District:

- Taylor Grazing Act (43 U.S.C. 315), 1934
- The National Environmental Policy Act (42 U.S.C. 4320-4347), 1970
- Wild Free-Roaming Horses and Burros Act (16 U.S.C. 1331-1340), 1971
- Federal Land Policy and Management Act (43 U.S.C. 1701), 1976
- Public Rangelands Improvement Act (43 U.S.C. 1901), 1978
- August 12, 1997 Standards for Rangeland Health and Guidelines for Livestock Management for Public Lands Administered by the BLM in the States of Oregon and Washington
- 1998 Burns District Noxious Weed Management Program EA (OR-020-98-05)
- Greater Sage-grouse and Sagebrush-steppe Ecosystems Management Guidelines (BLM-2000)
- BLM National Sage-grouse Habitat Conservation Strategy (2004)
- Protection, Management, and Control of Wild Free roaming Horses and Burros (43 CFR 4700), 2009
- Greater Sage-grouse Conservation Assessment and Strategy for Oregon (Hagen 2011)
- Keg Springs AMP, 1991
- East Warm Springs AMP, 1993
- State, local, and Tribal laws, regulations, and land use plans

E. Consistency with Sage-grouse Guidance

The Oregon Department of Fish and Wildlife (ODFW) published the first version of the Greater Sage-Grouse Conservation Assessment and Strategy for Oregon (Strategy) in 2005 (Hagen 2005) in cooperation with several state and Federal agencies and private landowners. The Strategy provided recommendations and guidance to land managers in the long-term conservation of Greater Sage-Grouse and sagebrush (*Artemisia* spp.) communities. BLM's Oregon State Office agreed to implement the Strategy wherever possible. The updated version of the Strategy (Hagen 2011), which introduced the core area approach for identifying important areas for Greater Sage-Grouse, was finalized in 2011. This version contained core area determination methodology, interpretation, and management recommendations.

Hagen (2011) considered and incorporated information from the Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitat (Greater Sage-Grouse Monograph) (Knick and Connelly 2011) as well as information from the United States Fish and Wildlife Service (USFWS) 12-Month Finding for Petitions to List Greater Sage-Grouse as it relates to sage-grouse populations and habitat into the current version of the

Strategy. The USFWS recognizes the Greater Sage-Grouse Monograph as the primary source of science range wide for the 12-Month Finding for Petitions to List Greater Sage-Grouse.

The BLM implements the Strategy in accordance with special status species (SSS) management policy in the revised BLM Manual 6840 (BLM 2008) and with Instruction Memorandum WO-2012-043, Greater Sage-Grouse Interim Management Policies and Procedures issued December 27, 2011. Analysis of the different alternatives for consistency with the Strategy, The Interim Management Policy and the BLM 6840 Manual are discussed in Chapter III, A. 5. Special Status Species – Wildlife.

F. Issues Considered but not Analyzed Further

1. Wilderness Characteristics

Wilderness characteristics outside of designated wilderness and existing WSAs will not be analyzed in this EA for the following reasons:

In 2002, BLM received citizen information submitted for the lands that currently do not have a WSA or wilderness designation within the Three Rivers Resource Area. The Oregon Natural Desert Association (ONDA) provided proposed WSA information to the Andrews Field Manager in September and November 2002. An IDT formed, developed a review protocol, reviewed the proposals, and made recommendations to the District Manager. The internal review was completed in August 2003. The BLM determined there have been no substantial changes from the original 1980 inventory that would result in a change in the BLMs determination that no wilderness characteristics were present. Pursuant to 40 C.F.R. § 1502.21, the BLM hereby incorporates its wilderness inventory update by reference. The wilderness inventory update considered the standard wilderness criteria of size, naturalness, and outstanding opportunities for solitude or primitive and unconfined recreation, as described in Section 2(c) of the Wilderness Act. The BLM used multiple resources to complete the wilderness inventory update, including an in-house IDT with field knowledge of the areas, aerial photographs, BLM databases containing records of Rights-of-Way, mineral leases, mining claims, road improvements, and vegetation treatments, and other tools to make their findings. BLM staff made site visits to the field where more information was needed to validate their inventory findings. No changes to conditions within Keg Springs Wilderness Inventory Management area (includes part of East Warm Springs Allotment) were identified that would modify the findings of the 1980 intensive inventory that had evaluated the presence of wilderness characteristics on BLM-administered lands, or the 2003 evaluation of this area (See Appendix A).

Therefore, wilderness characteristics have been determined not to be present and will not be analyzed in this EA.

2. Greenhouse Gas Emissions and Climate Change

Greenhouse Gas Emissions and Climate Change will not be analyzed in this EA for the following reason:

The Burns District has considered greenhouse gas emissions and climate change in several AMPs (Cluster AMP, page 6, 2011; Cottonwood Creek AMP, page 9, 2011; and Chalk Hills AMP, page 8, 2010) and all have concluded the emission does not merit reporting as they fall well below the threshold of 25,000 metric tons. Estimates for grazing cattle typically range from 80 to 101 kilograms of methane per year per animal (Environmental Protection Agency (EPA), 2009) or 6.7 to 9.2 kilograms of methane per month. This analysis will assume a methane emission rate of 8 kilograms of methane per AUM. Assuming that methane has a global warming potential 21 times carbon dioxide (EPA 2009, p. ES-3), each AUM results in 0.168 metric tons of carbon dioxide equivalent. In order to meet or exceed the 25,000 metric ton threshold, over 148,809 AUMs would have to be authorized. The total permitted AUMs within the Keg Springs and East Warm Springs Allotments fall well below this level.

Changes in greenhouse gas levels affect global climate. Forster et al. 2007 (pp. 129-234), reviewed scientific information on greenhouse gas emissions and climate change, and concluded that human-caused increases in greenhouse gas emissions are expected to have exerted a substantial warming effect on global climate. The U.S. Geological Survey (USGS), in a May 14, 2008 memorandum to the USFWS, summarized the latest science on greenhouse gas emissions and concluded that it is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate impacts at a specific location.

CHAPTER II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

Alternatives A through C have been fully analyzed in Chapter III of this AMP/EA. Following the second public review period for this document, a Proposed Decision will be made by the Field Managers, whom may choose to proceed with any one of the alternatives analyzed or a combination of portions of multiple alternatives.

A. Common to All Alternatives

1. General Project Design Elements

Project Design Elements (PDEs) were developed to aid in meeting project goals and objectives. These features are nonexclusive and are subject to change based on site-specific terrain characteristics (topography and vegetation).

a. Proposed rangeland improvement sites would be surveyed for cultural values prior to implementation. Where cultural sites are found, their

condition and *National Register* eligibility would be evaluated. If sites are determined to be *National Register* eligible, and under threat of damage, mitigation measures to protect cultural materials would be determined. Mitigation plans would be developed in consultation with the State Historic Preservation Office if necessary. Mitigation measures can include protective fencing, surface collection and mapping of artifacts, subsurface testing, and complete data recovery (full-scale excavation).

b. Proposed rangeland improvement sites would be surveyed for Special Status plant species prior to implementation. Special Status plant sites would be avoided.

c. New well with fence exclosure, solar panel and self-containing mobile fuel type generator, pipeline, and troughs would be constructed at least one km (0.6 mi.) from leks, in order to avoid concentration of livestock near leks, reduce collision hazards to flying birds, and eliminate avian predator perches.

d. The fence exclosure for the new well, constructed within 1.25 mile of a lek or known seasonal use area (i.e. well exclosure), would include plastic reflective clips on the wire to reduce mortality from sage-grouse hitting the fence.

e. No project construction or maintenance would occur April 1 through June 15 during sage-grouse nesting.

f. Proposed range improvement sites would be surveyed for noxious weed populations prior to implementation. Weed populations identified in or adjacent to the proposed projects would be treated using the most appropriate methods, in accordance with the 1998 Burns District Noxious Weed Management Program EA/Decision Record (DR) OR-020-98-05 or subsequent decision.

g. The risk of noxious weed introduction would be minimized by ensuring all equipment (including all machinery, 4-wheelers, and pickup trucks) is cleaned prior to entry to the sites, minimizing disturbance activities, and completing follow-up monitoring, to ensure no new noxious weed establishment occurs. Should noxious weeds be found, appropriate control treatments would be performed in conformance with the 1998 Burns District Noxious Weed Program Management EA/DR OR-020-98-05 or subsequent Decision.

h. The grazing permittee would be responsible for all fence maintenance. Proper fence maintenance would be a stipulation for turnout each year.

B. Alternative A: No Action

The well with fence exclosure, solar panel and self-containing mobile fuel type generator, pipeline, and troughs would not be installed, and no water source would be established in the Keg Springs Pasture of the Keg Springs Allotment or Native Pasture of the East Warm Springs Allotment. Current livestock management would continue within the same season of use with the same number of permitted AUMs. No water sources would be available to alter utilization patterns and aid in the prevention of wild horse and livestock from use in the burned portion of Keg Springs Pasture. There would also not be a new water source for wildlife, such as sage-grouse.

C. Alternative B: Proposed Action – Well Installation

The Proposed Action is to drill and case a well with fence exclosure, install a solar panel and self-containing fuel type generator, install 1600 feet of new pipeline, and place two associated new troughs within the Keg Springs Pasture of Keg Springs Allotment and within the Native Pasture of the East Warm Springs Allotment. The well would be located in the Keg Springs Allotment at W.M., T. 30 S., R. 29.5 E., section 28, NW1/4 SW1/4. The well would provide water to two new 30-foot bottomless troughs (one in Keg Springs Pasture and one in Native Pasture) through a new inlet pipe (800 feet each from the well to the trough for a total of 1600 feet of pipeline). The bottomless troughs would have a two to four feet concrete apron around the troughs. The project would not result in an increase in AUMs during the authorized period of use, nor would it alter grazing management specified in the AMPs.

Well drilling would be for typical water development; the well would be cased and sealed to prevent cave-ins and contamination, all State of Oregon water well drilling regulations would be adhered to, a safety device would be installed on any new power source(s) to prevent electrocution of raptors, and as stated prior the well would be fenced to be protected from livestock, wild horse, and wildlife trampling.

Heavy equipment (i.e. drill rigs, trenchers, etc…) and manual labor would be used during construction of these developments. All roads used for this project already exist on the ground and are maintained by the county except for one unnamed road. Roads needed for access may receive intermittent maintenance, which would generally consist of removing rocks, and filling/smoothing ruts or erosion areas in order to provide for safe passage by vehicles and heavy equipment. The well would be constructed with a drilling rig which would require a well pad that was level. If the well site does not have a level pad, an area no larger than 50 feet by 50 feet would be leveled to accommodate the equipment. Any needed materials (rocks or soil; for maintenance or construction activities) would be hauled in with a dump truck and would be weed free. The entire disturbed area would be seeded with a non-native seed mix, to increase the rate of recovery. Following seeding/rehabilitation of the disturbed site, the permanent footprint of the well site would be no more than 20 by 20 feet. The well would be cased and sealed to prevent cave-ins and contamination, all State of Oregon water well drilling regulations would be adhered to, a safety device would be installed on any new power

source(s) to prevent electrocution of raptors. Solar power, fuel type generators, or any combination of these would be used to power the pump for the well, in order to ensure the well can continue to operate under differing conditions. Specific design and sizes of the power source would be dependent upon the depth of the well, as would pump size. Panels for solar energy would be installed using a tractor with an auger. Poles would be eight inches in diameter and concreted in the ground; solar panels would be mounted upon the poles. Pole height would be as low as possible while still clearing vegetation and functioning properly. Solar panels vary in size from 16 to 40 inches in length by 40 to 70 inches in width. Reduced glare solar panels, would reduce visibility. Solar panels would only be utilized if the well has adequate water production. Fuel-powered generators would be less than 5,000 kilowatts. Generators would be expected to run 4 to 16 hours a day depending on water consumption, and may be audible up to one-quarter mile under some conditions. Technology is now available to use satellites to start, stop and notify when problems arise with the generators; timers are also available to control times when generators operate. This technology may be used if appropriate and feasible. The well head and power source would be fenced, following BLM standards for a four-strand barbed wire fence, to protect it from damage caused by livestock, wild horses, and wildlife species. The fence would be no more than 250 feet in total length. The fence exclosure would be the minimum needed to provide adequate protection for the well.

