

Finding of No Significant Impact

Twentyone Creek Pipeline

BLM

Worland Field Office, Wind River/Bighorn Basin District, Wyoming

JULY 2014



The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

DOI-BLM-WY-R010-2013-0069-EA

FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment

DOI-BLM-WY-R010-2013-0069-EA

Twentyone Creek Pipeline

INTRODUCTION:

The Bureau of Land Management (BLM) has conducted an environmental analysis (DOI-BLM-WY-R010-2013-0069-EA) for a proposed action to address a livestock watering pipeline, located in Hot Springs County, Wyoming. The project would give a Cooperative Range Improvement Agreement to the applicant and allow the applicant to install 7.8 miles of pipeline with 10 associated watering tanks, 8 new tanks and 2 tanks replacing old dilapidated tanks. The project would take place in the Dickie 21 pasture of the Upper Pastures Allotment, the Bear Creek and Horse Pastures of the Lower Pastures Allotment, and the 21 Creek Allotment.

FINDING OF NO SIGNIFICANT IMPACT:

Based upon a review of the EA and the supporting documents, I have determined that the project is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively, with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27 and do not exceed those effects described in the Twentyone Creek Pipeline EA. Therefore, an environmental impact statement is not needed.

This finding is based on the context and intensity of the project as described:

Context: The Action would occur within various sections of Township 44N Range 100W and would have local impacts on the resources similar to and within the scope of those described and considered within the Twentyone Creek Pipeline EA. The project is a site-specific action directly involving approximately 6,703 acres of BLM administered land that by itself does not have international, national, regional, or state-wide importance.

Intensity: The following discussion is organized around the Ten Significance Criteria described in 40 CFR 1508.27 and incorporated into resources and issues considered (includes supplemental authorities Appendix 1 H-1790-1) and supplemental Instruction Memorandum, Acts, regulations and Executive Orders.

The following have been considered in evaluating intensity for this proposal:

- 1. Impacts may be both beneficial and adverse.** The proposed action would impact resources as described in the EA. Mitigating measures to reduce impacts to the various resources were incorporated in the design of the action alternatives and are applied to the Cooperative Range Improvement Agreement as terms and conditions. None of the environmental effects discussed in detail in the EA and associated appendices are considered significant, nor do the effects exceed those described in the EA.
 - 2. The degree to which the selected alternative will affect public health or safety.** No aspect of the Action/Alternatives would have an effect on public health and safety.
 - 3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.** The following components of the Human Environment and Resource Issues are not affected because they are not present in the project area: Air Quality/Climate Change, Areas of Critical Environmental Concern, Areas with Wilderness Characteristics, BLM Natural Areas, Geology, Greenhouse Gas Emissions, Environmental Justice, Farmlands (Prime or Unique), Fluid Mineral Resources (Surface), Energy Production (Subsurface), Lands/Access, Native American Religious Concerns, Public Health and Safety, Socio-Economics, Threatened, Endangered, Candidate or BLM Sensitive Plant Species, Wild and Scenic Rivers, Wilderness/Wilderness Study Area, Woodland/Forestry, and Wild Horses and Burros. Components of the Human Environment and Resource Issues were analyzed in detail in Chapter 3 of the EA. None of these would be significantly impacted because of the design features.
 - 4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.** There is no scientific controversy over the nature of the impacts.
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5. **The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.** The project is not unique or unusual. The BLM has experience implementing the same action in allotments adjacent to the proposed project area. The environmental effects to the human environment are fully analyzed in the EA. There are no predicted effects on the human environment that are considered to be highly uncertain or involve unique or unknown risks.
6. **The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.** The actions considered in the selected alternative were considered by the interdisciplinary team within the context of past, present, and reasonably foreseeable future actions. Significant cumulative effects are not predicted. A complete analysis of the direct, indirect, and cumulative effects of the selected alternative and all other alternatives is described in Chapter 3 of the EA.
7. **Whether the action is related to other actions with individually insignificant but cumulatively significant impacts – which include connected actions regardless of land ownership.** The interdisciplinary team evaluated the possible actions in context of past, present and reasonably foreseeable actions. Significant cumulative effects are not predicted. A complete disclosure of the effects of the project is contained in Chapter 3 of the EA.
8. **The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.** The project would not adversely affect districts, sites, highways, structures, or other objects listed on or eligible for listing on the National Register of Historic Places, nor would it cause loss or destruction of significant scientific, cultural, or historical resources. The effects to known listed or eligible for listing in the National Register of Historic Places is discussed and analyzed in Chapter 3 of the EA.
9. **The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973, or the degree to which the action may adversely affect: 1) a proposed to be listed endangered or threatened species or its habitat, or 2) a species on BLM’s sensitive species list.** There are no known threatened, endangered, or sensitive species of plants within the project area. Effects to known threatened, endangered, or sensitive animals were analyzed in Chapter 3 of the EA. The proposed actions design features reduce impacts to wildlife through timing, installation of escape ramps, and rangeland management to protect riparian habitat.
10. **Whether the action threatens a violation of a federal, state, local, or tribal law, regulation or policy imposed for the protection of the environment, where non-federal requirements are consistent with federal requirements.** The project does not violate any known federal, state, local or tribal law or requirement imposed for the protection of the environment.

/s/ Rebecca Good

July 8, 2014

Authorized Officer

Date

ENVIRONMENTAL ASSESSMENT

Twentyone Creek Pipeline

BLM

Worland Field Office, Wind River/Bighorn Basin District, Wyoming



JULY 2014

The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

DOI-BLM-WY-R010-2013-0069-EA

Twentyone Creek Pipeline

DOI-BLM-WY-R010-2013-0069-EA

Type of Project: Livestock water pipeline

General Location of Proposed Action: T44N R100W Sec. Various

Name and Location of Preparing Office:

Worland Field Office

101 S. 23rd St.

Worland, WY 82401

RIPS Number: 016828

Applicant Name: Prospect Land and Cattle (Dee Hillberry)

1 INTRODUCTION AND NEED FOR THE PROPOSED ACTION

1.1 Background Information

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of issuing a Cooperative Range Improvement Agreement to install a livestock water pipeline and associated troughs/tanks. This EA is a site-specific analysis of potential impacts that could result with the implementation of the analyzed alternatives.

The pipeline is designed to enhance water distribution for livestock and wildlife into portions of four pastures that currently have very limited or no upland water availability. Currently, most watering occurs directly from Twentyone Creek. This project, by providing upland water sources, would allow for improved pasture management and increased flexibility of grazing use. It would allow the implementation of a Best Management Practices rotational grazing system which would ultimately reduce grazing pressure on the riparian area and provide rotational/deferred grazing of the vegetative resources.

The pipeline would provide dependable water and improve livestock distribution on 6,703 acres of BLM lands in the Dickie 21 pasture of the Upper Pastures #00633 Allotment, the Bear Creek and Horse Pastures of the Lower Pastures Allotment #00634, and the 21 Creek Allotment #00556 (see Map 1).

In 1991, the permittee and the BLM developed the Twentyone Creek Allotment Management Plan (AMP). The original AMP, including the grazing system, was initiated in 1969 with several modifications over the years. The vegetation/watershed goal in the Twentyone Creek AMP is to improve range condition, forage production, ground cover for watershed protection, and restore the hydrologic and vegetative function of riparian systems. The AMP has a section on riparian objectives. There are several riparian key areas established in Pats Draw, Twenty One Creek, and Bear Creek drainages. In general riparian areas are degraded from long-term intensive livestock grazing. The AMP requires leaving 50% of the total forage production on the uplands in crucial Elk Winter range which includes the Dickie 21 pasture within the project area. Areas outside of crucial elk winter range utilization maybe 40% in growing season (4/1 to 8/15) and 60% in non-growing season (8/16 to 3/31) according to the AMP. According to the AMP water development projects would be installed to enhance multiple use benefits.

The objectives of the Absaroka Front Habitat Management Plan (HMP 1986) is to restore, enhance, and maintain wildlife habitat watershed conditions, and improve forage production on public lands. The Absaroka Front HMP notes management protection and development of numerous springs and seeps in these allotments that are not producing enough water for livestock but are important for wildlife.

This project is part of the Cottonwood Creek/Grass Creek Watershed Management Plan Level One study completed in October 2007.

1.2 Purpose and Need for the Proposed Action

The Purpose of this Federal Action is to respond to a proposal from the project applicant for a Cooperative Range Improvement Agreement to develop and maintain a sustainable water source for permitted livestock grazing in the Twentyone Creek drainage.

The Need for this action is BLM's responsibility to install, use, maintain, modify, or remove range improvements from public lands in a manner that is consistent with multiple-use management as described in 43 CFR 4120.3 and to review these types of projects in accordance with the National Environmental Policy Act of 1969.

1.3 Decision to be Made

The Authorized Officer (AO) must determine whether or not to issue a cooperative range improvement agreement to the applicant. The AO must identify specific terms and conditions that apply to the agreement. As stated in 43 CFR 4120.3-4, "cooperative range improvement agreements shall specify the standards, design, construction and maintenance criteria for the range improvements and other additional conditions and stipulations or modifications deemed necessary by the authorized officer."

1.4 Conformance

This action is subject to the following land use plan:

Name of Plan: Grass Creek Resource Management Plan (RMP)

Date Approved: September, 1998

Remarks: The Grass Creek RMP established the following Management Objective for Livestock Grazing Management:

"Improve forage production and range condition to provide a sustainable resource base for livestock grazing while improving wildlife habitat, watershed protection, and forage for wild horses." [Page 13]

Specific livestock grazing management actions from the Grass Creek RMP, which apply to this proposed action include,

"All BLM livestock grazing permittee's and other interested parties, including local conservation districts, would implement management actions such as the use of grazing systems, land treatments, and range improvements consistent with the Guidelines for Livestock Grazing Management. (See Appendix 2). Proposal and design of these actions would normally be developed through activity and implementation plans such as coordinated activity plans (CAPs), coordinated resource management plans (CRMs), allotment management plans (AMPs), or holistic resource management plans (HRMs). The BLM would give priority to activity planning on "I" category allotments." [Page 13]

“In other plant communities that are grazed during the growing season, grazing strategies would be designed to allow a combined forage utilization of 30 to 50 percent of the current year’s growth. In all plant communities that are grazed when plants are dormant, a combined forage utilization of up to 60 percent of the current year’s growth is allowed.

“In elk crucial winter ranges, grazing strategies would be designed so that combined utilization levels are kept near the lower end of the utilization objectives described above.” Therefore combined forage utilization within crucial elk winter range would be 30% for growing season and 50% for dormant use.

“Water developments for livestock are prohibited in elk crucial winter ranges unless adverse effects can be avoided or mitigated based on site-specific analysis. Existing uses would be allowed pending site-specific analysis.”

BLM Wyoming Guidelines for Livestock Grazing Management (Appendix 2 of RMP)

“...The effects of new range improvements (water developments, fences, etc.) on the health and function of rangelands would be carefully considered prior to their implementation.” [Number 6, page 51]

“Grazing management practices and range improvements would be designed to maintain or promote the physical and biological conditions necessary to sustain native animal populations and plant communities....” [Number 8, page 51]

Procedures for Range Development Projects (Appendix 5 of RMP)

“Range projects would be developed with grazing management strategies to achieve resource management objectives....” [Page 79]

The RMP has been reviewed and it is determined that the proposed action conforms to the land use plan terms and conditions as required by Title 43 Code of Federal Regulations, part 1610.5.

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

The Proposed Action is in conformance with all applicable regulations at 43 Code of Federal Regulations (CFR) Group 4100 and policies. The following are excerpts from 43 CFR relating to range improvements on public lands under the administration of the BLM.

