DOI-BLM-CO-N010

United States Department of the Interior
Bureau of Land Management

Environmental Assessment
Repair and Repurpose of Abandoned Water Wells 010-10 & 010-11and Construction of Multiple Water Developments in the Scandinavia Gulch Drainage

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Little Snake Field Office
455 Emerson Street
Craig, Colorado

DOI-BLM-CO-N010-2014-0012-EA

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Table of Contents

CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

PROJECT NAME**:** Repair and Repurpose of Abandoned Water Wells 010-10 & 010-11and Construction of Multiple Water Developments in the Scandinavia Gulch Drainage

CASEFILE/ALLOTMENT NUMBER: 0504688/04530

REFERENCED DOCUMENT: The environmental assessment (EA) for this project is tiered to DOI-BLM-CO-N010-2013-0006-EA which analyzed the issuance of a grazing permit to Russell Moon and implementation of an Allotment Management Plan (AMP) for the Dry Gulch #04517 and Alkali Springs #04530 Allotments.

The proposed project analyzed in this current EA is essential for full implementation of the AMP as analyzed in DOI-BLM-CO-N010-2013-0006-EA.

1.2 PROJECT LOCATION AND LEGAL DESCRIPTION

LEGAL DESCRIPTION: see Map, Attachment 1.
T. 11 N., R. 93 W., portions of sections 17, 18, 7, 6
T. 11 N., R. 94 W., portions of sections 11, 12
T. 12 N., R. 94 W., portions of sections 36, 23 – 26; 6th P.M.

Land ownership acreage encompassed within project boundary:

BLM	804 acres
Colorado State Land Board (SLB)	394 acres
Private Lands (permittee)	114 acres
	1,312 Total Acres*

* Delineates the area analyzed for project activities and construction to occur within. Exact locations of activities and construction within project area are to be determined (TBD). Actual acreage of final project layout and acreage disturbed is estimated to be 500 acres or less.

Project area (PA) is primarily located within the BLM Alkali Springs Allotment #04530 with a small portion of development in the adjacent BLM Scandinavia Gulch Allotment #04518.

COUNTY AND GENERAL LOCATION: North central Moffat County just south of the Wyoming State Line/Little Snake River.

LANDSCAPE DESCRIPTION: The majority of the of the project area and surrounding areas are high desert sagebrush grasslands; moving north toward the Little Snake River basin, there is an obvious increase in alkali greasewood flats. Surface runoff from the project area drains north to the Little Snake River. Elevations in this area range from 6,200 to 6,800 feet.

1.3 BACKGROUND

Two wells were acquired by the BLM in the 1980s from a party who unsuccessfully attempted to start a gold mining operation in the Scandinavia Gulch area. The wells are unusual and valuable because, unlike other wells in this area, they flow continuously under artesian pressure, with no pumping required. Flow from the wells has created a large area of wetland habitat in an otherwise ephemeral drainage. This wetland area is utilized by native ungulates, waterfowl, small mammals, sage grouse, and amphibians. The wells also provide a critical livestock water supply for the Alkali Springs Allotment.

Infrastructure conditions at the wells have deteriorated significantly since they were acquired in the 1980s. See the two pictures below. Both wells have developed leaks in the casing. The control valve for 010-10 is no longer operational (rusted shut) and it leaks. The control valve for 010-11 has failed completely and fallen to the ground, allowing the well to flow freely under artesian flow. The unrestricted flow at Well 010-11 has eroded a large circular area around the well, exposing more than 15 feet of the well casing. Well flows are estimate at between 100 – 200 Gallons Per Minute (GPM) for well 010-11, and between 30-50 GPM for well 010-10. With little to no history of these wells prior to acquisition, the BLM has no reliable information about the down-hole infrastructure, such as depth of bore holes, type of casings, and where the perforated parts of the casings are located.

Well 010-11

Well 010-10

1.4 PURPOSE AND NEED

The purpose of the proposed action is to enable the modification of historic current grazing practices on the Alkali Springs Allotment #04530 by repairing a water well. The need for the action is that a 2003 assessment of the Alkali Springs Allotment found that fundamentals of rangeland health are not being met due to excessive annual noxious weeds that are impacting native vegetation diversity and wildlife habitat. The BLM took action to correct this condition with the development of the AMP which implements a grazing system designed to reduce annual grasses and provide deferment from grazing pressure for native vegetation. The AMP's grazing system requires a reliable source of water, and without such, would require intensive and impractical water hauling.