D. Alternative C: Water Hauling

The well would not be drilled; instead water trucks or tankers would be used to haul water to two new 30-foot troughs (which would still need to be constructed in this location). The bottomless troughs would have a two to four feet concrete apron around the troughs. Each water trough is about 10, 000 gallons of water. A 3,000 gallon tanker truck would be used to fill the troughs due to constraints of a two track; this would require about six trips, twice a week, with the nearest fill up spot about a thirty-mile distance one way. Assuming cattle within the pasture are lactating, they would require 20 gallons per day[1] (NRC, 2000) and 608 gallons per AUM. Assuming all 7,223 AUMs (5,432 on Native Pasture and 1,791on Keg Springs Pasture) are permitted, approximately 4,391,584 gallons of water would be needed. This would be approximately 1,464 water hauling trips to provide water for livestock. If wild horses or wildlife used the pipeline system, temperatures were higher, or the system remained "on" following livestock removal, more trips would be needed. This is an estimate, as many trips as would be needed to provide water would be authorized under this alternative. The existing roads would have to be maintained as needed in order to ensure that tanker truck would be able to access it. The two small spur roads to the troughs would be created by overland travel. This maintenance would occur as outlined under the Proposed Action. In addition to the described maintenance, additional work to provide adequate drainage off of and along the road would need to be done to ensure that water can be hauled even in wet/muddy conditions. This would be done by crowning the road, cleaning drainage ditches, installing water crossings or water bars, and hauling gravel or other material in trouble areas.

[1] Assuming a temperature of 70 degrees F. & 1,100 lb. cow.

CHAPTER III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This environmental consequences section presents the changes to the environment resulting from implementation of the alternatives. This chapter describes all expected effects, including direct, indirect, and cumulative effects, on resources from enacting the proposed alternatives.

Direct and indirect effects, plus past actions, become part of the cumulative effects analysis; therefore, use of these words may not appear. The Reasonably Foreseeable Future Actions (RFFAs) for this site are continued livestock grazing, wild horse use, weed treatments, road maintenance, and recreation activities; these are also relevant to cumulative effects and are discussed under each resource, as applicable.

The IDT reviewed resources/issues to determine if they would be affected by any of the alternatives. An IDT has reviewed and identified issues and resources affected by the alternatives. The results are summarized in the Table 1. Affected resources/issues are in bold.

Table 1: Resources/Issues

Resources/Issues	Status	If Not Affected, why? If Affected, Reference Applicable EA Section
Areas of Critical Environmental Concern (ACECs)	Not Present	There are no ACECs within the proposed project area.
Air Quality (Clean Air Act)	Not Affected	Department of Environmental Quality (DEQ) is responsible for air quality permit requirements at facilities and for operations in Oregon. DEQ currently requires no air quality permit for existing operations in the project area. The dust produced from range improvement construction, and vehicle use would be intermittent and not measurable.
American Indian Traditional Practices	Not Affected	No American Indian Traditional Practices areas are known to occur within the allotment.
Cultural Heritage	Not Affected	Proposed project site would be inventoried for cultural resources prior to implementation. National Register eligible sites would be avoided through project modification and if avoidance is not possible, mitigation measures would be developed in consultation with the State Historic Preservation Office.
Environmental Justice (Executive Order 12898)	Not Affected	The Proposed Action and alternatives would not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations; as such populations do not exist within the project area.
Farmlands (prime or unique)	Not Present	No concerns have been disclosed.
Fisheries	Not Affected	Since effects to fish species would be the result of effects to water quality (temperature or increased sediment), and water quality is addressed in the Riparian Zones, Wetlands, and Water Quality section of this document. No measurable effects to fish are anticipated for any of the alternatives.
Flood Plains (Executive Order 13112)	Not Present	There is no occupancy or modification of flood plains and no risk of flood loss.
Grazing Management and Rangelands	**Affected**	**See Chapter III, Part A.1.**
Hazardous or Solid	Not	No concerns have been disclosed.

Waste		Present	
Lands and Realty		Not Affected	No private lands, access, or other issues present.
Migratory Bird Treaty Act (Executive Order 13186)		**Affected**	**See Chapter III, Part A.2.**
Noxious Weeds (Executive Order 13112)		**Affected**	**See Chapter III, Part A.3.**
Paleontology		Not Affected	No alternative would have an affect beyond what has occurred in the past.
Recreation and Visual Resources		Not Affected	No changes to general recreational setting or access routes would occur. The Project Area is Visual Resource Management (VRM) Class IV for both Andrews and Three Rivers Resource Areas. The Proposed Action would result in a slight change in the landscape character, but would not dominate the view of the casual observer, as consistent with VRM IV objectives.
Riparian Zones, Wetlands, and Water Quality (Executive Order 11990)		Not Affected	No surface water is present in the pasture. No perennial streams or riparian areas exist within the allotment.
Social and Economic Values		Not Affected	The work would be performed by the BLM. There may be some opportunities for economic input into the County from contracted work or purchase of supplies; however, affects would not be measurable.
Soils and Biological Soil Crusts (BSCs)		**Affected**	**See Chapter III, Part A.4.**
SSS and Habitat	**Wildlife**	**Affected**	**See Chapter III, Part A.5.**
	Plants	Not Affected	If SSS plants are found during the botanical clearance, these sites would be avoided.
	Fish	Not Affected	Since effects to salmonid species would be the result of effects to water quality (temperature or increased sediment), and water quality is addressed in the Riparian Zones, Wetlands, and Water Quality section of this document. No measurable effects to salmonid species are anticipated for any of the alternatives.
T/E Species or Habitat	Wildlife	Not Present	There are no known T/E species found within the allotment.
	Plants	Not Present	No known T/E species or critical habitats are found within the project area.
	Fish	Not Present	There are no T/E Fish Species or Habitat within the allotment.
Upland Vegetation		**Affected**	**See Chapter III, Part A.6.**
Wild Horses		**Affected**	**See Chapter III, Part A.7.**
Wild and Scenic Rivers (WSRs) / Wilderness		Not Present	None in the area.
Wilderness Study Areas (WSAs)		Not Present	None in the area.
Wilderness Characteristics		Not Present	None in the area.
Wildlife / Locally Important Species and Habitat		**Affected**	**See Chapter III, Part A.8.**

A. Resources/Issues

1. Grazing Management and Rangelands

Affected Environment: Grazing Management and Rangelands

The proposed well, solar panel and generator, pipeline, and one trough site is located within the Keg Springs Pasture of Keg Springs Allotment. Livestock are currently authorized to graze the allotment from February1 to September 31. The second trough site is located in the Native Pasture of the East Warm Springs Allotment. Livestock are currently authorized to graze the allotment from the first part of April to August 31. These seasons of use allow for the use in each pasture to be rotated, conforming to guidelines; however, in order for livestock to graze in the late summer and fall, reliable water has to be available.

Research has found that "[t]he location and number of watering points on grazing lands are important in controlling the movement, distribution and concentration of grazing animals" (Vallentine 2001). In many rangelands, the poor distribution of water is the main cause of poor livestock distribution (Holecheck et al. 2004). Most ungulates focus their feeding strategies around available free standing water, making the water their "home place" (Stuth 1991). When water is limiting and poorly distributed in an area, sacrifice areas around watering areas often occur due to the increased presence of livestock at the water source (Holecheck et al. 2004). Stuth (1991) found the optimum grazing area is located in a 0.5-mile radius around the water. In general, data shows livestock would travel up to two miles to access water (George et al. 2007, Ganskopp 2011, Holechek et al. 2001). Miller (1983) found cattle generally stayed within three miles of water sources during the summer. Holechek et al. (2001) found cattle would regularly utilize rangelands within one mile of water, but utilization would decline by about 50 percent between one and two miles from water. Holecheck et al. (2004) suggests that utilization around a water source can be as high as 100 percent directly next to the source, to over 50 percent 200 yards away from the water source, and decreasing further as distance from the water source increases. Valentine (1947) found at the water source, utilization was usually around 65 percent, and decreased to approximately 55 percent at 0.2 mile from the water and 50 percent at 0.4 mile from the water, and continued to decrease as distance increased. While the actual level of use depends on other factors such as stocking rate and other water source availability, the pattern described above is the normal pattern around water sources (Cook 1966).

Since the diet selection of grazing animals can by very complex, and often related to factors such as breed and experience, it is expected that the majority of palatable plants occur at greater distances from water, since over time, those closest to water are repeatedly grazed at a higher level of utilization (Winder et al. 1996). However, roughness, steep topography, down timber, dense vegetation, weather, pests, and vegetation are a few of the other factors that can influence the

distance livestock would travel for forage from water sources (George et al. 2007, Holechek et al. 2001, Stuth 1991, Cook 1966). All these factors are interrelated and play a role in feeding site selection, distribution, and utilization, which result in some degree of patchiness even when resources such as water are not limiting (Vavra 2005).

Water development placement can be used to alter habitat attributes of an area by changing or increasing the availability of a resource (Launchbaugh and Howery 2005), altering the landscape causing herbivores to adjust their grazing tactics (Stuth 1991), encouraging more uniform distribution. When cattle have uneven distribution, they over-graze preferred areas while other areas receive little use (Bailey et al. 2001). This over-grazing results in ecosystem degradation under some circumstances (Coughenour 1991, Bailey et al. 1996). However, some level of uneven grazing is often required in order to maintain the early or late seral habitat often required by some wildlife such as sage-grouse (Bailey et al. 1996). For utilization to be the same level across a pasture, grazing animals must have access to all forage, and be forced to utilize both palatable and unpalatable species, with no topography, cover, or water factors limiting use (Coughenour 1991). In order for this to occur, heavy utilization would be required, and realistically, this is only possible in small pastures with large stocking rates over long-periods (Coughenour 1991). In addition to defoliation, livestock also cause some patchiness by the redistribution of nutrients including urine and dung depositions, and trampling (Archer and Smeins 1991). Therefore, ultimate even distribution is unrealistic. Grazing management should focus on scattering livestock across the pasture in the vicinity of required resources, promoting the light to moderate use of all areas available to grazing animals, and minimizing the areas of heavy use caused by limiting resources or abiotic factors. The desired level of even distribution would still result in some patchiness due to grazing animals being selective for palatable species and green plants.

Wild horses are present in the East Warm Springs Allotment year round, requiring reliable water in the late summer and fall, and in drought years, even when livestock are not present. As the unreliable or variable water sources dry-up, wild horses and livestock are forced to congregate at fewer water sources. This concentration of wild horses and livestock causes increased utilization of upland and riparian vegetation around water sources, often to the point of heavy or severe utilization (61 to 100 percent). This is due to cattle normally choosing to focus grazing on flatter ground located near water before grazing steeper, rougher areas located further from water (Cook 1966).

DelCurto et al. (1999) found cattle with access to offstream water and supplements displayed a more even average distance from streams, than those without offstream water, which moved closer to the stream throughout the day. Other research suggests alternative water sources were over 99 percent effective in attracting the grazing animals away from the riparian areas during the period when thirst was the driving factor for animals (instead of hunger or loafing), and

that it was over 89 percent effective in drawing animals away from the stream for loafing purposes (Miner et al. 1992). Other factors that affect grazing within riparian areas include alternative water availability, shade sources, salt and minerals, fences, kind and class of livestock, experience, and the presence of a rider or herder (Myers 1989). A research review was found to support the view water developments outside of riparian areas reduces both grazing use and the amount of time spent in riparian areas (George et al. 2011). Godwin and Miner (1996) also found that offstream water can decrease not only the time livestock spend in riparian areas, but it can reduce water quality impacts caused by grazing of livestock and horses. This is seen most when the alternative water source is located on gentle slopes in an area easily accessible to livestock (George et al. 2011).