43 CFR 4120.3-1 Conditions for range improvements.

- (a) Range improvements shall be installed, used, maintained, and/or modified on the public lands, or removed from these lands, in a manner consistent with multiple-use management.
- (b) Prior to installing, using, maintaining, and/or modifying range improvements on the public land, permittees or lessees shall have entered into a cooperative range improvement agreement with the Bureau of Land Management or must have an approved range improvement permit.

43 CFR 4120.3-2 Cooperative range improvement agreements.

- (a) The Bureau of Land Management may enter into a cooperative range improvement agreement with any person, organization, or other government entity for the installation, use, maintenance, and/or modification or permanent range improvements or rangeland developments to achieve

management or resource condition objectives. The cooperative range improvement agreement shall specify how the costs or labor, or both, shall be divided between the United States and cooperator(s).

The primary regulations governing the analysis is 40 CFR 1500 (RE: The President's Council on Environmental Quality implementing regulations for procedural provisions of NEPA). The principal Bureau permitting regulations for livestock grazing are found in 43 CFR 4100. The principal statutes governing livestock grazing on public land are the Taylor Grazing Act of 1934, the Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978.

The most recent BLM policy guidance on managing sage-grouse habitat: **“Instruction Memorandum No. WY-2012-019 Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands Including the Federal Mineral Estate” provides the following guidance relative to disturbing, disruptive, and grazing management activities within core sage-grouse habitat.**

Timing and Distance:

Sage-grouse leks inside core/connectivity areas: Surface occupancy and/or disruptive activities are prohibited on or within a six tenths (0.6) mile radius of the perimeter of occupied sage-grouse leks.

For the purposes of implementation of this policy, FOs must consider and evaluate an alternative that would not allow new surface facilities, including roads, to be authorized within a 0.6-mile buffer around occupied core or connectivity leks. Other actions may be consistent with the State's strategy when authorized (e.g., buried power and flowlines) with adherence to seasonal restrictions in nesting/early brood-rearing habitat and/or winter concentration areas, where the action(s) would not result in adverse impacts to core sage-grouse populations.

Sage-grouse nesting/early brood-rearing habitat in core areas: Surface disturbing and/or disruptive activities are prohibited from March 15–June 30 to protect sage-grouse nesting and early brood rearing habitat. Apply this restriction to all nesting and early brood-rearing habitats inside core areas regardless of distance from the lek. Where credible data support different timeframes for this seasonal restriction, dates may be expanded by up to 14 days prior to or subsequent to the above dates.

Activities excepted by the State plan from the conductance of a DDCT calculation:

Although the following land uses and land management practices must consider and evaluate provisions that support the goals of the core area strategy, including appropriate sage-grouse management protection and conservation measures (*i.e.*, seasonal timing, applicable spatial restrictions, etc.), they would not be subject to, nor require use of the DDCT in order to be consistent with this policy or the State's core population area strategy and EO.

- Agricultural livestock reservoirs, water pipelines and protected spring developments.

Grazing Management:

Properly managed livestock grazing activities and sage-grouse conservation are compatible. According to the U.S. FWS's March 2010 listing determination for Greater Sage-Grouse, the influence of livestock grazing on sage-grouse habitats varies across the range of the species. This variability of potential impacts is one factor used in determining the appropriate administrative level to prescribe proper livestock grazing management practices that would maintain or enhance localized habitat conditions for sage-grouse. It is the policy of BLM WY to promote proper

livestock grazing management practices that maintain or enhance desired sage-grouse habitat conditions. In order to ensure the necessary implementation of these types of practices and protections, this policy IM directs FOs to implement the following practices for all on-going and proposed permits for livestock grazing authorizations and activities in the context of the Wyoming Governor's core population area strategy for Greater Sage-Grouse. These measures have been adapted from and are in conformance with WO IM 2012-043 for grazing management guidance.

- Plan 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

1.6 Scoping, Public Involvement and Issues

1.6.1 Scoping

The proposed action was reviewed by an interdisciplinary team. The applicant developed plans for the project with help from the Natural Resource Conservation Service – Thermopolis Field Office and the Wyoming Water Development Commission. Based on the size and routine nature of the proposed project, it was determined that further external scoping was not necessary.

1.6.2 Issues Identified

- Cultural: How would the proposed surface disturbance affect historic properties? How would the visual impacts from the proposed stock tanks affect historic properties?
- Hydrology: How would the development of additional water to supply the pipeline impact natural surface water flows of Twentyone Creek?
- Livestock Grazing: How would the proposed project change grazing management and livestock distribution within the affected allotments?
- Soils: How would the project alter the soil's ability to capture runoff and would it lead to more erosion?
- Water Resources/Quality: What would be the impact to the water quality (bacteria) and designated beneficial uses of Twentyone Creek as a result of the proposed action?
- Wetlands/Riparian Zones: How would the proposed project indirectly impact the floodplain and riparian areas of Twentyone Creek by the change in grazing patterns as a result of the proposed action?
- Wildlife: How would the new livestock watering locations and subsequent changes in livestock grazing impact utilization and residue remaining on crucial elk winter range and core area sage-grouse nesting habitat.
- Vegetation: How would installation of the pipeline and/or tanks disrupt or alter vegetation? Would vegetation be changed because of a change in grazing use due to water being available at upland locations?

1.6.3 Issues/Resources Dismissed from Analysis

The Worland Field Office Interdisciplinary (ID) Team determined the following resources are not present or affected by the proposed action or alternatives; therefore, they are not analyzed further in this EA.

Air Quality/Climate Change
Areas of Critical Environmental Concern
Areas with Wilderness Characteristics
BLM Natural Areas
Greenhouse Gas Emissions
Environmental Justice
Farmlands (Prime or Unique)

Fluid Mineral Resources (Surface)
Energy Production (Subsurface)
Lands/Access
Native American Religious Concerns
Public Health and Safety
Socio-Economics
Threatened, Endangered, Candidate or BLM Sensitive Plant Species
Wild and Scenic Rivers
Wilderness/Wilderness Study Area
Woodland/Forestry
Wild Horses and Burros

The following resources were identified by the ID Team as present, but not impacted by the proposed action or alternatives; therefore, they are not analyzed further in this EA.

- Fuels/Fire Management: The project as proposed does not pose a threat for an increased risk of wildfire start.
- Geology: The project would not affect geologic formations.
- Invasive/Noxious Species: Invasive species prevention, monitoring, and treatment as well as reclamation are addressed in the Plan of Development.
- Paleontology: Project is within an area of soil development and vegetation growth with low potential for significant fossils.
- Recreation: A portion of the project is located within the Absaroka Foothills SRMA. The project would not reduce the quality or integrity of the SRMA and would not interfere with nor eliminate recreational opportunities and activities available in the area.
- Visual Resources: BLM-administered public lands in the area are managed under VRM Class III & IV objectives. The proposed project would introduce contrasting elements of line, color, and texture against the surrounding natural elements. These contrasting elements would echo existing contrasting elements. These contrasting elements would be rarely noticed by the casual observer.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternatives Considered

The alternatives were developed based upon the proposal of the applicant and concerns with impacted resources brought up the Worland Field Office Interdisciplinary Team. The alternatives were developed to address the impacts on public lands within the allotments, to consider the permittee's ranching resource goals and operations, to address resource goals established in the allotment management plans (AMPs), as well as provide the opportunity for specific comparisons on which the decision maker could base a decision.

2.1.1 Alternative 1: Proposed Action

The Proposed Action would be to issue a Cooperative Range Improvement Agreement to the applicant. The agreement would authorize the Twentyone Creek Pipeline Project (See Map 1). The project would convey water from an already developed spring (Grainery Spring) located on public land at the head of Twentyone Creek and another spring (Elk Mountain Spring) located on public land to be developed near the head of the creek to four (4) upland pastures covering approximately 6,703 acres in the Twentyone Creek drainage. The pipeline would be approximately 7.8 miles long and would have 10 rubber tire tanks installed at strategic locations in the Dickie 21 pasture of the Upper Pastures Allotment, in the Bear Creek and Horse Pastures of the Lower Pastures Allotment, and in the 21 Creek Allotment. Two of the rubber tire tanks would replace old tanks currently located near Grainery Spring and near a spring located in section 14, the remaining 8 tanks would be new watering points. The project would also entail fencing of the Elk Mountain Spring with associated riparian area. More than half of the pipeline and 5 of the tanks would be located on private lands controlled by the applicant. See Addendum 1 Plan of Development for further details.

2.1.2 Alternative 2: No Action

Under the no action alternative the application for the Cooperative Range Improvement Agreement would be denied. No improvements or fencing would be installed and livestock would continue to use Twentyone Creek and associated springs for water.

2.1.3 Alternative 3: Action with modifications

This alternative is similar to the Proposed Action, but the Elk Mountain Spring would not be fed into the main water line for the project. A Cooperative Range Improvement Agreement would still be issued to the applicant that would provide for the installation of 7.8 miles of pipeline, 10 rubber tire tanks, fencing around the Elk Mountain Spring and riparian area. The Elk Mountain Spring would be developed, but would only feed one offsite water with all overflows being returned to the spring with no water from the spring feeding the main pipeline or other tanks. The Elk Mountain Spring perimeter would be fenced off to exclude grazing use.

2.2 Design Features (of the Proposed Action or Other Alternative)

The BLM can set forth design features that are necessary for the protection of the surface resources, uses and the environment; and for the reclamation of the disturbed lands. Design features are those specific means, measures, or practices that make up the proposed action and alternatives. Additional design features are added as needed to the proposed action or alternatives. Regulations, standard operating procedures, stipulations, and operator committed measures, and best management practices are usually considered design features. Design features are incorporated into the Proposed Action or alternatives to reduce or avoid adverse effects.

For the purpose of this analysis, the following design features are considered part of Alternative 1 and 3. Also see attached Plan of Development, Appendix 1.

- All tanks fitted with bird/small mammal escape ramps, and are not to exceed 24” in height to accommodate juvenile big game species.
- Flows into tanks regulated by floats.
- Each tank would be installed with on/off valve for compliance purposes.
- Gravity pressure delivery system.
- Designed to water 375 cattle at 15 gallons of water per head per day. The total daily water requirement equals 5625 gallons per day.
- Provide about three days of storage in tanks and pipeline: 6,250 gallons in tanks and about 10,200 gallons in pipeline.
- Flow rate of 3 gallons per minute with 25 gallons per minute maximum.
- Minimal surface disturbance by ripping pipe into soil with a Caterpillar tractor to a depth of 24 – 36 inches.
- No blading with Caterpillar except to fix washed out portions of existing roads and level areas immediately surrounding tanks.
- Pipe lain in existing roads.
- Seeding pipeline with local native grasses with subsequent monitoring and treatment for invasive species.
- Inspection and cleaning of equipment prior to entering project location for noxious weed species.
- Spring riparian vegetation/area maintained by all overflow directed back to spring and flows into pipeline regulated to leave water at spring.
- Prohibition on surface disturbing or disruptive activities from Nov 15 – June 30 to avoid disturbance or displacement of wintering big game and nesting sagebrush obligates, (sage-grouse, sage thrasher, Brewer’s and Sage sparrow)

This project is supported by the local Watershed Improvement District and is receiving assistance from the Natural Resources Conservation Service (NRCS), the Wyoming Water Development Commission (small waters projects), State Engineers Office (water rights), and Prospect Land and Cattle Company.

2.3 Alternatives Considered but not Analyzed in Detail

Provide water as mentioned in the Proposed Alternative, but the Elk Mountain Spring would be undeveloped. This alternative was not analyzed further because the vegetation around the spring would receive damage from not being protected. Currently the area receives substantial use because of its wetland type vegetation. It would be expected that decline and continued over use would happen if the area isn’t protected. This alternative would meet the purpose by providing alternate watering points with the continued use of the spring, but would not implement guideline 3 of the Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming (1997). It was considered that the spring should be fenced and still not developed; however, the applicant has a satisfactory record of developing springs in the area while providing for the protection and sustainability of the spring and associated wetland area.