Additional Information

Both wells lie within the BLM Alkali Springs #04530 grazing allotment. Prior to 2013, the grazing was season-long, 04/15 to 11/30, which was contributing to BLM Land Health Standards not being met. In 2012 the ranching operation changed ownership. With the cooperation of the new owner/permittee (Russell Moon), the BLM renewed the grazing permit and prepared an AMP to address Land Health Standards. The AMP implemented a three pasture deferred rotational grazing system which reduced the amount of animal unit months (AUMs) in the Alkali Springs Allotment. The three pasture system consist of two pastures in the Alkali Springs Allotment and the Dry Gulch Allotment located to the east of Alkali Springs Allotment, see DOI-BLM-CO-N010-2013-0006 for detailed grazing system information. Each pasture in this system is grazed one spring season, one summer season, and one fall season every three years. This rotation is being accomplished with the construction of a cross fence north of the well

locations, and the grazing system would not be feasible without moving some of the water produced from these wells to other locations in the allotment.

Both wells, in their current condition, are out of compliance with the State of Colorado Water Resources Division.

The following Environmental Assessment will analyze the impacts of the Proposed Action and determine if the repair of the well would allow for progress towards meeting standards for rangeland health.

1.4.1 Project Objectives/Benefits

The project objectives include controlling the flow at both locations to provide continued water at the current locations, and to pipe the water down drainage to multiple watering point locations. All down drainage developments would be a tire tank or trough with wildlife escape ramps. All overflows from these developments would be directed back into the channel to facilitate the growth of additional wetland areas where none currently exist.

Currently the only perennial water in the area is located around each well with the majority being at well 010-11 where it flows uncontrolled into the ephemeral drainage. There is an exclosure around the majority of the wetland area which limits access to water. The only water with unrestricted availability exists in an area approximately 10'X 100' causing animal concentration impacts. If the Proposed Action is implemented, then the exclosure would be removed.

Having multiple water sources would provide for better distribution for livestock and wildlife thus reducing concentration impacts.

Piping the water beyond the new pasture cross fence would fully implement the three pasture deferred grazing system and fulfill one AMP objective.

Well development and AMP implementation would result in improved elk and other big game winter forage conditions and habitat improvement over a much broader area.

Wildlife would have numerous undisturbed water sources throughout the year as livestock would not be in any pasture for more than 65 days in any given year.

Uncontrolled flow at well 010-11 has demonstrated that a wetland can be created and sustained with perennial water supplied. Each development has the potential for creating similar wetlands, thereby increasing the wetland habitat throughout Scandinavia Gulch, which occurs in priority habitat for the greater sage grouse. These wetlands, although artificially created as a result of the leaking wells, now provide brood rearing habitat for grouse, which is very limited throughout its range in Moffat County.

Removal of the existing exclosure would eliminate any potential wildlife entanglements and sage grouse collisions.

The action would allow the BLM to achieve and maintain well compliance with the State of

Colorado.

1.4.2 Decision to be Made

The BLM must make a decision whether or not to repair and repurpose abandoned water wells 010-10 & 010-11and to construct multiple water developments in the Scandinavia Gulch drainage. The BLM must also consider the implications of the alternatives of doing nothing and remain out of compliance with the State of Colorado water well rules and regulations or plug and abandon both wells to achieve compliance with the State of Colorado but restrict current land uses in the area.

1.5 PLAN CONFORMANCE REVIEW

The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Little Snake Record of Decision and Resource Management Plan (RMP)

Date Approved: October 2011

Decision Language: The Proposed Action is consistent with the Little Snake Record of Decision and Resource Management Plan, Livestock Grazing Management goals to manage resources, vegetation, and watersheds to sustain a variety of uses, including livestock grazing, and to maintain the long-term health of the rangelands; provide for efficient management of livestock grazing allotments; and contribute to the stability and sustainability of the livestock industry.

Section/Page: 2.14 Livestock Grazing/RMP-41

1.6 PUBLIC PARTICIPATION

1.6.1 Scoping

NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

External Scoping Summary: The action in this EA is included in the NEPA log posted on the LSFO web site: http://www.blm.gov/co/st/en/BLM_Information/nepa/lsfo.html.