Keg Springs Allotment

Providing an additional reliable water source would allow management to implement the grazing management designed in the AMP. Under this rotation, herbaceous plants would be provided growing season rest every year within this pasture, and rangeland conditions would be maintained or improved. Providing an additional water source would improve livestock distribution increasing the portion of the forage available as estimated based on the 2-mile radius from water (see Map C – Proposed Action Use Area). This would increase the available area of forage from the existing 7,272 acres to 12,118 acres (an increase of 4,846 acres) based upon a 2-mile radius around water sources. The new well would increase the amount of truly reliable water, as the well would be able to be pumped at any time of year, even in drought years when normally reliable water sources dry. The AUMs would remain the same as are on the term permit. The overall utilization would remain the same; however, it would be more widely distributed throughout the allotment with another available water source to be used by wildlife and livestock.

East Warm Springs Allotment

Providing an addition water source would improve livestock and horse distribution within the East Warm Springs Allotment. This would increase the available area of forage from the existing 58,953 acres to 64,503 acres (an increase of 4,846 acres) based upon a 2-mile radius around water sources (see Map C – Proposed Action Use Area). This would allow the existing use to be spread out over more area and reduce the amount of "hotspot" areas as a result of grazing. The new water source, fed by the well, would be truly reliable as water would be able to be pumped during any time of the year; even in drought years where other types of water sources would dry up. The AUMs would remain the same as authorized by the term permit. Utilization would be more widely distributed throughout the allotment with another available water source to be used by wildlife and livestock. The overall number of livestock would remain the same.

Environmental Consequences: Grazing Management and Rangelands

Effects Common to All Alternatives: Grazing Management and Rangelands

For the purposes of this analysis, the Cumulative Effects Analysis Area (CEAA) for livestock grazing management consists of the Keg Springs Allotment and East Warm Springs Allotment. Past and present actions, such as those described in *Affected Environment Grazing Management*, have influenced the existing environment within the CEAA.

RFFAs in the CEAA that may contribute to cumulative effects to livestock grazing include livestock grazing under the current permits, ongoing maintenance of existing range improvements, wild horse utilization, periodic wild horse gathers to maintain horse numbers within the Appropriate Management Level (AML), wildlife use, hunting and other recreational pursuits, and ongoing noxious weed treatments.

All alternatives would achieve the Andrews Management Unit RMP (p. 54) objective to "Manage for a sustained level of livestock grazing while maintaining healthy public land resources," but some degree of uncertainty would remain with respect to full use of authorized AUMs from year-to-year and would require an increased level of monitoring to make sure ecological damage did not occur if use areas turn out to be much smaller than the estimated two miles.

Alternative A: No Action: Grazing Management and Rangelands

The grazing rotation planned for in the AMPs would not be fully implemented, as lack of water does not allow for distribution of livestock throughout portions of the pasture. The permittees would continue to take partial nonuse or complete rest within Keg Springs and Native pastures. Livestock distribution would not improve and utilization would remain concentrated around the limited existing water sources. The Emergency Stabilization and Rehabilitation fire rehabilitation plan will be implemented. There will be no livestock grazing until vegetative objectives have been met. If after two growing seasons objectives are not met, the probability of success would be reevaluated and new management actions would be considered following appropriate National Environmental Policy Act (NEPA) analysis.

Vegetation outside of the current use areas would only be grazed by wildlife, with occasional wild horse and livestock utilization. This may increase the fine fuel load in these areas, increasing the risk of wildfire spread, as well as allowing previous years' growth to remain on the plant, over many years this may increase the decadence of the plant as the old growth prevents some new growth from developing (Oesterheld and McNaughton 1991), especially where no fire or other event has occurred, which would remove accumulations of dead material.

Alternative B: Proposed Action: Grazing Management and Rangelands

Providing an additional reliable water source would allow management to implement the grazing rotations called for in the AMPs and the fire rehabilitation plan. Under these rotations, rangeland conditions would be maintained or improved. Providing an additional water source would improve livestock distribution and utilization levels would decrease around the existing water sources within the Keg Springs and Native pastures.

Livestock, wild horses, and wildlife would have improved distribution and utilization patterns due to the increased number of water sources available and the presence of water sources within the area of the northern portion of the Keg Springs Allotment and southern portion of the East Warm Springs Allotment, which currently receives little use due to lack of reliable water. The presence of the new well would increase the amount of truly reliable water, as the well would be able to be pumped at any time of year, even in drought years when normally reliable water sources dry.

Alternative C: Water Hauling: Grazing Management and Rangelands

The effects of this alternative would be similar to the Proposed Action. However, this alternative would create more disturbances due to the increased traffic on the haul roads. This alternative would also only provide a water source during the active grazing season, as there would be no water hauled at other times of the year due to access problems on existing road infrastructure. A 3,000 gallon tanker truck would be used to fill the two troughs due to constraints of a two track. Assuming cattle within the pastures are lactating, they would require 20 gallons per day[2] (NRC, 2000) and 608 gallons per AUM. Assuming all 1791 AUMs are permitted, approximately 1,088,928 gallons of water would be needed. This would be approximately 363 water hauling trips to provide water for livestock. If wild horses or wildlife used the pipeline system, temperatures were higher, or the system remained "on" following livestock removal, more trips would be needed. This is an estimate, as many trips as would be needed to provide water would be authorized under this alternative. The roads would have to be maintained as needed in order to ensure that tanker truck would be able to access it. This maintenance would occur as outlined under the Proposed Action. In addition to the described maintenance, additional work to provide adequate drainage off of and along the road would need to be done to ensure that water can be hauled even in wet/muddy conditions. This would be done by crowning the road, cleaning drainage ditches, installing water crossings or water bars, and hauling gravel or other material in trouble areas. With the amount of estimated trips needed and the cost associated with road maintenance the water hauling idea would not be economically feasible to the permittees. Also if water hauling is feasible there is a chance that if the hauling did not keep up with demand that livestock, wild

[2] Assuming a temperature of 70 degrees F. & 1,100 lb. cow.

horse, and wildlife would move out of the area and potentially overstock other areas with reliable water or in the case of a drought year running out of water might be life threatening to livestock, wild horse, and wildlife.

2. Migratory Birds

Affected Environment: Migratory Birds

Migratory bird species use suitable habitat, described below, in this allotment for nesting, foraging, and resting as they pass through on their yearly migrations; however, no formal monitoring for migratory birds has been conducted on this allotment. Habitat in the allotment consists primarily of low sagebrush grasslands, big sagebrush grasslands, and juniper-sagebrush. Migratory birds use all habitats in the Project Area with some birds being habitat specific while others use a variety of habitats. Species associated strongly with sagebrush include Brewer's sparrow (*Spizella breweri*), sage thrasher (*Oreoscoptes montanus*), loggerhead shrike (*Lanius ludovicianus*), and sage sparrow (*Amphispiza belli*). Woodland species include gray flycatcher (*Empidonax wrightii*), northern flicker (*Colaptes auratus*), American kestrel (*Falco sparverius*), western wood-peewee (*Contopus sordidulus*), and chipping sparrow (*Spizella passerine*). Species often found in two or more habitats include American robin (*Turdus migratorius*), brown-headed cowbird (*Molothrus ater*), lark sparrow (*Chondestes grammacus*), and western meadowlark (*Sturnella neglecta*). Nest locations vary by species with some species being ground nesters, while others prefer to nest in shrubs or trees.

Environmental Consequences: Migratory Birds

Alternative A: No Action: Migratory Birds

No well project would be completed, no new water sources would be provided. There would be no disturbance to migratory birds or their habitat. The increased use or expansion of some migratory bird habitat would not be realized.

Alternative B: Proposed Action: Migratory Birds

Construction activities would take place (July to October) after the nesting season (April to June) to reduce disturbance to nests. Ground and shrub nesting species, such as sage thrasher and loggerhead shrike, would have the greatest risk of disturbance due to cattle grazing in unused areas, though the increased distribution would result in lower numbers of cattle in one area at one time, thus reducing the likelihood of trampling. Observed nests would be avoided, but some birds (late nesting or those that are re-nesting) may still be flushed off nests or out of the immediate area during construction. Approximately 0.68-acre of vegetation between the well and proposed trough would be disturbed during pipeline installation. Seeding the disturbed area would aid in recovery of this

area. Some bird species may expand or increase use of the area with the addition of a water source, but overall densities will not increase since the nearest water source is less than a mile and most birds can easily travel this distance.

Season of livestock use would not change under this project, but the additional water source may increase use along the northern portion of the allotment. However, maintaining utilization at or below target utilization levels set for the allotment would continue to maintain adequate plant species and structural diversity for migratory birds. Escape ramps would be installed in the troughs to prevent drowning.

Alternative C: Water Hauling: Migratory Birds

The effects of this alternative would be similar to the Proposed Action. However, this alternative would create more disturbances due to the increased traffic on the haul roads, which would be spread across a greater area. The need for several trips (about 12) a week throughout the gazing period would increase vehicle strikes to migratory birds. The noise disturbance could impact nesting migratory birds during the time the vehicle(s) use. This alternative would also only provide a water source during the active grazing season, as there would be no water hauled at other times of the year due to access problems on existing road infrastructure. The Proposed Action, in conjunction with RFFAs (livestock grazing, wild horse gathers, etc.); would have no effect to neo-tropical migratory birds when S&Gs are being met.

3. Noxious Weeds

Affected Environment: Noxious Weeds

There are currently no known infestations of noxious weeds in the Project Area. This general area is known to be free of weeds. There are a few known weed infestations along some of the roads in the allotments. They have been treated. If any new populations of noxious weeds are found during the site-specific clearances for the project, they would be treated using the best available methods prior to initiating the project.

Environmental Consequences: Noxious Weeds

Alternative A: No Action: Noxious Weeds

This alternative would not involve any new disturbance, thereby reducing the risk of new weed introductions at this specific location. The existing water sources would continue with the level of use they are currently receiving

Alternative B: Proposed Action: Noxious Weeds

The Proposed Action would provide water sources where there currently are none. This could lead to livestock concentrations in areas not currently receiving that level of use. Areas immediately adjacent to the troughs would experience increased ground disturbance due to livestock congregation, which provides more opportunities for noxious weed introduction and spread. Heavier grazing utilization within one mile of the new water sources is possible. This could create increased opportunities for new weed introductions or spread of existing weed infestations. On the other hand, by providing an additional water source, livestock distribution throughout the pastures would become more dispersed, which would reduce the level of disturbance at the existing water sources, reducing opportunities for new weed introduction and spread.

Approximately 0.25-acre of localized ground disturbance (soil displacement/vegetation trampling) would occur from drilling the well and installing the pipeline that would connect the well with the storage tank. This could lead to establishment of weeds in these areas. However, this disturbance would be reduced by incorporating project design features.

For the purposes of this analysis, the CEAA for noxious weeds is at the allotment scale. The only reasonably foreseeable future activity affecting noxious weeds is ongoing monitoring and treatment of noxious weeds under EA-OR-020-98-05. No noxious weeds have been documented around existing water developments within the allotment. There would be no measureable effects to noxious weeds from drilling Adrian Well.

Alternative C: Water Hauling: Noxious Weeds

The effects of this alternative would be similar to the Proposed Action. However, this alternative would create more disturbances due to the increased traffic on the haul roads, which would be spread across a greater area, resulting in a larger risk of new weed introductions throughout the allotments.