3 AFFECTED ENVIRONMENT and Environmental Effects

This chapter characterizes the resources and uses that have the potential to be affected by the proposed action, followed by a comparative analysis of the direct, indirect and cumulative impacts of the alternatives. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Cumulative impacts result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.

3.1 Introduction

3.1.1 General Setting and Geographic Scope of the project area

The project is located in allotments located about twelve miles west of the Hamilton Dome Oil Field. The oil field is located approximately 30 miles west-southwest of Worland, Wyoming. Elevation for the area is approximately 6100 feet in the Horse Pasture to 7000 feet at Grainery Spring, the major water source for the project. The project is located in the 10"-14" precipitation zone. The terrain is primarily rolling to steep hills dissected by drainages running into Cottonwood Creek. Most of the slopes average 5 to 40 percent. Livestock grazing on the Upper Pastures, 21 Creek, and Lower Pastures allotments are authorized under the Twentyone Creek Allotment Management Plan signed in 1991.

3.1.2 Past, Present, Ongoing, and Foreseeable Future Actions

Livestock grazing has been a historic permitted use in the allotments. Prescribed fires have also been used in the past to manage and improve vegetative resources and fuels in the allotments. Grainery Spring was also developed in the past with a short pipeline supplying water to a tank nearby. Besides livestock grazing, no other present, ongoing, or foreseeable future actions have been identified within the project area.

3.2 Resources Carried Forward for Analysis

3.2.1 Cultural

3.2.1.1 Issue(s) Identified

- How would the proposed surface disturbance affect historic properties?
- How would the visual impacts from the proposed stock tanks affect historic properties?

3.2.1.2 Affected Environment

The area of potential effect (APE) was defined to include the project surface disturbance (direct) and the viewshed from the proposed stock tanks (indirect). A class III cultural resources inventory was conducted for the APE which includes the proposed pipeline and stock tanks (BLM cultural project #1610069 and 010-2013-088). One cultural resource site was identified within the APE. The resource, historic trail, was evaluated as eligible for the National Register of Historic Places (NRHP). Consultation occurred with the State Historic Preservation Office (SHPO) under the Wyoming State Protocol Agreement between the BLM and the SHPO (State Protocol).

3.2.1.3 Direct and Indirect Effects

Alternative 1: Proposed Action

One historic property was identified within the project's APE. Surface disturbance resulting from the proposed action, approximately 28.5 acres, would affect known historic properties (48HO209). However, several design features of the proposed action reduce the effects. The stock tanks are

placed outside the viewshed of 48HO209, the pipeline would be trenched in the middle of the road, and blading would not occur outside drainage crossings. As a result, the effects would not diminish the characteristics that make the property eligible (location, design, setting, feeling, and association). The proposed action would have no adverse effect on historic properties. For the protection of unknown cultural resources the standard cultural stipulations apply and are included in the conditions of approval.

Alternative 2: No Action

Under the No Action Alternative, the development of the proposed action would not occur. No resulting effects on cultural resources would be expected to occur beyond the current situation.

Alternative 3: Action with Modification

Effects would be the same as alternative 1.

3.2.2 Hydrology (Floodplains, Hydrologic Conditions, Water Quality, Wetlands and Riparian Zones)

3.2.2.1 Issue(s) Identified

- How would the proposed project indirectly impact the floodplain and riparian areas of Twentyone Creek by the change in grazing patterns as a result of the proposed action?
- How would the development of additional water to supply the pipeline impact natural surface water flows of Twentyone Creek?
- What would be the impact to the water quality (bacteria) and designated beneficial uses of Twentyone Creek as a result of the proposed action?

3.2.2.2 Affected Environment

Hydrology/Watershed/ Riparian/Water Resources

The proposed project is located in the Upper Bighorn River sub-basin. The project is located within the Cottonwood Creek-Twentyone Creek level 6 sub-watershed. The United States Geological Survey (USGS) identifies the sub-watershed by name and Hydrologic Units Codes or (HUC) (Map 3). This sub-watershed contains primary tributaries to Cottonwood Creek and drains the foothills of the Absoroka Range that flow in an eastern direction toward the center of the Bighorn Basin. According to 1991 AMP there are 10.6 miles of perennial and intermittent streams in the project area of which 5.8 miles are on public land. The main drainages affected by the proposed project are Twentyone Creek and adjacent tributaries. The Cottonwood Creek/Grass Creek watershed was studied by the Wyoming Water Development Commission in 2007 and recommendations and considerations were given for potential water storage sites in the watershed. It was determined that there are physically and legally available flows that could be stored in the watershed (SEH ,2007 Summary p.6). This project was outlined and included in this study as part of the wildlife/livestock watering projects (p.17).

The water source of Twentyone Creek is from several naturally occurring spring and seep outcrops that are located along slopes and drainage bottoms in upper elevations of the watershed. Twentyone Creek is considered to have a perennial flow regime that supports riparian areas throughout the reach of the segment and is a hydrological gaining reach that receives perennial flow and recharge from ground water along upper elevations in the project area. Along lower elevations and near the bottom of the project area the creek is considered a hydrological losing reach near the confluence of Cottonwood Creek. This is attributed to lower recharge rates along lower elevations and loss of surface water into unconsolidated Quaternary gravel deposits. The flow from Twentyone Creek mostly originates from a large naturally occurring spring source known as the Grainery Spring (Photo 1). This spring has been previously developed and currently supplies water to an offsite tank

that is located below the site. The spring area has been fenced to protect the riparian area from livestock use. The spring is a year-round perennial spring with flow rates estimated to be around 20-25 gallons per minute as estimated from historic observations. The Grainery Spring has recorded water rights filed with the Wyoming State Engineers Office as a public water reserve filing that was adjudicated in 1994. There are no recorded flow data for actual discharge from the spring, but there is sufficient water to support perennial herbaceous riparian vegetation along the riparian corridor surrounding the creek and provide a water source for permitted livestock grazing and wildlife use. The distance of perennial flow downstream from the spring varies according to precipitation and climate trends. The other spring is located in the southeast quarter of section 4 is referred to as the Elk Mountain Spring (Photo 2). This is a small undeveloped spring that is located below Grainery Spring and is a tributary to Twentyone Creek (Photo 3). The estimated flow from Elk Mountain Spring ranges from 2- 5 gallons per minute. It is a perennial spring source that was identified in the Level I Cottonwood/Grass Creek watershed study.

Photo 1-View of Grainery Spring



Photo 2- View of Elk Mountain Spring



Photo 3- View from Elk Mountain Spring looking northeast to Twentyone Creek



Riparian Areas

The riparian areas in the project area are found in (Table 1) (Map 3). The riparian areas were assessed using the BLM Guide to Proper Functioning of Riparian Areas Manual 1737-16, this was an assessment of the functioning condition of the riparian areas using hydrology, vegetation, and soils/erosion criteria and given an overall ratings based on 17 different questions. In the Twentyone Creek drainage, the main perennial segments P0399X and P0218X were rated as functioning at risk, due to lack of potential riparian vegetation and some trailing, erosion, and hummocks occurring in the riparian area. Segment P0219X was rated to be in proper functioning condition, with extensive new Cottonwood regeneration along Twentyone Creek.

Table 1- Riparian areas in proposed project area

BLM ID#	Riparian Area	(mi)	Water Type	Date Assessed	Gradient (%)	Function	Trend	Rosgen Type
P0219X	TWENTYONE CK	1.27	Intermittent	8/31/2004	8	PFC	N/A	B
P0456X	TWENTYONE CK	1.69	Intermittent	8/19/2004	2	FAR	N/A	C
P0399X	TWENTYONE CK	0.62	Intermittent	8/12/2004	2	FAR	N/A	C
P0218X	TWENTYONE CK	1.12	Perennial	8/20/2002	2	FAR	Down	B
P0420X	TWENTYONE CK TR	0.76	Ephemeral	8/31/2004	4	Not Rated	N/A	G
Total:		5.46						

PFC/ FAR/ NF
 PFC=Proper Functioning Condition FAR=Functioning at Risk N/A= Not Apparent U=Unknown
 Rating Scale= 0- Non Functioning, 1-9 Functioning at Risk, 10-19-PFC, 20=Potential Natural Community.

Water Quality Twentyone Creek has been classified by the Wyoming Department of Environmental Quality as a class 3B stream (table 2).

Table 2

Surface Water Classes	WY DEQ Use Designations									
	Drinking Water	Game Fish	Non-Game Fish	Fish Consumption	Other Aquatic Life	Recreation	Wildlife	Agriculture	Industry	Scenic Value
2AB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2C	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3B	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

3.2.2.3 Direct and Indirect Effects

Alternative 1: Proposed Action

Hydrology/Water Resources

- Issue 1: How would the development of additional water to supply the pipeline impact natural surface water flows of Twentyone Creek?

There is no background hydrologic data to compare for baseline alternatives. The following general hydrology conditions were outlined in the Level I study. “Perennial flows on Cottonwood Creek appear to be limited to the reaches generally above the confluence of Twentyone Creek. Most of the tributaries to Cottonwood and Grass Creeks reportedly only exhibit perennial flows in their upper reaches where they are spring-fed during normal to wetter years” (SEH,2007 p.77).

The additional water developed as a result of this project is projected to be approximately 5625 gallons per day, this volume was calculated using 375 cattle times 15 gallons per day, and the overall capacity to fill the pipeline and storage tanks is estimated at 18,400 gallons that includes the tank storage and pipeline volume capacities. This alternative would allow the construction of the construction and consumption of water originating from the Elk Mountain and Grainery Springs that would supply the proposed pipeline. There would be a temporary large reduction in surface water flow below the springs during the initial opening of the pipeline during the grazing period of use. The water would be diverted into tanks located in upland areas. There would be a continuous reduction in the amount of water which would be removed from the natural base surface water flow from Twentyone Creek and consumed or evaporated in the proposed tanks.

There would be a reduced amount of available free water for riparian areas along Twentyone Creek as a result. The amount of distance of perennial flow in Twentyone Creek would likely be reduced as a result of increased diversion quantity of water. The extent of the reduction is currently undefined due to a lack of baseline flow data. The reduction in flow would also be contingent upon the maintenance of the tanks and pipeline system, if the system is in disrepair and overflow is not returned to the creek the flow reduction would be increased as water is diverted into upland areas.

Riparian

- Issue 2: How would the proposed project indirectly impact the floodplain and riparian areas of Twentyone Creek by the change in grazing patterns as a result of the proposed action?

The following is general discussion regarding spring developments in the Cottonwood Creek watershed.

“Occasional and/or localized use of these perennial stream reaches (and intermittent reaches when flowing) for watering of big game and livestock can be appropriate and not result in significant impacts to the riparian environment or water quality. Livestock use of a riparian area should be under an appropriate planned grazing system to avoid overuse that can result in locally severe impacts (SEH,2007 p.77).”

“All of the springs in the area provide at least some opportunity for wildlife and livestock watering when they are flowing. However, where these springs are used in their existing (undeveloped) state, damage to the spring can occur resulting in less use and value (especially where flows are lower). This usually includes damage to the local riparian values associated with the spring (SEH,2007 p.77).”

Under this alternative there would be temporary short duration impact to the Elk Mountain Spring during the initial development of the project. The spring area would be disturbed and trenched to allow the piping and development infrastructure to be inserted in the spring. The impact would be the removal of native herbaceous riparian vegetation due to the disturbance. The duration would be for the length of a growing season or until the native species are re-established. The initial development of the Grainery Spring would not be changed, but additional water would be used from the pipeline. The disturbance to the watershed as a result of the pipeline and tanks in the upland areas is discussed in the soils section.