The Little Snake Field Office sent out a Notice of Public Scoping to all interested parties on February 13, 2014 to determine the level of public interest, concern, and to solicit additional comments that will be considered in the Proposed Action. The proposed construction of this project is being carefully analyzed within the scope of the specific action being taken, resources issues or concerns, and public input received. The only scoping response was from the Colorado

State Land Board (SLB) which is in support of the project and provided instructions on entering into a cooperative agreement for the portion of the project that would be located on SLB lands.

Persons/Agencies Consulted: Russell Moon, Colorado State Land Board, Colorado Parks and Wildlife.

Internal Scoping Summary: The Proposed Action and Alternatives were introduced to the Little Snake NEPA interdisciplinary team on February 25, 2014. Staff members representing all disciplines that are analyzed in this document were present.

Issues Identified: No issues were identified during scoping.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action and Alternatives.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Action

Based on a May 2014 down hole camera analysis completed by Colorado Water Wells Inc., BLM now has enough information on both wells to refine the proposed action and alternatives. During the down hole camera analysis of both well 010-11 and 010-10 it was found that well 010-11 had a broken pipe from unknown origin in the existing well casing at 527 feet in depth. This finding has resulted in the conclusion that this well would be unable to be refurbished because conditions below that depth are unknown. It is proposed to plug and abandon well 010-11. The down hole camera analysis on well 010-10 revealed that this well had intact and obstruction free casing to a depth of 530 feet and all casing welds and perforations had no structural flaws or damage. It was determined by the well inspection experts that this 010-10 well was in acceptable condition to be refurbished. Well inspection experts estimated flow from well 010-10 to be between 150 and 200 gallons per minute. BLM staff would work with Colorado Division of Water Resources Division 6 to determine the most appropriate process to register the well, file on the groundwater right, and expand beneficial uses to meet the proposed development needs.

The proposed project would include:

Plug and abandon Well 010-11. Because of the excessive amount of erosion that has taken place over the years, plugging this well may require excavation to access the well casing. If this is the case, then the construction of a gravel pad approximately 100’ x 20’ to position equipment would be necessary. However, this level of excavation and construction may not be necessary if concrete can be effectively pumped down hole from a boom truck and or flexible hose. It is the

expert consensus that the exact method of plugging cannot be determined until on-site operations are implemented.

Refurbish well 010-10. Install duel valves and a tank/truck fill valve to redirect flow from stock pipeline to winter line and provide water supply point. All material will be stainless steel or poly, fix well head seal with new rubber gasket. ¾ inch gravel would be placed eight feet in diameter around well. A small wildlife friendly fence around the well will be constructed from materials other than wire (metal or wood) after completion to protect the well from livestock and wildlife.

After control has been achieved, install approximately 30,000 linear feet of standard dimension ratio (SDR) 11 high-density polyethylene (HDPE) pipe using a cable plow to a depth of 24" to 30". This would be done parallel to the existing drainage channel and where topographically feasible, exact location to be determined by the contractor. This would act as the supply line.

Drains: install 2" curbstop no weep valves for draining pipeline in winter time. Placement of valves will be determined by contractor.

Air Vacs: Waterman AV 150 air vacs or comparable air vacs will be installed at the high points at a rise of at least ten feet in elevation. Placement of air vacs will be determined by contractor.

At various points along the supply line a lateral line would be installed to feed each individual development (see photo below for development example) consisting of eight foot diameter rubber tire stock tanks with eight GPM overflow dole valve. All developments would be placed on a level surface and secured with 2 to 4, 6 inch diameter wood post (green fence post). Where needed, based on soil conditions, ¾ inch gravel would be installed around tanks. All developments would have wildlife escape ramps installed, all developments would be designed to sustain circulation to reduce the potential for stagnant water and mosquito breeding grounds. One lateral line would be piped to the Scandinavia Allotment #04518 (not authorized to Russell Moon) to the east of the supply line for a development consisting of one 8 foot sheep trough. Each individual development would have a directed overflow that directs water back into the main ephemeral drainage channel, or at a minimum be directed to a collection or existing wet area to support any existing small meadow systems. The development at the abandoned 010-11 well site would have continuous overflow at a minimum of eight GPM into the drainage, all other developments would have overflow restricted to a maximum of eight GPM to maintain consistent system flow. Construction activities would not occur without approval from LSFO Wildlife Biologist between, March 1 and June 30 to prevent impacts to greater sage-grouse.