4. Soils and Biological Soil Crusts

Affected Environment: Soils and Biological Soil Crusts

The dominate soil association in the project area is Poujade-Ausmus-Swalesilver. This association consists of very deep, somewhat poorly to moderately well drained soils formed from lacustrine deposits derived from volcanic rocks and ash. The complex consists of very fine sandy loams to ashy silt loams and are generally found on low lake terraces and depressions on plateaus with slopes ranging from 0 – 5 percent. These soils are susceptible to frequent ponding from November through May, depending on the annual precipitation. Native vegetation associated with this complex is basin big sagebrush (Artemisia

tridentata tridentata), black greasewood (*Sarcobatus vermiculatus)*, basin wildrye (*Leymus cinereus)*, inland saltgrass (*Distichlis spicata)*, silver sagebrush (*Artemisia cana)*, Sandberg's bluegrass (*Poa secunda*), creeping wildrye (*Leymus triticoides)*, and mat muhly (*Muhlenbergia richardsonis).*

Identification of BSCs at the species level is often not practical for fieldwork. The use of some basic morphological groups simplifies the situation. Morphological groups are also useful because they are representative of the ecological function of the organisms (pg. 6, TR-1730-2). Using a classification scheme proposed in 1994 we can divide microbiota such as BSCs into three groups based on their physical location in relation to the soil: hypermorphic (above ground), perimorphic (at ground) and cryptomorphic (below ground). The morphological groups are:

1. Cyanobacteria - Perimorphic/cryptomorphic.
2. Algae - Perimorphic/cryptomorphic.
3. Micro-fungi - Cryptomorphic/perimorphic.
4. Short moss (under10mm) - Hypermorphic.
5. Tall moss (over 10mm) - Hypermorphic.
6. Liverwort - Hypermorphic
7. Crustose lichen - Perimorphic.
8. Gelatinous lichen - Perimorphic.
9. Squamulose lichen – Perimorphic.
10. Foliose lichen - Perimorphic.
11. Fruticose lichen - Perimorphic.

Morphological groups 4, 5, 7, 8 and 9 are expected be the dominant groups represented in the project area. Depending on precipitation amounts and microsites, groups 6, 10 and 11 may also be well represented where the site specific conditions required for their growth exist. Morphological groups 1, 2 and 3 are difficult to discern in the field as they require specialized tools which are not easily useable in the field. Soil surface microtopography and aggregate stability are important contributions from BSCs as they increase the residence time of moisture and reduce erosional processes. The influence of BSCs on infiltration rates and hydraulic conductivity varies greatly; generally speaking infiltration rates increase in pinnacled crusts and decrease in flat crust microtopography. The northern Great Basin has a rolling BSC microtopography and the infiltration rates are probably intermediate compared to flat or pinnacled crustal systems. Factors influencing distribution of BSCs (TR-1730-2) include, but are not limited to: elevation, soils and topography, percent rock cover, timing of precipitation, and disturbance.

For the purposes of this analysis, the CEAA for soils/BSCs is at the allotment scale. Past ground-disturbing activities which could affect soils/BSCs within the allotment include the construction of range improvement projects, livestock grazing, wild horse use, recreation and hunting.

Environmental Consequences: Soils and Biological Soil Crusts

Alternative A: No Action: Soils and Biological Soil Crusts

There would be no direct or indirect impacts to soil or BSCs under this alternative. Current utilization patterns surrounding existing water sources would continue and there would be no new soil compaction or loss of BSCs a result of not drilling the well or installing the troughs. Existing trailing routes would continue to be utilized.

Alternative B: Proposed Action: Soils and BSCs

Livestock and wild horses would congregate around the new troughs in the Keg Springs and Native Pastures creating an area of at least 0.18-acre where soils would become compacted and BSCs would be removed. Compaction of soils and instances of complete removal of BSCs would decrease with distance from the troughs. New trailing routes to and from the troughs would be developed compacting soils and removing BSCs along the routes. Within one season of use, patterns would be established and routes would be highly visible across the landscape. Disturbance to BSCs, such as breakage, outside the congregation areas would occur as livestock and wild horses utilize the surrounding vegetation. Soils may experience disturbance; however, the microtopography created by hoof prints scattered across the landscape may increase infiltration of precipitation with an overall benefit to vegetation across the landscape.

For the purposes of this analysis, the CEAA for soils/BSCs is at the pasture scale. Past ground-disturbing activities which could affect soils/BSCs within the pastures include the construction of range improvement projects, livestock grazing, wild horse use, recreation and hunting.

Alternative C: Water Hauling: Soils and BSCs

The effects of this alternative would be similar to the Proposed Action with the exception of the developing well-traveled access routes to both troughs. Soils along the access routes would be compacted and BSCs would be removed. Impacts would be long term, 10+ years. This alternative would only provide a water source during the active grazing season, as there would be no water hauled at other times of the year due to access problems on existing road infrastructure. The disturbance associated with the development of the well would not occur.

5. Special Status Species

Affected Environment: Special Status Species-Wildlife

Greater Sage-Grouse (*Centrocercus urophasianus*) are sagebrush obligates, and Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) are present in the allotments. The entire project area is within PPH. There is one sage-grouse lek present in the Keg Springs Allotment and 13 leks in the East Warm Springs Allotment; the nearest sage-grouse lek is approximately 3.8 miles to southeast (Keg Springs) and 3.6 miles northwest (Trainer Playa #2) of the proposed well site. Rangeland conditions are currently meeting Rangeland Health S&Gs, and are adequate to meet the needs of sage-grouse in the allotment (Hagen 2005).

Table 2: Greater Sage-Grouse habitat by type in Keg Springs Allotment.

Greater Sage Grouse (*Centrocercus urophasianus*) Habitat	**Acres**	**Percent**
Preliminary Priority Habitat (PPH)	40,177	97.6%
Preliminary General Habitat (PGH)	995	2.4%
Total	41,172	100%

Table 3: Greater Sage-Grouse habitat by type in East Warm Springs Allotment.

Greater Sage Grouse (*Centrocercus urophasianus*) Habitat	**Acres**	**Percent**
Preliminary Priority Habitat (PPH)	120,520	62.5%
Preliminary General Habitat (PGH)	62,643	32.5%
Total	192,683	100%

Approximately 2.4 percent of the area is designated PGH, and 97.6 percent of the area is designated PPH in the Keg Springs Allotment. Approximately 32.5 percent of the area is designated PGH, and 62.5 percent of the area is designated PPH in the East Warm Springs Allotment (ODFW 2011). About 45 percent (18,530 acres) of the Keg Springs Allotment and 56.9 percent (109,581 acres) of the East Warm Springs Allotment is within three miles of a lek site. Approximately 65 percent of nests were within two miles of a lek and 83 percent were within 3 miles of a lek. Nest sites were determined to be located mostly in big sagebrush/mountain shrub vegetation types with about one-third of nests occurring in low sagebrush sites (Crawford et al., 2000). Since most sage-grouse hens nest during late March to early April, new growth on perennial grasses is minimal and previous years' (residual) grass growth provides cover for nesting. Nest success for sage-grouse is higher when sagebrush canopy cover is high and

residual tall grass cover (> 7 inches) is present at the nest site (Gregg et al. 1994, DeLong et al. 1995). Residual grass cover provides horizontal screening at the nest site, which blocks the view from predators. During the summer months, sage-grouse seek water, usually associated with wet meadows and succulent vegetation (Call and Maser 1985). If the year has been unusually dry, sage-grouse may use any water source available, but do not use livestock watering troughs as readily since access to the water is more difficult (Call and Maser 1985, Hanf et al. 1994). Partially buried water troughs or those set with the top near ground level may be accessed more easily by sage-grouse (Call and Maser 1985, Hanf et al. 1994). Sage-grouse winter in lower elevations of the allotment, depending on snow depth in the higher locations surrounding the allotment during the winter.

The "Greater Sage-Grouse Conservation Assessment and Strategy for Oregon" (Strategy) (Hagen 2011) has an action item to "[p]romote vegetation that supports nesting, brood-rearing, and winter habitats including maintenance or recovery of shrub and herbaceous (native grasses and forbs) cover. Retain residual cover adequate to conceal sage-grouse nests and broods from predation, and plant communities that provide a diversity of plant and insect food sources." The Strategy recognizes that appropriate livestock grazing can be compatible with sage-grouse habitat needs and has the following conservation guidelines for livestock grazing from Pages 103-104:

1) Where livestock grazing management results in a level of forage use (use levels) that is consistent with Resource Management Plans, AMPs, Terms and Conditions of Grazing Permits or Leases, other allotment specific direction, and regulations, no changes to use or management are recommended if habitat quality meets Rangeland Health Standard and Guidelines.

2) Where livestock grazing management results in a forage use level detrimental to habitat quality, it is recommended changes in grazing management be made as soon as possible to recover habitat quality. Adjustments to grazing management should be conducted in accordance with regulations of responsible land management agency.

a) Adaptive management that should be considered include:
i) changes in salting and/or watering locations,
ii) change in the season, fencing, duration or intensity of use,
iii) reducing grazing use levels,
iv) temporary livestock non-use (rest), or
v) extended livestock non-use until specific local objectives are met as identified by implementation group.

3) The timing and location of livestock turnout and trailing should not contribute to livestock concentrations on leks during the sage-grouse breeding season.

4) Measurement of grazing levels should be conducted on that portion of the pasture which is known to be sage-grouse habitat and will not be based on "average use" throughout the entire pasture.

5) Reduce physical disturbance to sage-grouse leks from livestock through managing locations of salt or mineral supplements by placing them greater than 1 km (0.6 mi) from lek locations.

6) Avoid supplemental winter feeding of livestock in known/occupied habitat unless it is part of a plan to improve ecological health or to create mosaics in dense sagebrush stands that are needed for optimum grouse habitat. Although ecologically winter grazing may have a minimum ecological impact on the plant community, the impacts to residual cover for sage-grouse nesting can be detrimental.

The Strategy also has the following recommendations for livestock management infrastructure:

1) Locate new and/or relocate livestock water developments within sage grouse habitat to maintain or enhance habitat quality.

3) Ensure wildlife accessibility to water and install escape ramps in all new and existing water troughs.

4) Construct new livestock facilities (livestock troughs, fences, corrals, handling facilities, "dusting bags," etc.) at least 1 km (0.6 mi.) from leks to avoid concentration of livestock, reduce collision hazards to flying birds, or eliminate avian predator perches.

a) Fences can be detrimental to local sage-grouse populations. Those fences identified as such or within 1.6 km (1 mile) of an active lek or known seasonal use area should be marked with anti-strike markers.

These excerpts are not inclusive of all guidelines in the Strategy, but are the most pertinent to this document.

IM 2012-043 Greater Sage-Grouse Interim Management Policies and Procedures has the following to say about livestock grazing "Grazing can have localized adverse effects on Greater Sage-Grouse habitat depending on the condition of the habitat and the grazing practices used." This IM also recognizes that appropriate livestock grazing can be compatible with sage-grouse habitat needs: "Depending on design and application, grazing practices can also be used as a tool to protect intact sagebrush habitat and increase habitat extent and continuity which is beneficial to Greater Sage-Grouse and its habitat. Given the potential financial constraints in addressing the primary threats identified by the USFWS, enhanced

management of livestock grazing may be the most cost-effective opportunity in many instances to improve Greater Sage-Grouse habitat on public lands."