The riparian areas (Table 1) located adjacent to the pipeline and tanks were rated to be in Proper Functioning Condition (PFC) or Functioning at Risk (FAR). Under this alternative there would be potential for improvement to the riparian and floodplain areas with increased distribution of livestock away from riparian areas. Impacts to the riparian areas from livestock such as bank disturbance, hummocks, and vegetation removal by livestock could be potentially reduced. There would be potential for the riparian areas that are currently rated FAR to improve to PFC under appropriate management and increased distribution as a result of this alternative. Riparian areas that are in PFC condition have increased soil moisture storage capacity and also release water later in the year to effectively extend perennial flows.

A quantitative method for analysis such as BLM Multiple Indicator Monitoring (MIM) pre and post development would provide details if riparian improvement would occur as a result of this alternative. Currently riparian photo points and historic Greenline data is available for the area. Greenline monitoring of the effects of the project would be conducted by BLM personnel on an annual basis for up to 5 years to determine potential changes as a result of this alternative.

The area below Elk Mountain Spring would be fenced off and this would be expected to improve in functioning condition with the removal of livestock from this area.

Water Quality

- Issue 3: What would be the impact to the water quality (bacteria) and designated beneficial uses of Twentyone Creek as a result of the proposed action?

Twentyone Creek is designated as a Class 3B stream. The DEQ state designated beneficial uses are currently being met as the segment is not listed as impaired. Under this alternative there would be increased distribution of livestock away from Twentyone Creek. There would be a slight potential for a reduction in bacteria associated with the increased distance of livestock away from the Twentyone Creek and the associated riparian areas. Increased distribution would allow for bacteria from livestock waste to be in upland areas and not connected to perennial water sources. The action of moving livestock grazing away from perennial water sources is common Best Management Practice (BMP) and this alternative is in accordance with this BMP.

Also there would be a slight reduction in flow as a result which would impact the “other aquatic life” beneficial use as a result of this alternative.

Alternative 2: No Action

Hydrology/Water Resources

- Issue 1: How would the development of additional water to supply the pipeline impact natural surface water flows of Twentyone Creek?

Under this alternative the pipeline would not be constructed. The current flow diversion to the existing tank would be the only in the area. The 5625 gallons per day of water consumption by livestock would remain the same as alternative 1, due to the same amount of livestock grazing in the allotment. The livestock would utilize the perennial water sources along Twentyone Creek for the majority of their water consumption. The natural flow rate from Elk Mountain Spring would remain unchanged as the spring would not be developed under this alternative. The additional water diversion of 18,400 gallons to fill the pipeline and tanks would not occur and this water would remain in Twentyone Creek as a result.

Riparian

- Issue 2: How would the proposed project indirectly impact the floodplain and riparian areas of Twentyone Creek by the change in grazing patterns as a result of the proposed action?

The current functioning condition and riparian values would remain in their current states. The amount of time of livestock grazing occurring within the riparian zones would remain unchanged. The amounts of bank disturbance from livestock, compaction from use, the amount riparian vegetation removal, and riparian vegetation stubble heights, would remain static. The areas that are functioning at risk with a downward trend would continue to decline if the current use levels remain the same under this alternative. The Elk Mountain Spring area would not be fenced and the livestock use would continue to occur in the riparian zones.

Water Quality

- Issue 3: What would be the impact to the water quality (bacteria) and designated beneficial uses of Twentyone Creek as a result of the proposed action?

Although there is no quantitative bacteria data for Twentyone Creek, under this alternative the livestock grazing along Twentyone Creek would remain unaltered. The current time spent by livestock in the riparian zones would be greater compared to alternative 1. The increased amount of time in the riparian zones is directly correlated with introduced bacterial levels in the creek. The current bacterial water quality conditions would remain the same. The Elk Mountain Spring area would not be fenced and the livestock use and correlated bacteria levels in the water would remain unchanged. There would be no reduction in flow compared to alternative 1 and the other designated beneficial uses from “other aquatic life” in Twentyone Creek would remain unchanged.

Alternative 3: Action with Modification

Hydrology/Water Resources

- Issue 1: How would the development of additional water to supply the pipeline impact natural surface water flows of Twentyone Creek?

This alternative would develop the main spring and develop the Elk Mountain Spring to an offsite tank near the spring, with the overflow returning to the Elk Mountain Spring. This alternative when compared to the No Action alternative would have the least amount of water diverted compared to the no action alternative. Compared to the proposed action, this would alleviate the demand from the Elk Mountain Spring and excess water would return to the spring. The natural surface water flow would be slightly reduced below the Elk Mountain Spring as a result of this proposal. There would be reduced water pressure in the pipeline and additional water that would be consumed by livestock from the tanks in the allotment would originate from the main Grainery Spring. This alternative would have an increased amount of water reduction in the main segment of Twentyone Creek below Grainery Spring. The duration of the impact would be during the period of use, and

would consist for the lifespan of the pipeline functionality which would likely consist of 30 years or more.

Riparian

- Issue 2: How would the proposed project indirectly impact the floodplain and riparian areas of Twentyone Creek by the change in grazing patterns as a result of the proposed action?

There would be no significant change in impact to the floodplain and riparian areas when compared to the proposed action in the Twentyone Creek drainage area. The impacts would be the same as alternative 1. In the Elk Mountain spring area; there would be less use of livestock in the vicinity of the spring area from the construction of the fence around the perimeter of the spring. There would be less hoof action and trampling of the riparian wetland soils and vegetation as a result in the Elk Mountain Spring area. There would be less available water to support the lentic riparian area directly below the spring, while the pipeline diverts water during the grazing season. This impact would be reduced due to less trampling of the riparian area, increased soil water retention and no grazing activity inside the proposed fence.

Water Quality

- Issue 3: What would be the impact to the water quality (bacteria) and designated beneficial uses of Twentyone Creek as a result of the proposed action?

The impact to the water quality (bacteria) and designated beneficial uses of Twentyone Creek would be similar to alternative 1 with the exception of the Elk Mountain Spring area. This alternative as compared to the no action alternative would create a reduction of bacteria concentrations in water quality from the Elk Mountain spring area due to an increased grazing distance to perennial water. There would be less impacts to the other aquatic life in the Elk Mountain Area as a result when compared to Alternative 1 due to increased grazing distribution in the area.

3.2.2.4 Cumulative Effects

The Cumulative Impact Assessment Area (CIAA) for this action is the Twentyone Creek sub-watershed and Twentyone Creek. The table below describes the differences in the alternatives in relation to the cumulative effects of the proposed action.

Table 3- Cumulative Effects Table

Cumulative Effects Table impacts Twentyone Creek Pipeline					
Alternative	Cumulative Impact Assessment Area (CIAA)/Geographic Scope	CIAA/Temporal Scope	Past-Present Actions	Future Actions	Direct-Indirect Effects
Alternative 1	Cottonwood Creek-Twentyone Creek Watershed	10+ years (length of development)	Water Development of 0.67 acre feet of water from new and increased spring development	Continued grazing use in the watershed with new water sources. Continued development of natural water sources in the watershed.	The reduction of 0.67 acre feet of water from the Twentyone Creek drainage from spring sources in the watershed.
Alternative 2	Same	10 + years (length of development)	Water use directly from Twentyone Creek and not consumed in tanks.	Continued grazing use in the watershed.	Retain the current flow conditions of Twentyone Creek.
Alternative 3	Same	10 + years (length of development)	Same as alternative 1	N/A	Same as alternative 1

3.2.3 Livestock Grazing

3.2.3.1 Issue(s) Identified

- How would the project change grazing management and livestock distribution within the affected allotments?

3.2.3.2 Affected Environment

The project lies within the Dickie 21 pasture of the Upper Pastures Allotment, in the Bear Creek and Horse Pastures of the Lower Pastures Allotment, and in the 21 Creek Allotment within the Worland Field Office. In 1991, the permittee and the BLM developed the Twentyone Creek Allotment Management Plan (AMP). The original AMP, including the grazing system was initiated in 1969 with several modifications over the years. According to the 1991 AMP the management program and stocking rates did not meet all of the improvement objectives. Utilization averaged approximately 75 percent in selected key areas in the Upper Pastures Allotment #00633 and approximately 60 percent in selected key areas in the Lower Pastures Allotment #00634. Heavier utilization occurred in the bottoms and near water sources.

As stated in the AMP, the operator submits an annual grazing plan and implements the plan after approval from the BLM. The AMP provides that one of the pastures in the Upper Pastures allotment be rested each year and livestock use can vary so long as permitted animal unit months (AUMs) and utilization levels are not exceeded (40% growing season and 60% dormant season). The Twentyone Creek AMP also stipulates that some of the pastures, including the Dickie 21 pasture, in the Upper Pastures allotments have delayed turnouts during the growing season to allow for appropriate green-up and decrease potential conflicts with wildlife.

The Past and current grazing management in the 21 Creek and Lower Pastures allotments has been dictated around availability of water in Twentyone Creek. Although the reach has been described as perennial, it often dries up, especially on below average precipitation years, during the end of the summer in the lower portions within the allotments. As a result of only seasonally available water the allotments are used during the same times each year therefore not allowing for the deferment of pastures in the annual grazing plan.

3.2.3.3 Direct and Indirect Effects

Alternative 1: Proposed Action

The proposed action would change the way in which livestock utilize the Dickie 21, Bear Creek, 21 Creek, and Horse pastures. The proposed action would allow for permanent water to be available to livestock in the Horse, Bear Creek, and 21 Creek Pastures. The Dickie 21 pasture already has one permanent water source (Grainery Spring Development). Permanent water would allow grazing use to occur in other periods of the year, not just when water is present in the creek, which would allow pastures to be in a deferred rotation system.

The grazing permit (Authorization #4901237) outlines mandatory terms and conditions, specifically authorized AUMs. The AMP already provides for flexibility in grazing management to meet resource and ranch objectives. It also dictates that once use levels have been reached the livestock would be removed from the pasture. Under this alternative monitoring of use levels would need to continue to ensure that use objectives outlined in the RMP and AMP are not exceeded. The Twentyone Creek Pipeline and this EA would not make more AUMs available. The Proposed Action would only change where use is occurring within each individual pasture and

would give options for management so that pastures may be deferred to aid in reaching the objectives outlined in the afore mentioned planning documents.

By using the design features of the project, each trough having an on/off valve, use within the pasture would be managed by turning water on or off to troughs to control grazing levels in areas of allotments or pastures. This feature, with monitoring, would ensure that grazing use levels are in compliance with the RMP. This feature would mitigate the negative impacts of moving grazing use to the traditionally lightly used upland areas.

Alternative 2: No Action

The No Action alternative would not change grazing management and management within the pastures would continue as has happened in the past. The riparian areas and bottoms would continue to be the areas mostly utilized by the livestock. Grazing use in the Horse, Bear Creek, and 21 Creek pastures under this alternative would continue to happen in the same season each year because water availability limits the timing and makes deferment to another period unfeasible.

Alternative 3: Action with Modification

This alternative would have the same affects to grazing management as Alternative 1. The modification outlined under Alternative 3 would not increase or decrease impacts associated with grazing management.

3.2.3.4 Cumulative Effects

No cumulative effects are identified for grazing management. While the project would have lasting effects for flexibility of grazing management, it would not change the amount of grazing use.

3.2.4 Soils

3.2.4.1 Issue(s) Identified

- How would the project alter the soils ability to capture runoff and would it lead to more erosion?

3.2.4.2 Affected Environment

The soils in the pastures that would be served by the Twentyone Creek pipeline reflect the piedmont landscape setting on which they formed. They are highly variable, reflecting differences in position on the landscape, parent material (shale, sandstone, mixed alluvium & glacial outwash) slope and aspect. The upland soils are well drained. Along Twentyone Creek and Cottonwood Creek somewhat poorly drained soils are common.

All are typified by a light brown surface horizon. Soil textures consist of loams, gravely loams, channery loams, cobby loams and sandy loams. Subsoils textures are similar consisting of loams and clay loams. Clay content often increases with depth being reflected as an argillic horizon.