The tire tank above is shown during construction without supporting fence post and wildlife ramp.

2.2.2 Project Maintenance Terms & Conditions

Maintenance responsibilities shall be assigned to permittees with grazing permits on allotments affected by project implementation Russell Moon (Alkali Springs Allotment #04530) and Peroulis, John & Sons (Scandinavia Allotment #04518). These responsibilities shall be documented in a Cooperative Range Improvement Agreement, which would be signed prior to project construction. Maintenance Terms and Conditions are as follows:

1) Russell Moon (Alkali Springs Allotment #04530) - All maintenance of infrastructure - including annual preventive maintenance to ensure good working condition & project longevity.

2) Except when drained for winter, all water tanks must provide constant water for livestock and wildlife when conditions allow, i.e. freezing surface water.

3) Well head configuration must be leak free and operable year round.

4) Peroulis, John & Sons (Scandinavia Allotment #04518) - All maintenance of infrastructure - including annual preventive maintenance to ensure good working condition & project longevity.

5) Except when drained for winter, sheep trough must provide constant water for livestock and wildlife when conditions allow.

Special Conditions (all cooperators)

1a) All permittee maintenance responsibilities will include portions of the project installed on Colorado State Land Board (SLB) lands. SLB has no maintenance responsibility as per SLB & BLM Limited Access Agreement.

2a) Maintenance activities that includes "disruptive noise" i.e. heavy equipment, generators, etc... shall not be permitted between March 15th and May 15th to avoid disrupting sage-grouse lekking activities. In the event of an emergency that requires maintenance actions that produce disruptive noise BLM must be consulted and approve prior to maintenance activities.

3a) If maintenance needs exceed the permittees abilities (physically, logistically, or financially) the BLM must be notified as soon as possible that certain maintenance needs will not be completed. Depending on the nature of the situation the BLM may assist subject to available budget and personnel if the integrity of the project is threatened. Otherwise, neglect of maintenance will be construed as violation of this agreement.

2.2.3 No Action Alternative

No well control measures or water developments would be implemented. This alternative is not feasible as BLM is required, at a minimum, to comply with State of Colorado well regulations which require a well to have no leaks in the casing and an operational control valve. In addition, regulations require stable and reinforced conditions around the well head, so that surface contaminants do not enter the well bore. Both wells do not meet these regulatory requirements. Under this alternative the wells would remain out of compliance and BLM would be subject to State of Colorado compliance actions.

2.2.4 Plug and Abandon Alternative

In order to come into compliance with the State of Colorado both wells would be plugged and abandoned. This alternative would incur significant costs to the BLM and would provide no benefit to public lands. In addition, it would eliminate the existing water that has been historically used by livestock and wildlife and preclude the implementation of the AMP as analyzed in DOI-BLM-CO-N010-2013-0006-EA.

CHAPTER 3 – AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

Affected Resources:
The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues would be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 1 lists the resources considered and the determination as to whether they require additional analysis.

Table1. Resources and Determination of Need for Further Analysis

Determination[1]	Resource	Resource Issue/Rationale for Determination
Physical Resources		
NI	Air Quality	Activities associated with construction of range improvement projects and grazing activities that may affect air quality, namely dust and exhaust from construction/ranch operation vehicles as well as dust from livestock hoof action, fall below EPA emission standards for the six criteria pollutants of concern (sulfur dioxide, nitrogen oxide, ground-level ozone, carbon monoxide, particulate matter [both PM2.5 and PM10], and lead). Furthermore, ranch operation and livestock activities are not a significant source of these pollutant emissions that do occur in Moffat County. Impacts to air quality caused by either alternative are therefore considered negligible.
NI	Floodplains	There are FEMA-identified 100-year floodplains within both allotments that are subject to rare and/or occasional flooding. None of the alternatives analyzed include development within identified floodplains. No threat to human safety, life, welfare and property would result from implementing any of the alternatives.
PI	Hydrology, Ground	See Section 3.2.2 for analysis.
PI	Hydrology, Surface	See Section 3.2.3 for analysis.
PI	Water Rights	See Section 3.2.3 for analysis.
NI	Minerals, Fluid	There are no Fluid Minerals authorizations within the project area.
NI	Minerals, Solid	There are no Solid Mineral authorizations within the project area.
PI	Soils	See Section 3.2.1 for analysis.
PI	Water Quality, Ground	See Section 3.2.2 for analysis.
PI	Water Quality, Surface	See Section 3.2.3 for analysis.