This IM includes the following conservation guidelines for livestock grazing and associated facilities:

Propose and authorize livestock grazing and associated range improvement projects on BLM lands in a way that maintains and /or improves Greater Sage-Grouse and its habitat. Analyze through a reasonable range of alternatives any direct, indirect, and cumulative effects of grazing on Greater Sage-Grouse and its habitats through the NEPA process:

- *Evaluate and implement grazing practices that promote the growth and persistence of native shrubs, grasses, and forbs. Grazing practices include kind and numbers of livestock, distribution, seasons of use, and livestock management practices needed to meet both livestock management and Greater Sage-Grouse habitat objectives.*

- *Evaluate the potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements. Address those structural range improvements identified as posing a risk during the renewal process.*

- *Evaluate the need for proposed fences, especially those within 1.25 miles of leks that have been active within the past 5 years and in movement corridors between leks and roost locations. Consider deferring fence construction unless the objective is to benefit Greater Sage-Grouse habitat, improve land health, promote successful reclamation, protect human health and safety, or provide resource protection. If the BLM authorizes a new fence, then, where appropriate, apply mitigation (e.g., proper siting, marking, post and pole construction) to minimize or eliminate potential impacts to Greater Sage-Grouse as determined in cooperation with the respective state wildlife agency.*

- *To improve visibility, mark existing fences that have been identified as a collision risk. Prioritizing fences within 1.25 miles of a lek, fences posing higher risk to Greater Sage-Grouse as include those:*

    - *On flat topography;*
    - *Where spans exceed 12 feet between T-posts;*
    - *Without wooden posts; or*
    - *Where fence densities exceed 1.6 miles of fence per section (640 acres).*

- *NEPA analysis for all new water developments must assess impacts to Greater Sage-Grouse and its habitat.*

- *Install escape ramps and a mechanism such as a float or shut-off valve to control the flow of water in tanks and troughs.*

- *Design structures in a manner that minimizes potential for production of mosquitoes which may carry West Nile virus.*

These excerpts are not inclusive of all Interim Conservation Policies and Procedures in IM 2012-043, but are the most pertinent to this document.

The sagebrush plant communities that support sage-grouse are very complex and successionally dynamic as is the effects of livestock grazing within these communities, often making it difficult to form large scale conclusions about the impacts of current livestock grazing practices on sage-grouse populations (Crawford et al. 2004). However, research suggests it is possible for grazing to be managed in a way that promotes forage quality for sage-grouse since grazing can set back succession which may result in increased forb presence (Vavra 2005). When grazing management is periodic and allows forbs to regrow or prevents their utilization by livestock, the number of forbs available to sage-grouse may increase (Vavra 2005). Anderson and McCuistion (2008) found grazing management, when upland birds are present, should be flexible, but limited to a light to moderate use (30-50 percent utilization) using deferred or rest-rotation grazing to limit grazing disturbances during critical bird life stages such as nesting. They recommended light to moderate use on their conclusion this level can increase forb quality and quantity since grazing can delay the maturation of forbs, extending their availability throughout the season (Anderson and McCuistion 2008). Anderson and McCuistion (2008) also acknowledge the complexity of managing grazing within sage-grouse habitat and determined no one grazing system is best suited in all cases, but should be site specific.

The Strategy also contains guidelines for wild horse management as it relates to sagebrush habitat management (page 104), it states "The management goals for wild horses are to manage them as components of the public lands in a manner that preserves and maintains a thriving natural ecological balance in a multiple use relationship. Wild horses are managed in twenty HMAs that involve 2.8 million acres of public land, primarily in southeastern Oregon." The recommended conservation guidelines for wild horses from the strategy are:

1) AML for horse numbers should be kept within current AML (1,351 to 2,650) in herd management areas.

a) Management agencies are strongly encouraged to prioritize funding for wild horse round-ups in sage-grouse areas that are over AML

b) Evaluate the AMLs for impacts on sagebrush habitat

c) Further measures may be warranted to conserve sage-grouse habitat even if horses are at, above, or below the appropriate AML for a herd management area.

Pygmy rabbits (*Brachylagus idahoensis*) are sagebrush obligates, and require pockets or stands of tall sagebrush in order to survive. Sagebrush is their primary food source during the winter and comprises an important amount of their diet at other times of the year. Pygmy rabbits also dig their own burrows and require relatively deep, friable soils suitable for excavating and supporting their burrow system (Green and Flinders 1980). The allotment contains potential pygmy rabbit habitat, and pellets and possible burrows have been reported in the South Pasture (Foster 2005); however, pygmy rabbits have not been observed. Pygmy rabbits and burrows have also been reported approximately four miles northeast of the proposed project (Bartels 2003).

Fringed myotis (*Myotis thysanodes*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and spotted bat (*Euderma maculatum*) may also occur in the allotment, but have not been observed. Bats are a migratory species with arrival in the allotment during May to June. Most species may migrate south in the fall but a few winter hibernacula are known to exist in the area. These bat species typically use caves and mines for day roosts, but may also utilize crevices in rimrock and cliffs or human-made buildings and other structures in the area (Verts and Carraway 1998). These species may forage over juniper and sagebrush in the area, and drink from reservoirs or troughs in the area. Large or hollow juniper trees may provide night roosts for rest during foraging periods. Bats forage for insects anywhere they can find sufficient concentrations and use still water pools in streams, springs, reservoirs, and water troughs for watering. Bats may travel several miles from day roost sites for foraging and watering. Usually they roost during the night for a period of time, then forage before returning to their day roost.

Environmental Consequences: Special Status Species-Wildlife

Alternative A: No Action Alternative: Special Status Species-Wildlife

In this alternative, wildlife SSS would have the same resources available as are currently present in the allotment. Some areas of the allotment near perennial water sources would continue to be affected by concentrated livestock and wild horse use. Portions of the allotment away from existing waterholes and springs would have non-grazed areas, which would be expected to provide more suitable nesting sites for sage-grouse due to more residual grass cover. This provides horizontal screening at nest sites, which is believed to reduce predation. During drought years, sage-grouse would have only those reliable water sources present now, which have little vegetation for cover, and are often grazed heavily by wild horses and livestock due to lack of reliable water. Bats would continue to rely on the few existing water sources available within the allotment and increased use or expansion of bat foraging habitat would not be realized. There would be no disturbance to pygmy rabbits or habitat.

Alternative B: Proposed Action: Special Status Species-Wildlife

The proposed location of the troughs is near the allotment boundary and more than a mile from either lek, reducing disturbance to sage-grouse during the breeding season (Hagen 2005). The new troughs would help keep wild horses off of the Keg Springs Allotment, until vegetative objectives were met and provide better distribution of livestock in both allotments when returned to normal grazing practices. Utilization of bunchgrass species in the pasture would remain below or at target utilization levels, and sagebrush cover and distribution in Keg Springs Allotment would not be affected. Sage-grouse habitat would not change.

Sage-grouse are generally able to meet their water requirements through their diet, but open water may be used during extended periods of drought. However, sage-grouse would be expected to move out of this area during the driest periods of the year in search of more succulent forage. Coyote and other sage-grouse predator use may increase in response to a more reliable water source, but increased use would occur later in the season when most sage-grouse have left the area. The Proposed Action does not include installation of any new fences; other than the exclosure around the well, or new raptor perches, and escape ramps would be installed in the new troughs. Areas within 0.25-mile of water sources would show reduced grasses and forbs so sage-grouse would have to search other areas for sufficient food. Although late-season grazing effects would be spread out, this could affect residual grass cover for nesting sage-grouse the following spring. Wild horses would be expected to have a greater effect on residual grass cover than livestock since they are in the allotment year-round.

Laying the pipeline and installing the trough would create temporary ground disturbance (0.68-acre) in the Project Area, and kill or damage some sagebrush plants along the route. However, the pipeline would cross through low sagebrush habitat, which may decrease the disturbance to the tall sagebrush habitat primarily used by pygmy rabbits. Disturbance would be minimal because pygmy rabbits are primarily nocturnal, and construction activities would take place during the day. Pre-work surveys for pygmy rabbits would be completed to avoid collapsing burrows along the route. The new water source would not benefit pygmy rabbits, but may benefit predators, such as raptors and coyotes. However, these highly mobile species are already present in the area and the addition of a water source would not increase their densities in the area. The pre-work surveys, area affected, and the temporary nature of the disturbance from the project are designed to mitigate effects to pygmy rabbits.

No juniper trees would be cut, so roosting habitat would not be lost. Construction activity would take place in open sagebrush habitat away from cliffs and trees; therefore, disturbance at tree and cliff roosts would be minimal. The disturbance to vegetation along the pipeline would not measurably affect insect abundance or diversity; therefore, bat foraging habitat would be unaffected. Disturbance would be minimal because these bat species are primarily nocturnal, and construction

activities would take place during the day. Bats drink frequently when foraging, and the additional water source may benefit bats by expanding their foraging area. Escape ramps would be installed in troughs to prevent drowning. No wires, posts, or other barriers would be installed over the water troughs, leaving a clear flight path for bats. Bats would be provided with more opportunities from late-season watering sources and would have more areas to forage for insects near these water sources. The Proposed Action, in conjunction with RFFAs (livestock grazing, wild horse gathers, etc.); would have no effect to SSS when S&Gs are being met.

Alternative C: Water Hauling

The effects of this alternative would be similar to the Proposed Action. However, this alternative would create more disturbances due to the increased traffic on the haul roads, which would be spread across a greater area. The need for several trips throughout the gazing period would increase vehicle strike to sage-grouse, and pygmy rabbits. The noise disturbance could impact sage-grouse, pygmy rabbits, and roosting bats during the time the vehicle(s) use. This alternative would also only provide a water source during the active grazing season, as there would be no water hauled at other times of the year due to access problems on existing road infrastructure.

6. Upland Vegetation

Affected Environment: Upland Vegetation

Native vegetation associated with this complex is basin big sagebrush, black greasewood, basin wildrye, inland saltgrass, silver sagebrush, Sandberg's bluegrass, creeping wildrye, and mat muhly. Vegetative composition of the community is approximately 85 percent grasses, 10 percent shrubs and 5 percent forbs. The approximate ground cover is 60 to 80 percent (basal and crown).

Because this area historically has not had a reliable water source, impacts to vegetation have been minimal due to light grazing activity from both livestock and wild horses. Depending on annual precipitation, light grazing activity may be create a healthy rangeland ecosystem or lead to unhealthy vegetation communities. In 2012, catastrophic wildfires burned through the area south of the well development site. Three years of above average annual precipitation lead to abundant vegetative growth. The fall, winter and spring of 2011-2012 had below average precipitation leading to standing dead with extremely dry conditions. The project area and surrounding vegetation may be in the same condition as those which contributed to the Miller Homestead Wildfire in 2012 as a result of light grazing activities.

For the purposes of this analysis, the CEAA for vegetation is at the pasture scale. Past ground-disturbing activities which could vegetation within the pastures

include wildfire, the construction of range improvement projects, livestock grazing, wild horse use, recreation and hunting.

Environmental Consequences: Upland Vegetation

Alternative A: No Action: Upland Vegetation

There would be no direct impacts to vegetation under the No Action Alternative. Indirect impacts associated with not installing the well and troughs would include lack of uniform grazing across the pasture. This lack of uniformity may increase fine fuels due to which could increase the risk of wildfires. Without light to moderate grazing, vegetation may become less desirable to wildlife, livestock and wild horses because the old growth may prevent the new growth from fully developing.

Utilization patterns throughout the pasture would remain unchanged under the No Action Alternative.

Alternative B: Proposed Action: Upland Vegetation

Direct long-term (one or more decades) and short-term (less than one decade) impacts to vegetation from ground-disturbing activities, associated with implementing this alternative, would affect <1 percent of the pastures. Sagebrush and herbaceous vegetation would be crushed and broken by equipment within 20 feet of the proposed pipeline (0.68-acre); however, these impacts would be temporary and vegetation is expected to recover within 3 years. In an area approximately 50-feet in diameter around the new troughs, vegetation is expected to be removed due to heavy use by livestock, wild horses and wildlife. Trailing areas would be developed to and from the troughs with vegetation, mainly grasses and forbs, being removed from these routes due to regular use.