Along Putney Flat slopes are nearly level but on the opposite side of Cottonwood Creek slopes can approach 60 percent. Based on topographic map interpretation, slopes along the pipeline range from nearly level to 15 percent.

The soils support the following Ecological Sites.

Loamy 10-14 in. pz.	R032XY322WY
Shallow Loamy 10-14 in. pz.	R032XY362WY
Clayey 10-14 in. pz	R032XY304WY

Gravelly	R032XY312WY
Loamy 15 – 19 in. pz.	R043BY322WY
Shallow Loamy 15 – 19 in. pz.	R043BY362WY
Clayey 15 – 19 in. pz.	R043BY304WY
Coarse Upland 15 – 19 in. pz.	R043BY308WY

NRCS precipitation data and BLM rain gage data places the project area in the upper end of the 10 to 14 inch precipitation zone. Soil mapping places the western portion of the project area in the 15 to 19 inch precipitation zone.

Indicators of watershed instability are common in the Lower Pastures. Nick points and headcuts can be observed along two-track roads and within ephemeral drainages. Field observations indicate that the road network is the primary contributing factor to the watershed instability.

The soils offer few limitations for pipeline development. Where encountered, the soft shale bedrock would not prohibit pipeline placement. Some areas would be virtually impassable when wet and would be extremely susceptible to rutting. The reclamation potential of the soils is fair. Areas of shallow soil, thin topsoil (>4 inches), and low water holding capacity combine to limit reclamation potential and natural recovery.

Many of the soils are ranked in Hydrologic Group C and D indicating that they have slow to very slow rates of infiltration. Nonetheless, when the native vegetation is intact, they are not susceptible to runoff and erosion, as confirmed by the U.S. Forest Service web based Water Erosion Prediction Project (WEPP), Disturbed WEPP Model. WEPP predicts a six percent probability of runoff and a four percent probability of erosion for undisturbed soils. Erosion is only predicted during 50-year storm cycle. When averaged over a 50-year period, average erosion rates are virtually none.

Since WEPP does not estimate runoff as a concentrated flow, nor does it estimate channel erosion, the minimal amount of erosion predicted by WEPP seemingly contradicts the on-the-ground observations of nick points and headcuts previously discussed. These are in large part due to the road network and the ephemeral drainages concentrating runoff into confined channels.

A rangeland health assessment using BLM Technical Reference 1734-6, Interpreting Indicators of Rangeland Health has not been conducted on the lands that would be served by the pipeline system. Casual observation, including the erosion indicators previously discussed, indicate a slight to moderate departure from what would normally be expected on the site for the rangeland health watershed attributes of Soil/Site Stability and Hydrologic Function. The greatest watershed concern is the instability along the road network and ephemeral drainage system.

3.2.4.3 Direct and Indirect Effects

Alternative 1: Proposed Action

The Plan of Development (POD) states that a Caterpillar tractor would be utilized to rip the pipe to a depth of 24 – 36 inches. By burying the pipe using a ripper, surface disturbance would be minimized. Soil horizons would be altered but not completely destroyed. About a one foot wide disturbed area would remain after burying the pipe. The disturbed area along the pipeline would be rough and irregular, reducing runoff and providing a seed source of native species.

WEPP predicts a 42 percent probability of runoff and a 34 percent probability of erosion the year following the pipeline installation with an average erosion rate of 0.30 tons per acre per year. In the unlikely event of either a 25-year or 50-year storm cycle, the annual erosion rate would be 5.13

and 5.26 tons per acre respectively. These calculations take into account utilizing a trencher and the resultant roughened surface following pipe installation. Rates of runoff and erosion would approach pre-disturbance rates within three to five years following disturbance.

A soil loss threshold of 5 tons per acre per year has historically been the established threshold for agricultural lands. Given the arid setting of the proposed action and the sensitive nature of these soils, a threshold of 2 tons per acre per year has been established. Average erosion rates predicted by WEPP are within this threshold, though the erosion rates predicted for storm cycles greater than a 25-year return period would exceed this threshold.

The disturbance along the pipeline would re-vegetate in three to five years following disturbance. The rough surface would be capable of capturing water to the benefit of seeded species. In addition, native seed already present in the soil would contribute to reclamation success.

Bare areas would develop around the stock tanks and soils would become compacted. These would be a long-term feature on the landscape. These bare areas would be subject to runoff and erosion rates comparable to those following construction. Given the limited size of these areas, and the buffering capacity of the surrounding plant communities to catch and slow runoff, no off-site impacts are anticipated. Livestock trails could develop near the stock tanks with potential for trails to capture runoff and form into gullies.

Vehicle tracks could become a long term surface feature adding to the existing two-track trail network. Depending on slopes, runoff would be concentrated on two-track trails and soil compaction could result. Maintenance of the pipeline could increase the volume of traffic along the road network. On the other hand, road maintenance conducted as part of the pipeline installation could lead to a reduction in runoff and erosion along unstable sections of the existing road network.

In the event of broken line or broken fitting, there could be significant localized erosion, until either the pipeline became fully drained or was shut down. Water flow could result in the development of minor nick points or could develop into significant headcuts with channel development.

Since grazing use would be increased on the uplands, overall rangeland health with respect to the Rangeland Health attributes of Soil/Site Stability and Hydrologic Function are anticipated to remain static or decline. There could be a reduction in the ability of the soil surface to capture water and slow runoff.

Alternative 2: No Action

Under the no action alternative the pipeline would not be constructed. The short term impacts associated with the pipeline construction would be avoided. In the long term the attributes of Soil/Site Stability and Hydrologic Function would continue to improve incrementally. There would be no improvements made to the unstable portions of the existing two-track road network.

Alternative 3: Action with Modifications

The impacts to soils under this alternative would be the same as the Proposed Action.

3.2.4.4 Cumulative Effects

No cumulative effects are identified for soils.

3.2.5 Wildlife/Fish (Including Threatened, Endangered, Candidate and BLM Sensitive Animal Species)

3.2.5.1 Issue(s) Identified

- How would the new livestock watering locations and subsequent changes in livestock grazing impact utilization and residue remaining on crucial elk winter range and core area sage-grouse nesting habitat.

3.2.5.2 Affected Environment

The proposed project area provides habitat for several big game species, as well as many other none game wildlife species, during all seasons of the year. Throughout the summer and early fall smaller numbers of resident elk, mule deer and antelope use these allotments. From late fall through spring this area provides crucial winter range for larger herds of elk and mule deer. The entire BLM portion of this proposed livestock water pipeline system is within crucial mule deer winter range, and approximately the upper third, or upper 3 new tank locations of the proposed system are within crucial elk winter range, (see wildlife map). Apparently because of hunting pressure and/or wolf predation, in the neighboring areas to the north and west, winter and spring elk use of the lower portions of this proposed project, below existing crucial elk winter range, has been increasing over the past 5 to 10 years. During sage-grouse lek monitoring in April it is common to observe 200 to 600 elk, and smaller numbers of mule deer, near the 21 Creek #2 lek. And the lower portions of the proposed project area also provide yearlong habitat to healthy population of antelope.

Threatened and Endangered and Bureau Sensitive Species

The majority of the proposed project area in addition to being big game winter range is also predominantly core area sage-grouse habitat, and provides wintering, breeding, nesting and brood rearing habitat for a migratory population of sage-grouse that migrate up in elevation into upper Twentyone, Little Grass and Cottonwood creeks for late brood rearing habitats, as the summer progresses. Within the south and southeastern portion of the proposed project area, at the lower elevations, there are 4 active sage-grouse leks all within 1.7miles or less of the lowest proposed new stock tank. West Putney Flat lek, the largest of the four leks had a high male count of 38 in 2010 and 31 in 2000. Putney Flat lek, the next largest, average male count was around the upper 20s to low 30s for the last 10 years, and 21 Creek #2 had 28 males in 2005 and an average of 5 males the last 3 years. And the 21 Creek #1 lek had a high of 12 males in 2003 and 2 males the last 2 years.

The upland vegetation is predominantly a sagebrush/bunch grass community, with both Mountain and Wyoming sagebrush communities within the project area. The approximate break between Mountain and Wyoming sagebrush is around 6000ft elevation. In the uplands where historic livestock grazing has been moderated by the lack of water, blue bunch wheatgrass is the dominant bunch grass within these sagebrush communities. Both the wintering elk and nesting sage-grouse depend on adequate levels of standing herbaceous residue for winter forage and nest concealment. While Mule deer and would forage on herbaceous and forb species, particularly when they are green and actively growing, they depend more on upland shrubs (sagebrush) and riparian woody species for key browse forage, particularly during the winter. The sagebrush communities are also likely providing habitat for other sagebrush obligates like the sage thrasher, sage sparrow, and Brewers sparrow. Other species like the black bear, mountain lion, and a variety of other predator species, passerines, raptors, and small mammals inhabit this allotment seasonally and yearlong.

3.2.5.3 Direct and Indirect Effects

Alternative 1: Proposed Action

The surface disturbing and disruptive activities associated with the proposed livestock pipeline installation may cause short term displacement to resident wildlife, but with the stipulated July 1 – Nov 15 construction period, disturbance and/or displacement of wintering concentrations of big game or nesting sagebrush obligates would not be an issue.

Other long term impacts to wildlife would result after installation, primarily the subsequent livestock grazing. At each new stock tank location there would likely be associated activities and disturbances like; increased raptor perching and predation, increased livestock use and concentrations, livestock trailing, undesirable vegetation infestations resulting in a less desirable vegetative community which would result in the disturbance or displacement of some wildlife species. The livestock tanks and pipelines would result in some level of habitat removal, habitat fragmentation and reduction in habitat quality, particularly if disturbed areas are colonized by invasive or noxious plant species.

Implementation of this alternative could provide additional watering locations for late summer/early fall resident pronghorn, mule deer, and elk. Most of the big game use of this proposed project area occurs during winter months when wildlife primarily use snow to meet water needs, and most small animals and upland game birds gain their water requirements from snow or forage. Because the proposed tanks would be 24 inches above ground level, use by small mammals and most avian species is not anticipated. It is generally held that here in the arid west, water sources are a limiting factor for some wildlife species, in particular big game. All water locations are potentially important for wildlife and can change underutilized habitat into more viable habitat. In general most big game species would travel up to 2 miles for water. During average precipitation years and conditions, all 10 of the proposed livestock tanks are \leq .5 miles from existing water sources that are presently accessible to wildlife. Under drought conditions some of these existing water sources could dry up and render the proposed water sources beneficial to wildlife, particularly in late summer and early fall months. The addition of these proposed water sources have the potential to increase the use of this area by big game, particularly during drought.