Installation of the well and troughs would allow for better utilization across the pasture leading to more uniform grazing of vegetation. This improved distribution, combined with the proposed grazing rotation which provides growing season rest to key forage plant species, is anticipated to cause a stable to upward trend in rangeland condition on upland plant communities across the pasture. Over the next decade, as livestock access portions of the pasture where bunchgrasses have become decadent due to lack of removal of old vegetation, trampling and light to moderate grazing would be expected to begin to improve vigor of plants (Oesterheld and McNaughton 1991, Archer and Smeins 1991, Anderson et al. 1990).

Alternative C: Water Hauling: Upland Vegetation

Under this alternative, the effects would be similar to the Proposed Action as the troughs would still be installed. In addition to the impacts to vegetation resulting

from heavy use around the toughs, vegetation would be removed along the routes used to deliver water to the troughs. This alternative would also only provide a water source during the active grazing season, as there would be no water hauled at other times of the year due to access problems on existing road infrastructure.

7. Wild Horses

Affected Environment: Wild Horses

The Warm Springs HMA encompasses two livestock grazing allotments (East Warm Springs and West Warm Springs), with the HMA boundary delineated by perimeter fences (See Map A). A fence also separates the HMA to provide separate management of the two allotments; however, horse and burro range is migratory across the HMA based on water availability. AML for the Warm Springs HMA is 111 to 202 wild horses and burros (Three Rivers RMP/ROD 1992). An allocation for a maximum of 24 heard of burros in the west side of the Warm Springs HMA was included in the total allocation for the Warm Springs HMA. Current herd size is estimated at 160 wild horses and burros within the HMA.

The portion of the proposed project within the Native Pasture of the East Warm Springs Allotment lies within the Warm Springs HMA. The 2012 Miller Homestead Fire burned approximately 58,183 acres (12 percent) of the 499,428 acre (BLM managed and private land) HMA. Although the fire burned only 12 percent of the HMA, this portion of the HMA contained five reliable water sources (waterholes and a perennial spring) which supported a high percentage of the Warm Springs wild horse population. Prior to the fire, it is estimated that approximately 50-60 wild horses ranged within or 2-3 miles adjacent to the fire perimeter due to water availability in the area, and horses were observed in these same areas immediately following the fire. Burros do not range within or near the fire affected area; therefore, impacts to burros are not measureable and would not be further discussed.

Direct competition for forage within the Native Pasture exists as livestock and wild horses (the primary species of large herbivores) have a dietary overlap of 90 to 100 percent (McInnis and Vavra 1987). Site observations and utilization studies indicate wild horse utilization patterns are similar to livestock; however, wild horses would typically use range farther from water than cattle. Miller (1983) found that wild horses generally stay within 4.8 km (2.98 miles) of a water source during the summer, while Pellegrini (1971) found wild horses will roam up to seven miles from water before returning. Green and Green (1977) found wild horses range from three to seven miles from a water source, but the distance is related to forage availability. When water and forage are available together, the range will be smaller, and when they are not available together wild horses concentrate in areas of ample forage and travel further distances to water (Green and Green 1977). Depending on site characteristics, precipitation, and moisture

levels, wild horses may utilize areas as far as ten miles from a water source. Research has also shown when wild horses have to share water sources with cattle and antelope; there is direct competition (Miller 1983). When water was abundant, there was no aggression noticed, however, at times when water was limited, both cattle and wild horse would force each other from the water source while antelope were always displaced (Miller 1983). Forage and water competition may be further increased in the Native Pasture while the 2012 burned area recovers as a temporary fence would be constructed to remove livestock and wild horse use during the recovery period. This area would be opened back up to wild horse and livestock use once recovered, but until that time a large piece of home range for approximately 50-60 horses was affected.

To maintain a thriving ecological balance "an adequate year round quantity of water must be present within the HMA to sustain wild horse and burro numbers within AML" (4700 Wild Free Roaming Wild Horse and Burro Management). The Merck Veterinary Manual (Kahn 2005) states that "[w]ater requirements depend largely on environment, amount of work or physical activity being performed, nature of the feed and physiologic status of the horse." The manual suggests the minimum daily water requirement is 0.4 gallon per100 pounds of weight, with the average daily intake being closer to 0.65 gallon per100 pounds. The manual also recognizes this will increase under specific conditions, such as sweat loss, increased activity, and lactation, with the increase being as much as 200 percent, up to 1.3 gallons per 100 pounds per day. Wild horses within the Warm Springs HMA range from 1,000 to 1,200 pounds. Assuming an average weight of 1,100 pounds, horses within Warm Springs HMA require a minimum daily water intake of 4.4 gallons, with an average daily intake of 7.15 gallons, but the requirement may be as high as 14.3 gallons. This calculates out to 489 gallons per day when the HMA is at the low end of the AML (111 animals) and using only the minimum amount of water, to almost 2,889 gallons per day when the HMA is at the high end of the AML (202) and requiring a water intake 200 percent above average. Over the course of a year, this translates to a range of 178,485 gallons of water (minimum) to 1,054,485 gallons of water (maximum). The maximum water requirements would be even higher for the HMA when horse numbers exceed the AML.

When drought results in little or no water available for wild horse use, the options available are to provide water using a well, to haul outside water into the HMA, or to conduct an emergency gather that would have the goal of temporarily removing all wild horses from the area; emergency gathers are not an immediate solution and must be planned prior to water running out to prevent wild horse loss. Reliable water sources would sustain wild horses in drought conditions and ensure more even distribution; an example of a reliable water source for wild horses would be a well. In Nevada during 2007 and Oregon 2009, drought conditions affected water availability in several HMAs. In Nevada, before wild horses were able to be gathered, many died and a large number (approximately 150) of animals gathered subsequently died from salmonella poisoning due to

poor quality, contaminated water. Emergency gather measures are always contingent on funding and space to hold animals resulting in compromise of forage conditions in addition to animal loss. Proactive management of supplying adequate water could have prevented this situation as well as saved the lives of many wild horses. Addressing the habitat components (water, forage, cover and space) of wild horses as required in Wild Horse and Burros Management Handbook (H-4700-1, 2010) and Five Year Strategic Plan 2010 to 2015 is a priority in Oregon. Proper water developments would disperse grazing use and reduce the chance of emergency gathers being required. Typically live water (wells, springs) should be no more than two miles apart to ensure uniform use of the HMA, based on Miller's (1983) observation that wild horses tend to stay within 4.8 km (2.98 miles) of water sources during the summer.

Environmental Consequences: Wild Horses

Effects Common to All Alternatives: Wild Horses

The CEAA for wild horses encompasses the Warm Springs HMA. Past and RFFAs which impact wild horses within the HMA include periodic wild horse gathers to maintain AML, authorized livestock grazing, construction of range improvements, weed treatments, and recreational use in the area. Actions which may contribute to cumulative effects with this project are carried through analysis in the Environmental Consequences for each alternative. Both action alternatives include making additional water available to wild horse either year round or a portion of the year. Either scenario would be essential to sustaining horses within the HMA during drought conditions.

Alternative A: No Action: Wild Horses

Under the no action alternative, no additional water sources would be developed in the Native Pasture and available to wild horses. The Miller Homestead Fire rehabilitation fence will exclude 12 percent of the HMA for approximately 3 years, further limiting water sources in an area where adequate year round water is already a concern. Under this alternative, no steps would be made to improve both livestock and wild horse utilization patterns across the Native Pasture. Animal distribution would continue to be problematic and forage competition between livestock and wild horses would continue especially around the existing reliable water sources in the pasture.

Alternative B: Proposed Action: Wild Horses

Although the proposed well location is outside the HMA, just on the other side of the fence, the construction activities may have temporary direct effects to wild horses. The well drilling and trough placement activities may cause temporary disturbance to wild horses ranging within or immediately adjacent to the proposed project area. The presence of equipment and humans could provoked the flight

response and temporarily displace horses as they pass by, however these impacts would be short term and horses are expected to return to the area once continuous activity subsides and water becomes available. The short-term impacts to wild horses would be greatly outweighed by the positive impacts of having an additional year-round water source available.

A solar panel would have the shortest direct impact time, compared to a windmill and generator, as it does not make noise or move. If the windmill or generator is used to power the pump, the motion and noise would cause direct impacts to horses until they become accustomed while drinking from the troughs. Wells that are powered by solar panels would also provide the most reliable power and therefore the most reliable water since there would be no reliance on fuel or wind. Since the well is at least a one hour drive from the Burns District Office and may need to be run for six months or more of the year for wild horse use, especially on dry years, the most reliable power source is necessary.

In the short term (approximately three years), having an additional year round water source would aid in the distribution of horses after their home ranges have been disrupted following the wildfire and rehabilitation fence. However, the effects of the new water source would be more noticeable over the long term (>3 years) as it may open up additional home ranges for wild horses in an area of the HMA previously receiving little use as water was not available in the vicinity. Management of wild horses would be more flexible with an additional reliable water source. This improvement would further prepare the BLM for drought years where action must be taken to prevent horse loss.

Alternative C: Water hauling: Wild Horses

Under this alternative, costs to the wild horse program would increase for the foreseeable future with the expense of water hauling. It would be cost prohibitive for a BLM employee to provide this service at least one day a week when only horses are present.

As compared to Alternative B, water hauling would cause a greater disturbance to wild horses with a 3,000 gallon tanker truck driving to the storage tank site 12 times a week, when livestock are present, and possibly once a week when livestock are not present.

Wild horse distribution would be improved and less forage competition between wild horses and livestock would occur, but at a greater expense to the BLM than Alternative B.

8. Wildlife and Locally Important Species

Affected Environment: Wildlife and Locally Important Species

The primary vegetative communities in the allotment consist of low sagebrush grasslands, big sagebrush grasslands, and juniper-sagebrush ridge. These vegetative communities provide habitat suitable for several species of wildlife, including mule deer (*Odocoileus hemionus*) and antelope (*Antilocapra americana*).

Other wildlife present in the allotment are least chipmunk (*Tamias minimus*), coyote (*Canis latrans*), American badger (*Taxidea taxus*), sagebrush lizards (*Sceloporus graciosus*), and several bats, reptiles, and small mammals. Keg Springs provides little water, especially later in the season, which may limit the movement through or use of the area by some of the less mobile wildlife species. Mule deer, pronghorn, and predators use the area most of the year. Deep snows may force big game animals, upland birds, and some small animals to lower elevations of the allotment. Livestock grazing at moderate utilization levels has been found to leave an abundance of forage for wild ungulates (Anderson et al. 1990). Anderson and McCuistion (2008) suggest livestock grazing can improve grazing conditions for elk (and by extension of normal thought process, other large ungulates) by removing the dead, unpalatable material from bunchgrasses (especially under deferred grazing conditions) allowing for elk to utilize more nutritious green vegetation.

Other small mammals are not as mobile and may remain underground or stay active near the ground's surface throughout winter. Wild horses present throughout the allotment may exclude other wildlife use from water sources, especially in late summer when water sources are limited. Miller (1983) found that when antelope could get to water while being no closer than three meters from a wild horse or cow, they were able to water; otherwise, they would only circle the waterhole, leave, and return later to try again.

Mule deer use bitterbrush as a fall and winter browse. Although bitterbrush stands in the allotment appear healthy for the most part, juniper encroachment into these stands is expected to affect the continued health of these plants.

Environmental Consequences: Wildlife and Locally Important Species

Alternative A: No Action: Wildlife and Locally Important Species

No changes to grazing would occur, and habitat for wildlife would not change from existing conditions. Utilization would remain concentrated around the limited existing water sources. No water source would be created, and lack of reliable late season water sources in South Pasture may limit use of the area by some species.

Alternative B: Proposed Action: Wildlife and Locally Important Species

Providing an additional, reliable water sources may increase use of the area by some species traveling from adjacent habitat or increase survival and productivity of species currently in the area. No fences would be constructed; therefore, the project would not create barriers to wildlife movement. Effects for highly mobile species that travel long distances would be undetectable, but smaller, less agile species may benefit with the additional water source as it would reduce their travel distance to water. Small, less mobile mammals would be affected most through loss of habitat near new water sources. About two acres of vegetation would be removed around each new trough, mainly through use by livestock and wild horses. New water sources (troughs) would also provide watering sources for wildlife as long as water remains throughout the year. Overall, effects of different development on different wildlife species would be minimal and should not affect habitat for different species. Continued livestock grazing, weed treatments, and wild horse gathers are reasonably foreseeable actions that would have beneficial effect on an ongoing basis for wildlife species, by reducing competition and providing healthier forage species if used correctly.

Alternative C: Water Hauling

The effects of this alternative would be similar to the Proposed Action. However, this alternative would create more disturbances due to the increased traffic on the haul roads, which would be spread across a greater area. The need for several trips throughout the gazing period would increase vehicle strikes to wildlife. The noise disturbance could impact wildlife and cause a localized avoidance or traveled area during the time the vehicle(s) use. This alternative would also only provide a water source during the active grazing season, as there would be no water hauled at other times of the year due to access problems on existing road infrastructure.

B. Cumulative Effects

As the Council on Environmental Quality (CEQ), in guidance issued on June 24, 2005, points out, the "environmental analysis required under NEPA is forward-looking," and review of past actions is required only "to the extent that this review informs agency decision-making regarding the Proposed Action." Use of information on the effects on past action may be useful in two ways according to the CEQ guidance. One is for consideration of the Proposed Action's cumulative effects, and secondly as a basis for identifying the Proposed Action's effects.

The CEQ stated in this guidance that "[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." This is because a description of the current state of the environment inherently includes the effects of past

actions. The CEQ guidance specifies that the "CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions." Our information on the current environmental condition is more comprehensive and more accurate for establishing a useful starting point for a cumulative effects analysis, than attempting to establish such a starting point by adding up the described effects of individual past actions to some environmental baseline condition in the past that, unlike current conditions, can no longer be verified by direct examination.

The second area in which the CEQ guidance states that information on past actions may be useful is in "illuminating or predicting the direct and indirect effects of a Proposed Action." The usefulness of such information is limited by the fact that it is anecdotal only, and extrapolation of data from such singular experiences is not generally accepted as a reliable predictor of effects.

However, "experience with and information about past direct and indirect effects of individual past actions" have been found useful in "illuminating or predicting the direct and indirect effects" of the Proposed Action in the following instances: the basis for predicting the effects of the Proposed Action and its alternatives is based on the general accumulated experience of the resource professionals in the agency with similar actions.

The environmental consequences discussion described all expected effects, including direct, indirect, and cumulative, on resources from enacting the proposed alternatives. Direct and indirect effects plus past actions become part of the cumulative effects analysis; therefore, use of these words may not appear. In addition, the Introduction Section of this EA, specifically the Purpose of and Need for Action, identifies past actions creating the current situation.

RFFAs, also relevant to cumulative effects, include those Federal and non-Federal activities not yet undertaken, but expected to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. These Federal and non-Federal activities that must be taken into account in the analysis of cumulative impact include, but are not limited to, activities for which there are existing decisions, funding, or proposals identified by the Bureau. These RFFAs must fall within the geographic scope and timeframe of the analysis being prepared. Continued livestock grazing, weed treatments, road maintenance, recreation activities, continuing fire rehabilitation activities, and wild horse gathers are all RFFAs. The cumulative effects of these actions were thoroughly addressed throughout Chapter III, by resource, as applicable.

CHAPTER IV: CONSULTATION AND COORDINATION

A. List of Preparers

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Dory Osgood, Wilderness Ranger (Recreation, VRM)
Lesley Richman, District Weed Specialist (Noxious Weeds)
Cam Swisher, Supervisory Natural Resource Specialist
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Autumn Toelle, Rangeland Management Specialist (Grazing)

B. Persons, Groups, and Agencies Consulted

Harney County Court
Keg Springs Allotment Permittees
East Warm Springs Allotment Permittees
Oregon Department of Fish and Wildlife

C. Advisory

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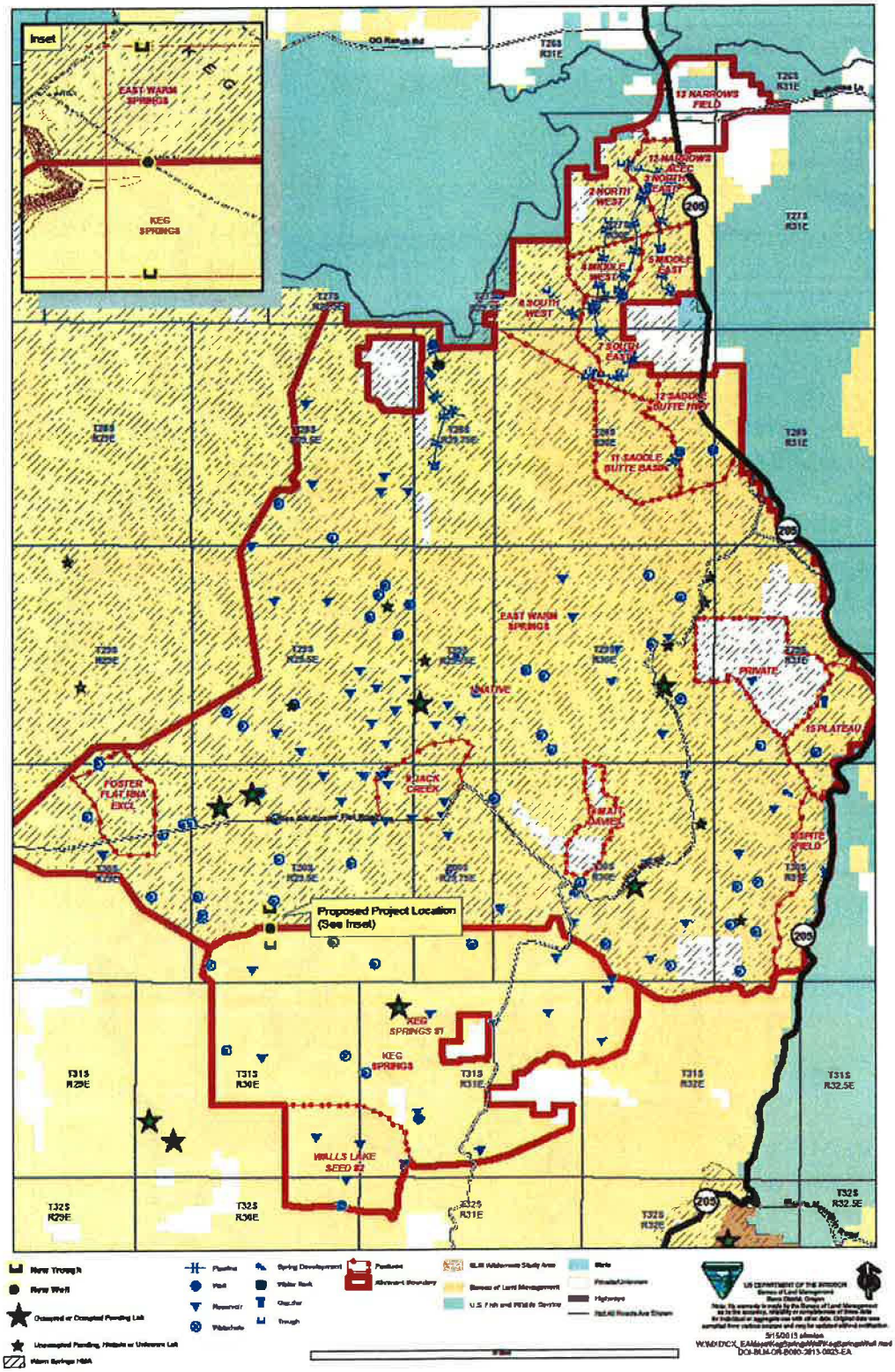
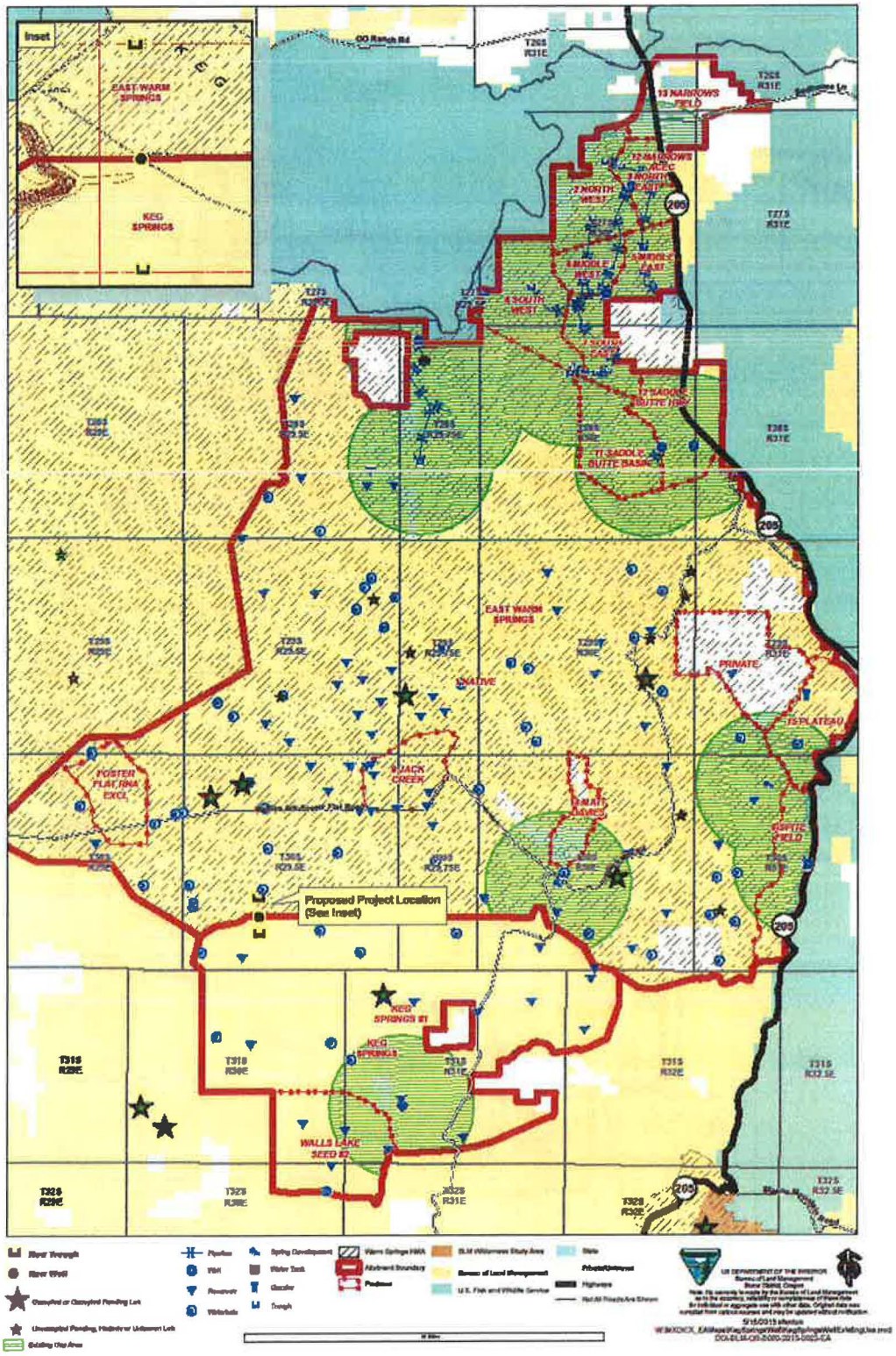
Map A: Keg Springs and East Warm Springs Allotments Overview