Of the 10 new tank locations 8 would be new water locations and 4 of these would be on BLM surface. The remaining 2 locations would be new tanks replacing old tanks at existing water locations. One of these sites is .3 miles north of the 21 Creek #2 lek, but because this was an existing water location and development, it would be exempt from the following restriction; *“Timing and Distance: Sage-grouse leks inside core/connectivity areas: Surface occupancy and/or disruptive activities are prohibited on or within a six tenths (0.6) mile radius of the perimeter of occupied sage-grouse leks.”* (2012, BLM IM No. WY-2012-019). The tank at the upper end of the pipeline at Grainery spring is the second tank that would replace an existing tank. All 8 of the proposed livestock watering locations are within core sage-grouse habitat and the most recent Wyoming BLM guidance on managing livestock grazing in the core area states the following; *“Plan 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.”* (2012, BLM IM No. WY-2012-019). The proposed upper 3 new watering location are in crucial elk winter range, of which the 1998 Grass Creek RMP states *“Water developments for livestock are prohibited in elk crucial winter ranges unless adverse effects can be avoided or mitigated based on site-specific analysis. Existing uses would be allowed pending site-specific analysis.”*

The development of new watering locations for livestock would likely decrease livestock grazing impacts at the existing riparian water source locations (Twentyone Creek), and increase livestock

use in the uplands around the new tanks. Riparian grazing impacts should decrease during cool season grazing where cattle would be expected to use water tanks and not Twentyone Creek, it is probable during hot season grazing cattle would continue to use the Twentyone Creek riparian area primarily for the shade provided. The anticipated enhancement of these riparian habitats would benefit those wildlife species that use these areas. This is particularly true for those areas with important woody browse species such as narrow-leaf cottonwood, chokecherry and willow. An increase in herbaceous riparian species production could result in providing a higher potential for the riparian to expand and store water in the system. Livestock utilization would likely increase around the new upland tank locations, approximately 1 to 1.5 miles from each tank, depending on surrounding topography. If these increases in utilization exceed the desired use levels an inadequate amounts of residue for winter elk forage and sage-grouse nesting cover would result. And if these use levels are exceeded repeatedly, decreases in both habitat quality and ecological condition could result. According to research conducted in sagebrush-steppe, adherence to light-utilization standards is the most dependable way to ensure a healthy plant community (Cagney et. al., 2010). Conclusions from a review of the effects of herbivory on bluebunch wheatgrass (*Pseudoroegneria spicata*), an important sagebrush associate, indicated (1) utilization levels of 30 to 40 percent under deferred grazing systems is a recommended maximum use-level if maintaining the community is desirable; (2) onetime growing season utilization levels of more than 50 percent have long-term (up to a decade) impacts on plant vigor and productivity (even if followed by complete protection); and (3) grazing following the growing season has little effect, although yield reductions the following year may occur if grazed to 2-inch stubble height (Anderson, 1991). It is also important to note that the majority of the riparian area is private land, and the uplands are primarily BLM land.

The proposed 8 new upland tanks could result in livestock utilization levels that would diminish the habitat quality and impact sage-grouse nesting, as well as big game wintering. For the rangelands within 1.5 miles from the proposed upper 3 new tanks in crucial elk winter range, mitigation would be proposed to avoid adverse effects. Livestock utilization levels would have to meet the Grass Creek RMP requirements for crucial elk winter range. There would be a combined forage utilization within crucial elk winter range would be of 30% for growing season and 50% for dormant season use. For the rangelands within 1.5 miles of the proposed 8 new tank locations within core area sage-grouse nesting habitat the Grass Creek RMP requirement is “*a combined forage utilization of 30 to 50 % for growing season use, and 60% for dormant season use*”. The requirement of the IM No. WY-2012-019 is to “*maintain and/or improve Greater Sage-Grouse and its habitat*”. If the above use levels are not met consistently, particularly in the blue bunch wheatgrass sites, habitat quality could diminish over time. The herbaceous residue in this area is in high demand given the combined forage needs of nesting sage-grouse, wintering elk and livestock. In order to maintain and/or improve the sage-grouse habitat as well as provide for other species dependent upon the sagebrush/bluebunch wheatgrass communities the prescribed utilization levels would have to be adhered to and monitored.

Possible mitigation to avoid these impacts to crucial elk winter range and core area sage-grouse nesting habitat could be to identify 8 new monitoring locations on BLM upland sites, approximately 0.25 miles from each tank where utilization limits mentioned above would be monitored. When use levels have been reached, livestock would need to be removed from pasture and/or water tank turned off. If repeated over utilization is observed, (2 out of 3 years), tanks would be turned off and/or removed until herbaceous production, frequency, and composition are back to pre-pipeline conditions.

Alternative 2: No Action

Under the no action alternative there would be no direct impacts from the water pipeline installation and construction. And livestock would continue to graze the proposed pipeline area, but impacts in the form of livestock concentrations would continue to be associated more with the Twentyone creek riparian area and not the uplands where tanks are proposed.

Alternative 3: Action with Modification

The impacts to wildlife under this alternative would be the same as the Proposed Action.

3.2.5.4 Cumulative Effects

There are no known past, present, or reasonably foreseeable actions that would affect the resources in the proposed project area.

3.2.6 Vegetation

3.2.6.1 Issue(s) Identified

- How would installation of the pipeline and/or tanks disrupt or alter vegetation?
- Would vegetation be changed because of a change in grazing use due to water being available at upland locations?

3.2.6.2 Affected Environment

The allotments affected by the proposal are classified as class “I”, Improve allotments. The objectives outlined in the Grass Creek RMP (1998) are to improve resource conditions and productivity to enhance multiple use opportunities.

Vegetation on the allotment is quite variable and dependent upon the range site. Historically the ecological sites within the allotment evolved with grazing from large ungulates and low frequency wildfires (NRCS 2008). Vegetation on the allotment generally begins growing between May 1 and May 15 continuing growth until about October 10. Most growth occurs between May and early July, accounting for 75% of the annual growth. Some growth occurs in late summer and fall when precipitation events provide moisture allowing for regrowth. This regrowth is variable depending on seasonal variation in weather and is not considered part of the critical growing season. The critical growing season is defined as the period beginning with initial growth in the spring until the plant has set seed and gone into senescence in mid to late summer.

The following is the growth curve of this plant community expected during a normal year:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	25	40	10	5	10	5	0	0

The uplands are comprised primarily of grasses such as bluebunch wheatgrass (*Pseudoroegneria spicata*), Columbia needlegrass (*Achnatherum nelsonii*), prairie Junegrass (*Koeleria macrantha*), western wheatgrass (*Pascopyrum smithii*), Sandberg bluegrass (*Poa secunda*), Idaho fescue (*Festuca idahoensis*), spike fescue (*Leucopoa kingii*), mutton grass (*Poa fendleriana*), and sedges (*Carex* spp). Other vegetation found includes sagebrush (*Artemisia tridentata*), junipers (*Juniperus* spp.), cottonwoods (*Populus* spp.), willows (*Salix* spp.), limber pine (*Pinus flexilis*), quaking aspen (*Populus tremuloides*) and forbs such as bluebell bellflower (*Campanula rotundifolia*), lupine (*Lupinus* spp.), and taxa in the Asteraceae and Fabaceae. This list is not all inclusive and the vegetation noted are those that are evident and readily available.

In the 10-14” precipitation zones, monitoring data collected in the summer of 2013 (See Table 4) shows the sites in the perennial grass/Big Sagebrush state of the State and Transition model for

both Loamy and Shallow Loamy ecological sites (NRCS 2008). The sites monitored fall into the state just below the historic climax plant community (HCPC). Structural groups are slightly off of expected with dominance by Poa species. As these sites deteriorate “species such as blue grama, Sandberg bluegrass, and big sagebrush would increase” (NRCS 2008). Prescribed grazing or possibly long-term prescribed grazing, would convert this plant community to the HCPC. The probability of this occurring is high especially if rotational grazing along with short deferred grazing is implemented as part of the prescribed method of use.

The Dickie 21 site shows on soil maps as falling into a shallow loamy 15-19” precipitation zone Ecological site. It falls on the transition between the 10-14” and 15-19” precipitation zones and has characteristics of both, but aligns more closely with the 10-14” sites. The Dickie 21 site has a northern aspect while the other two sites are located on southern aspects. For this reason big sagebrush tends to dominate on the Dickie 21 site. The Urwin 21 site does not fall within the project boundary, but is very near and is representative of areas within the project area.

Table 4. Species Composition and Bare Ground expressed as percentages for three Monitoring Sites.

Species	Dickie 21	Urwin 21	Ramul 21
Antennaria spp.	1	0	0
Big Sagebrush	33	19	10
Blue Grama	0	0	9
Bluebunch Wheatgrass	12	0	3
Carex spp.	12	8	1
Fringed Sagewort	0	4	0
Idaho Fescue	1	0	0
Needle and Thread	0	0	14
Phlox	4	0	0
Poa spp.	28	43	49
Prickly Pear Cactus	0	0	13
Rubber Rabbitbrush	0	1	0
Snowberry	0	1	0
Unknown Forb	0	3	0
Western Wheatgrass	10	22	1
Bare Ground	11	20	19

Currently about 3,500 acres of BLM lands are suitable for grazing use (See Map 4). This number is based on the assumption that most grazing use would be made within one mile of a water source. It also assumes that use is made when water is present in the creek as has been done under past management.

3.2.6.3 Direct and Indirect Effects

Alternative 1: Proposed Action

The Proposed Action would change the way in which livestock utilize the vegetative resources within the identified pastures and allotments. Historically most of the grazing use has occurred along the riparian area with some use into the uplands. Providing water at upland locations would enable more grazing use to take place in upland areas and on upland vegetation reducing the

grazing pressure in the riparian area. While the riparian area would likely benefit from this action it would potentially change the impacts to upland vegetation. Bluebunch wheatgrass is sensitive to grazing use especially during the growing season (see wildlife section). Increasing grazing use in the uplands could lead to more bare ground and livestock preference for certain species could change the vegetative composition. Following the guidance outlined in the wildlife and livestock grazing sections, monitoring use levels and turning off tanks or moving to new pastures once the utilization levels have been met, would allow for grazing use in the upland areas while maintaining current plant communities and cover. Under this alternative monitoring would continue to ensure the current vegetative states are maintained or improved. If upland plant communities don't stay static or improve the project may need to be abandoned and/or removed if it is determined to be the cause of a downward trend. However, implementing the mitigation measures and design features would provide for the vegetation to be maintained in its current state and/or improved.

The pipeline and associated tanks would also provide opportunities to prescribe grazing in a different manner. Past grazing use has generally happened at the same time of year, especially in the lower elevations of the project area, due to water availability. The grazed period has usually occurred during the critical growing season because that has been when water was available in the creek. In order to avoid the potential for a downward trend or a change in state the Ecological Site Descriptions call for prescribed grazing verses season long or growing period grazing. The pipeline and tanks would provide water to livestock in other periods of the year allowing vegetation to be grazed during dormant periods. Dormant season livestock grazing allows for grazing use without stressing plants, and can help to invigorate plants by removing old and decadent plant material. The advantages of prescribed grazing would help to restore the vegetation to the Historic Climax Plant Community.

Map 4 depicts expected suitable areas for livestock grazing based on the consideration that livestock make most use within 1 mile of water and assuming that the creek bottom has water when livestock are in the pasture. Currently there would be 3,500 acres of BLM lands within the project area suitable for grazing use. Under the Proposed Action 4,498 acres would be available. This is a 22% increase over the No Action alternative. By making more of the acres in the pastures suitable, because they are closer to a water source, the stocking rate of each pasture would decrease. This increase in suitable acres is important because light use would be expected over the 4,498 acres under the Proposed Action versus moderate use on 3,500 acres under the No Action alternative.

The Proposed Action would fence out the riparian area associated with the Elk Mountain Spring. This would allow the vegetation to grow without livestock grazing to further stabilize the area.

The actual installation of the pipeline and tanks would disrupt and remove vegetation. The tanks are approximately 12 feet in diameter and trampling around the tank would remove about another 30 feet of vegetation. With 8 new tanks only about one acre of vegetation would be lost. Considering the size of the area served by the pipeline this is a loss of 0.01%. As watering occurs at the tanks areas along the creek where the livestock normally water should recover. Within 5-10 years there would be no net loss of vegetation. Trails to and from water sources would also change but the change should not increase the amount of bare ground once the old trails have vegetated. The method used to lay the pipe (ripping with caterpillar tractor) does not greatly disrupt vegetation. Generally, within one growing season the ripped area would vegetate and within 3-5 years there would be no evidence of the disturbance.

The Proposed Action is expected to decrease utilization levels and allow grazing in non-growing season periods. These benefits would benefit the upland vegetation by removing less of each year's growth and not defoliating the plant during critical growth periods.