Keg Springs Well



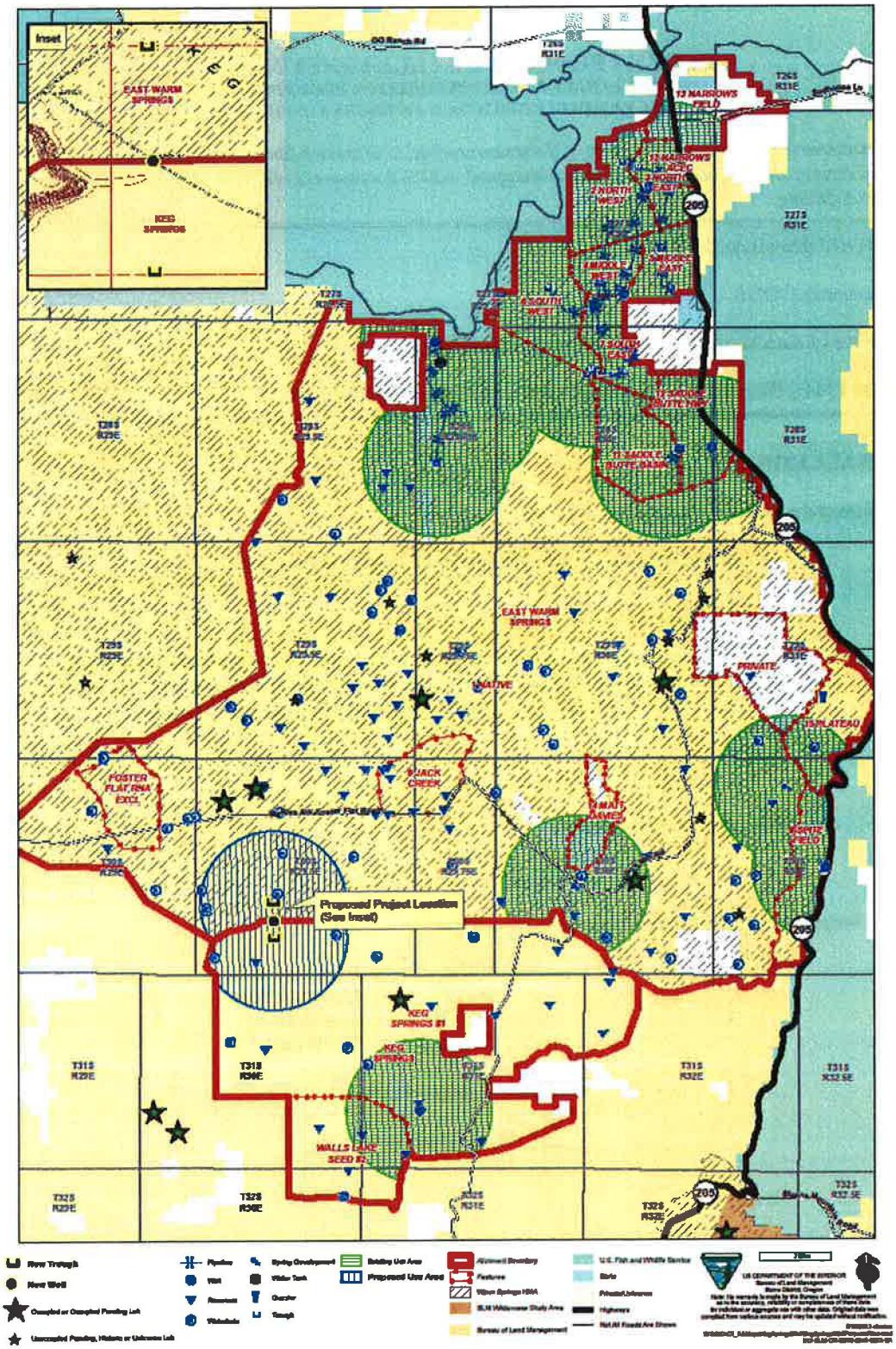
Map B: Existing Use Area

Keg Springs Well - Existing Use Area



Map C: Proposed Use Area

Keg Springs Well - Proposed Use Area



Appendix A: Wilderness Characteristics Inventory for the Keg Springs Area

CITIZEN PROPOSAL EVALUATION FORM

(EVALUATION OF NEW INFORMATION REGARDING WILDENRESS CHARACTERISTICS ON AN AREA OF PUBLIC LANDS)

Directions: *Keep this record as part of the inventory file. Use these findings as part of the wilderness resources discussion in any subsequent NEPA document. Notify the proponent of your findings.*

Date of Submission: **11/1/02**

Proponent: **ONDA**

Name of Area Identified by the Proponent: **Keg Springs**

BLM Field Office(s) Affected: **Andrews/Three Rivers RA, Burns DO**

EVALUATION

1) Does the submission include the required:

a) map which identifies the specific boundaries of the area in question?

Yes ___✔___ No _____

b) detailed narrative that describes the presence or absence of wilderness characteristics of the area and documents how that information differs significantly from the information in prior inventories conducted by the BLM regarding the wilderness values of the area?

Yes ___✔___ No _____

c) photographic documentation?

Yes ___✔___ No _____

2. Is there an existing wilderness inventory on this area?

Yes ___✔___ [Number **1-57B** Name **Robinson Lake**
1-159 **Catlow Valley**
2-58 **Keg Springs**
2-94A, B **Walls Lake**]

Existing inventory findings

_____ Has wilderness character

___✔___ Doesn't have wilderness character

No _____

3. Evaluation of the proposal based on relevant information available in the office (prior BLM inventories, interdisciplinary team knowledge, aerial photographs, field observations, maps, etc.). *Explain the basis for each conclusion* (use additional space as necessary).

NOTE: Only those portions of subunits 1-57B and 1-159 within the Burns District are considered in this evaluation. The remainders of subunits 1-57B and 1-159 are located in the Lakeview District.

a) Are the boundary roads and any roads separating subunits still roads?

Yes ___✔___ No _____

Explanation: **All roads identified in the original wilderness inventory are still considered to be roads. Road 8241-0-CO separates subunits 94A and 94B. The road through the center of subunit 94B has been bladed since the original inventory and splits the subunit further. Road 8241-0-OO forms the north boundary of subunit 1-159 and the south boundaries of subunits 2-94A, 2-94B, and 1-57B. Roads 2841-0-DO and 2841-0-EO and private lands form the eastern boundary of 1-159. Road 8241-0-OO separates subunits 1-159 and 1-57B. Road 2841-0-AO and a bladed county road form the east boundary of subunit 2-94A. Road 8239-0-AB forms the north boundary of subunit 2-94A and the south boundary of the larger "not inventoried" parcel. Road 8243-0-AA forms the north boundary of this "not inventoried" parcel. Road 8238-0-OO forms the north boundary of subunit 2-58, separates the western "not inventoried" parcel from subunit 2-58, and separates subunits 1-57B and 2-94A. Road 8238-0-AO forms the north boundary of the western "not inventoried" parcel and subunit 1-57B. Road 8238-0-BO separates the western "not inventoried" parcel from subunit 1-57B. Private lands separate subunits 1-57B and 2-94B.**

b) Does the unit/subunit meet the minimum acre requirements?

Yes ___✔___ No ___✔___

Explanation: **The two sections of subunit 2-94B and the two "not inventoried" parcels are each less than 5,000 acres and are not evaluated further. Subunits 1-57B (8,525 acres in two parcels), 1-159 (39,870 acres), 2-94A (43,430 acres), and 2-58 (22,840 acres) are evaluated below.**

c) Have there been changes in the area since the initial/intensive inventory that may affect naturalness?

Yes ___✔___ No _____

Explanation: **New developments in subunit 2-58 include 3 reservoirs, 3 miles of road, a RAWS station, an exclosure. New developments in the "not inventoried" parcel include a road to a waterhole.**

New developments in subunit 2-94A include a seeding (at least 1,000 acres), a pipeline from an existing well, a new well and pipeline, 2 spring developments, blading of ways and roads, maintenance and enlarging of Walls Lake Reservoir, and dikes south of Walls Lake.

There are no new developments in subunit 1-57B.

New developments in subunit 1-159 include water rights on the drainage from Rock Creek Reservoir, crested wheatgrass seedings, pipelines, a bladed road and a waterhole.

d) Does the unit/subunit appear to meet the definition of naturalness?

Yes ___✔___ No ___✔___

Explanation: **Subunits 1-57B, 1-159, 2-58, and the west half of 2-94A appear to be natural. The east half of 2-94A is heavily developed and is not natural.**

e) Does the unit/subunit appear to contain outstanding opportunities for primitive and unconfined recreation?

Yes _____ No ___✔___

Explanation: **Subunits 1-57B, 1-159, 2-58, and 2-94A may contain opportunities for primitive and unconfined recreation, but they are not outstanding.**

f) Does the unit/subunit contain appear to have outstanding opportunities for solitude?

Yes _____ No ___✔___

Explanation: **Subunits 1-57B, 1-159, 2-58, and 2-94A may contain opportunities for solitude, but they are not outstanding. The majority of subunit 1-57B is flat sagebrush uplands. The canyons in the unit provide greater isolation, but are concentrated use areas and generally lack great distances or strong topographic relief which would separate parties from one another. Subunit 1-159 is large enough to afford some degree of solitude even with the generally flat terrain. The shallow canyons would also provide some degree of solitude. However, these are not outstanding solitude opportunities. The gently rolling topography and low vegetation throughout subunit 2-58 do not provide outstanding solitude. Subunit 2-94A provides little topographic or vegetative screening other than several short and narrow canyons.**

4. From the evidence presented by the proponent, as well as other relevant information (prior BLM inventories, aerial photographs, field observations, maps, etc.), does the WSA Inventory Team conclude that the information *is significantly different* from the information in prior inventories conducted by BLM regarding the wilderness values of the area or a portion of the area?

Yes _____ No ___✔___

Subunits 1-57B, 1-159, 2-94A, and 2-58 were evaluated. The information presented by the proponent is not significantly different from the original wilderness inventory. Other relevant information documented the presence of new developments.

5. From the evidence presented by the proponent and from other relevant information (prior BLM inventories, aerial photographs, field observations, maps), the undersigned WSA Inventory Team concludes: (Check a or b below.)

___✔___ a) the decision reached in previous BLM inventories that the area lacks wilderness characteristics is valid and the area should not be considered further.

(or)

_____ b) there is a reasonable probability that the area in question (or a significant portion(s) thereof) may have wilderness characteristics and a field inventory is necessary.

The two sections of subunit 2-94B and the two "not inventoried" parcels do not meet the acreage threshold. Subunits 1-57B, 1-159, 2-94A, and 2-58 may be natural, but they do not possess outstanding opportunities for solitude or primitive and unconfined recreation.

WSA Inventory Team Members

Evelyn Treiman — 8/4/03
Evelyn Treiman, Team Leader, Outdoor Recreation Planner — Date

Fred McDonald — 8/4/03
Fred McDonald, Natural Resource Specialist (Recreation) — Date

Willie Street — 8-4-2003
Willie Street, Rangeland Management Specialist — Date

Cam Swisher — 8-5-03
Cam Swisher, Environmental Protections Specialist — Date

Scott Thomas — 8-4-03
Scott Thomas, Archaeologist — Date

Matt Obradovich — 8/03/04
Matt Obradovich, Wildlife Biologist — Date

Jim Buchanan, Rangeland Management Specialist — Date: 8/4/03

Rick Hall, Natural Resource Specialist (Botany) — Date: 8/4/03

Terri Geisler, Geologist — Date: 8/5/03

Field Manager, Andrews Resource Area — **Date:** 8/8/03

Field Manager, Three Rivers Resource Area — **Date:** 8/7/03

I Concur:

District Manager — **Date:** 8/8/03

This determination is part of an interim step in the BLM's internal decision making process and does not constitute an appealable decision.