Alternative 2: No Action

The No Action alternative would not change current vegetation conditions or the way in which they are used. Currently 3,500 acres are suitable for livestock grazing use when considering that most use would be within 1 mile available water. Vegetation along the riparian corridor would still be utilized first before livestock seek out forage in the uplands. The proposed tank locations and the area surrounding them would not receive the higher intensity grazing that would be associated with areas near water sources.

The flexibility allowed under Alternative 2 to manage vegetative resources would be dictated by weather patterns that provide enough creek water for livestock watering. The No Action alternative would likely lead to continued use at the same time each year and would not allow for deferment to another time period.

Alternative 3: Action with Modification

This alternative would have the same effects as the Proposed Action. Diverting all of the water back to the spring would not have a measurable effect on the vegetation. The applicant has installed a similar pipeline/spring development in the Prospect drainage and the riparian area and vegetation has been maintained while still supplying water into the pipeline.

3.2.6.4 Cumulative Effects

In 1992 prescribed fire was introduced to reset the successional clock and to improve the vegetation of 49.4 acres of the Dickie 21 Pasture. The Proposed Action coupled with these past actions would help to maintain the vegetation on the areas burned. However, the previous prescribed burns were localized and do not make up a very large part of the project area. No other cumulative effects have been identified for vegetation resources.

4 TRIBES, INDIVIDUALS, ORGANIZATIONS, or AGENCIES CONSULTED

Person Consulted	Agency/Tribe/Organization
<i>Prospect Land & Cattle</i>	<i>Applicant</i>
<i>Mary Hopkins, SHPO</i>	<i>State Historic Preservation Office</i>

5 LIST OF PREPARERS

The following Worland Field Office personnel reviewed or have been contacted with regard to this EA.

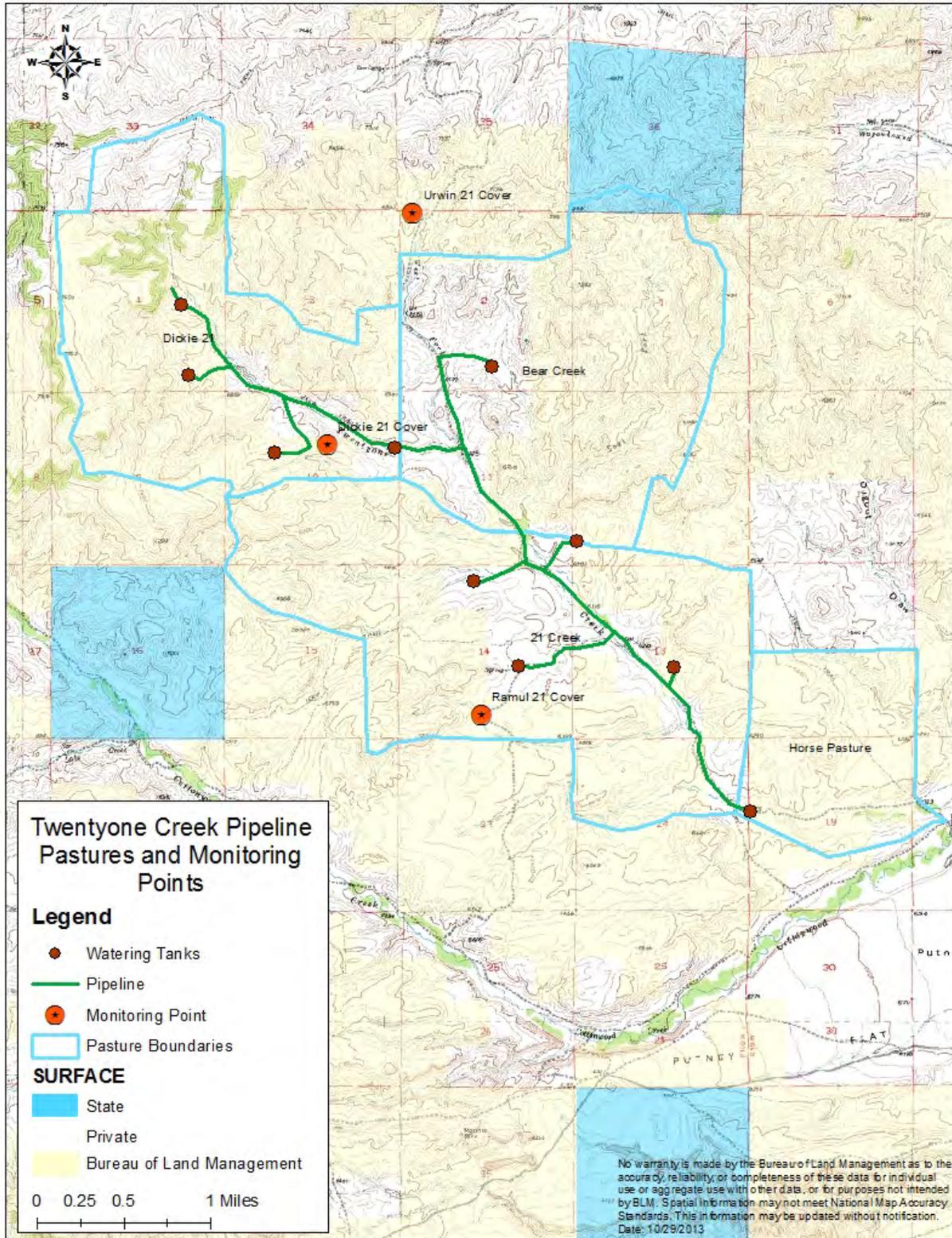
List of Reviewers

Resource	Name	Title
Cultural Resources	Marit Bovee	Archaeologist
Fish/Wildlife (including T&E)	Tim Stephens	Wildlife Biologist
Recreation/VRM/Travel Management/Special Designations	Brian Smith	Recreation/Visual Specialist
Rangeland/Vegetation	Derek Trauntvein	Range Management Specialist
T&E Plants	Karen Hepp	Range Management Specialist (T&E/Sensitive Plants)
Engineering	Monica Goepferd	Civil Engineer
Soils/Haz. Mat.	Steve Kiracofe	Soils Scientist
Invasive Species	CJ Grimes	NRS/Weeds
Water resources	Jared Dalebout	Hydrologist
Paleontology	Marit Bovee	Archaeologist
Geology & Minerals	Pam French	Geologist
Land Use/Access	Carol Sheaff	Realty Specialist
Fuels	Yvonne Warren	NRS
Forestry	Jim Gates	Forester
Public Health and Safety	Holly Elliott	Planning & Environmental Specialist
Socioeconomics	Holly Elliott	Planning & Environmental Specialist
Air Quality	Holly Elliott	Planning & Environmental Specialist
Fluid Mineral Resources	Chet Wheelless	Natural Resource Specialist
Energy Production	Frank Sanders	Petroleum Engineer

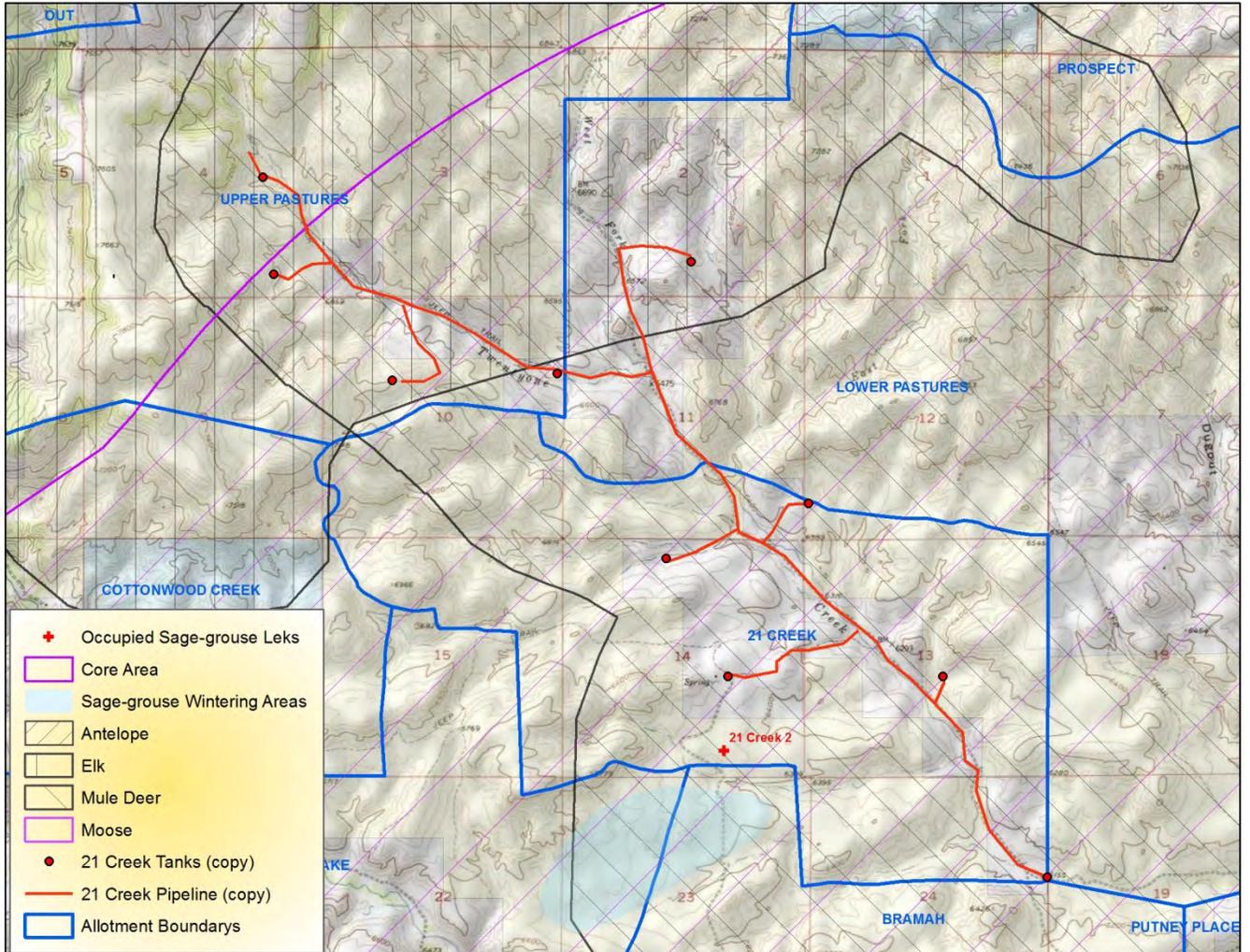
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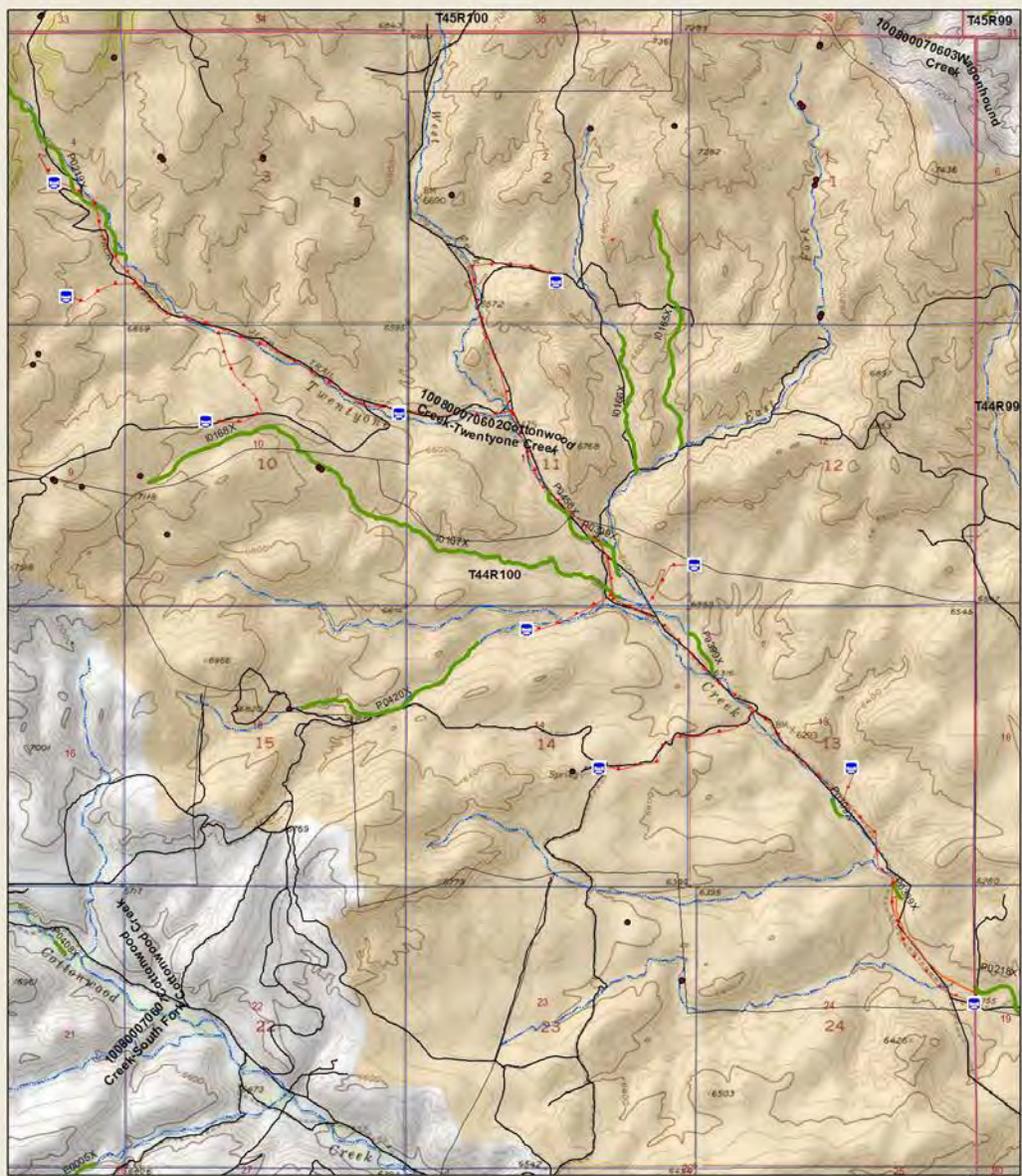
Map 1. Pastures affected by Twentyone Creek Pipeline



Map 2. Wildlife Map



Map 3. Watershed Map

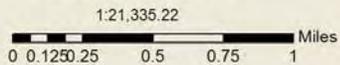


Twentyone Creek Pipeline Watershed Map

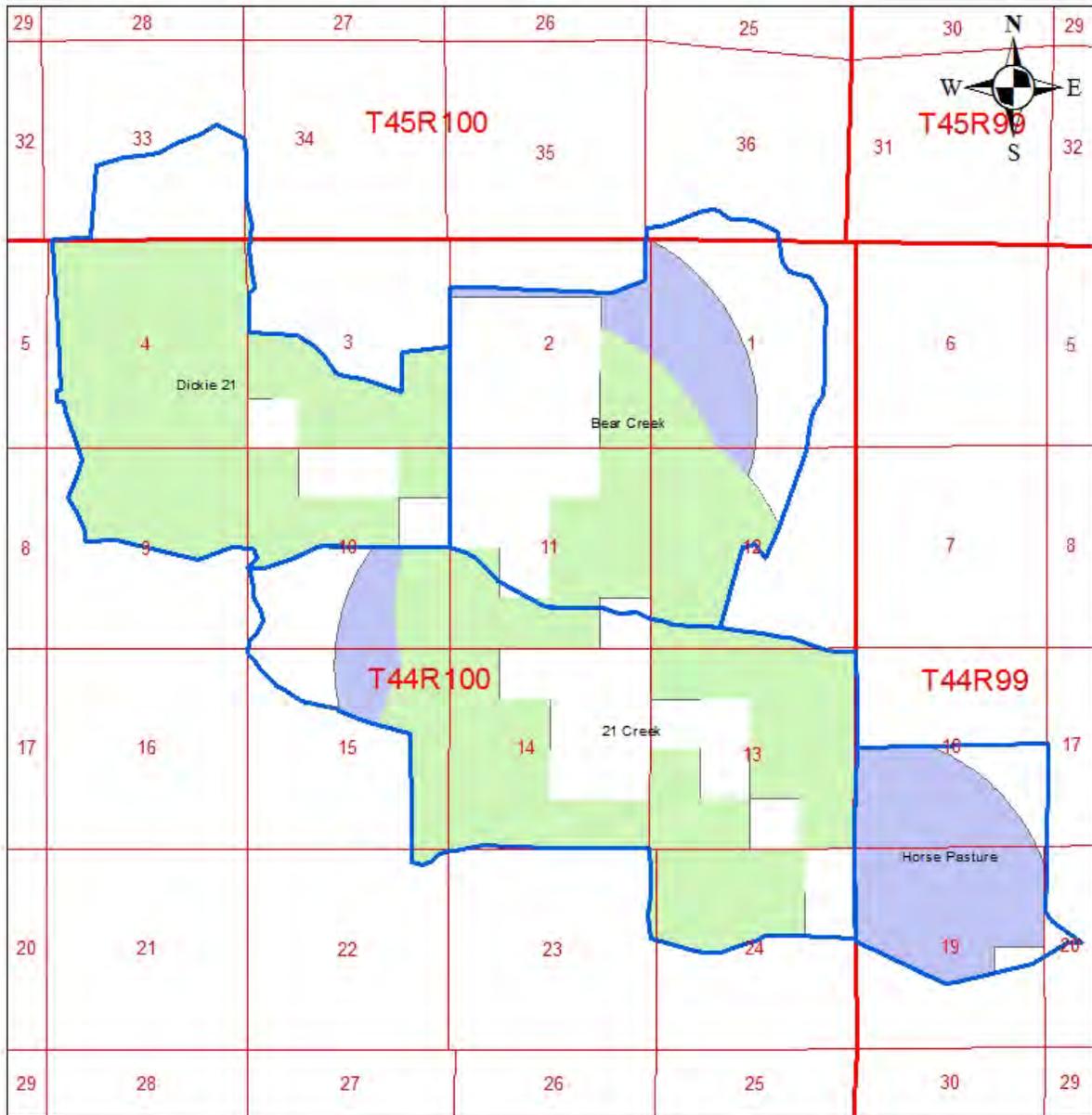
- WFO_Springs
 - - - 21 Creek Tanks
 - - - 21 Creek Pipeline
 - RAIDS
- NHD Flowline**
- Type**
- ArtificialPath
 - CanalDitch
 - StreamRiver
 - WFO_Current_Roads



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Map 4. BLM lands suitable for grazing based on water availability



Legend

- Pasture Boundaries
- Townships
- Sections
- Current acres available (3500.7 ac)
- Acres available from Proposed Project in addition to currently available (997 ac)

BLM Lands Suitable for Grazing Based on Distance from Water

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. Date: 6/22/2014.



Addendum 1. Plan of Development for Project

21 CREEK PIPELINE PROJECT PLAN OF DEVELOPMENT May 21, 2013

1. Purpose and need

The purpose of this pipeline installation is to provide water for livestock and wildlife in 3 grazing allotments (Upper Pastures, Lower Pastures, 21 Creek). The water would serve the Dickie 21, Ramul 21, Bear Creek, and Horse pastures of the Prospect Land and Cattle ranch operation.

The pipeline would transport spring water from the Grainery and Elk Mountain Springs by gravity flow to 10 watering tanks. The Grainery Spring has already been developed and the Elk Mountain Spring would need to be developed. The pipeline would be plowed in with a Caterpillar tractor subsurface to a depth of 24 inches to 36 inches and would consist of a main line with spurs to upland locations.

The pipeline route would generally follow existing two track roads. In some cases touch up would be required and is detailed in the attached write up. Touch up would need to occur along existing roads in places of those roads that are impassable by a normal vehicle. The tank locations would require minor leveling, leveled area should not exceed more than about a 10 foot radius from the center of the tank. The entire pipeline would be plowed in with temporary disturbance of an area approximately 12 inches wide by the length of the pipeline of 41,644 feet or about 7.8 miles.

2. Project Location

The location of the project is in Township 44 North and Range 100 West Sections 2,3,4,10,11,12,13,14, and 24. See attached drawing of location of pipeline route and watering tank locations.

3. Facility design factors

The pipeline would operate from 0 psi to as high as 506 psi. It would be transporting nontoxic spring water. The pipe would be at a depth of 24 inches to 36 inches. The pipeline would be constructed using 1 ½” High Density Polyethylene (PE 4710) SDR 5 through SDR 11.

Water would be left flowing in the developed springs at all times. Tanks use floats with overflows to regulate water level. Once tanks and pipeline are full water would remain at spring. As water level in the tank decreases the float allows water from the spring and pipeline to fill the tank back to the desired level.

4. Additional components of the Project

The pipeline would not be connecting to an existing right of way. Depending on the success of the currently outlined project the pipeline could be extended to serve other parts of the ranching operation further down the Cottonwood Creek Drainage.

5. Government agencies involved
Federal agencies involved are the BLM and the NRCS (project engineering and funding). State agencies involved are the State Engineers Office (water rights), State Lands and Investments (crossing state lands), and the Wyoming Water Development Commission (small waters projects-funding).
6. Construction of the facilities
The construction of the project would entail the following elements:
 - Clean up and minor repair of existing two track roads to gain access and haul pipe, watering tanks, and supplies to the respective sites. (see Ground Disturbance Summary attached)
 - The hauling of pipe, water tanks, and supplies as well as the plowing in of the pipeline and setting of the tanks would all be done with rubber tired or tracked equipment. See attached list of Equipment for Pipeline Installation.
 - The construction operation consists of hauling the water tanks and poly pipe to each site and then starting at tank T-1 (see engineering drawings). The 1 ½” poly pipe would be plowed in at a depth of 24” to 36”. Once the pipe is in the tanks would be leveled and set including shut off valves, inlet piping and overflow piping. The center section would then be filled with approximately 6” of washed rock and then covered with concrete. Shut off valves would be installed with float control.
 - There would be 1 to 2 people working on the project.
 - Engineering drawings are attached.
 - BLM contact would be Derek Trauntvein
 - There would be no toxic waste generated.
7. Resource Values and Environmental concerns
This project would have no negative impact on Resource values or environmental concerns.
8. Stabilization, Rehabilitation, and Restoration
All equipment would be inspected and cleaned for noxious and invasive weeds prior to entering the project area. When plowing in the pipeline there would be minimal ground disturbance. After the ripping operation the D-6 Caterpillar tractor would be run back over the plowed area to compact and restore the area to its original profile. Drains and vents would be installed in the system using a Yanmar track hoe to dig a small trench. Dirt would be replaced in the trench and compacted to the original profile. The areas disturbed by the operations would be seeded with native grasses and the area monitored the next year for any weeds. Any found weeds would be treated and reported to the BLM.
9. Operation and Maintenance
No new or expanded access would be required for the operation and maintenance of the system. All maintenance activities would be confined to the pipeline corridor. There would be no industrial waste or toxic substances generated or stored on the right of way.

Inspection and Maintenance would be conducted on the ground. Maintenance of the pipeline and associated developed springs, tanks, vents, and fencing would be the responsibility of the applicant.

10. Termination

Upon need of termination the applicant would remove any above ground structures from BLM administered lands, i.e. tanks and fences, if they become unusable at some point in the future. Pipe would remain in the ground. Roads would be allowed to grow over as is now.