Biological Resources		
PI	Invasive, Non-native Species	See Section 3.3.1 for analysis.
PI	Migratory Birds	See Section 3.3.4 (Terrestrial Wildlife) for analysis.
PI	Special Status Animal Species	See Section 3.3.2 for analysis.
NP	Special Status Plant Species	There are no federally listed threatened, endangered, or BLM sensitive plant species populations identified within the project area.
NI	Upland Vegetation	See Section 3.3.3 for analysis.
PI	Wetlands and Riparian Zones	See Section 3.3.5 for analysis.
NI	Wildlife, Aquatic	The current riparian area does not support fish or amphibians. Impacts to aquatic wildlife habitat would be negligible. The project would potentially create addition habitat for aquatic wildlife (small insects and amphibians).
PI	Wildlife, Terrestrial	See Section 3.3.4 for analysis.
NP	Wild Horses	There is no wild horse Herd Management Areas within or in close proximity to the project area.
Heritage Resources and the Human Environment		
PI	Cultural Resources	See Section 3.4.1 for analysis.
NI	Environmental Justice	The Proposed Action would not impact populations and would not have disproportionate or adverse human health or environmental effect on minority or low-income populations.
NP	Hazardous or Solid Wastes	There are no Hazardous or Solid Waste issues within or near the project area. Any hazardous or solid waste products used in construction of the proposed project would be contained and disposed of properly as required in the contract.
NP	Lands with Wilderness Characteristics	Subject to WO-IM 2011-154 and in accordance with BLM policy, the proposed project area is in an area that does not meet the minimum size requirements for the presence of lands with wilderness characteristics
NI	Native American Religious Concerns	See Section 3.4.2 for analysis.
NI	Paleontological Resources	There is some Tertiary Wasatch Formation, PFYC 5 in the project area. There are no known paleontological sites within the project area. Standard Paleontology Stipulations apply, see Attachment #2.
NI	Social and Economic Conditions	There will not be any change to local social or economic conditions.
NI	Visual Resources	The proposed project is located in a VRM Class III area where moderate change to the characteristic landscape would be allowed as long as the existing characteristics of the landscape are partially retained. Visual Resource Inventory is low based on Scenic Quality Rating of C and Sensitivity Level Rating of Low. No impacts to visual resources would be anticipated for all alternatives.
Resource Uses		
NI	Access and Transportation	There will be no adverse impacts to access and/or transportation in the project area. Motorized use i.e. OHV would be limited to existing and or designated roads and trails only unless authorized by BLM.

NI	Fire Management	Fire management would experience beneficial impacts associated with the proposed large tank/wildland fire engine fill facilities at the well location. Impacts from other alternatives would be neutral.
NP	Forest Management	There are no forest resources within or in close proximity to the project area.
NI	Livestock Operations	Livestock operations would experience beneficial impacts with implementation of the AMP and development of multiple and reliable perennial water sources. The Plug and Abandon Alternative would render the AMP unfeasible with adverse impacts. See DOI-BLM-CO-N010-2013-0006 for additional analysis.
NI	Prime and Unique Farmlands	There are soils identified as farmland of statewide importance within the project area. Generally, farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. None of these soils are or would become irrigated or otherwise manipulated so as to create conditions favorable to create prime farmland on public lands within the allotment.
NP	Realty Authorizations, Land Tenure	There are no realty authorizations within or in close proximity to the project area.
NI	Recreation	Recreational use of the project area is very low due to the lack of destination features, the distance to major population centers and the lack of paved roads. The primary recreation use in the area is hunting and there would be no impact to this activity from the Proposed Action and negligible impacts from the other alternatives.
Special Designations		
NP	Areas of Critical Environmental Concern	There are no ACECs within or in close proximity to the project area.
NP	Wild and Scenic Rivers	There are no WSRs within or in close proximity to the project area.
NP	Wilderness Study Areas	There are no WSAs within or in close proximity to the project area.

[1] NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.

3.2 PHYSICAL RESOURCES

3.2.1 Soils

Affected Environment: The following narrative supplements the information provided in EA DOI-BLM-CO-N010-2013-0006. Areas within the project area are low gradient, deep sand loams and sandy clay loams. Soils in Scandinavia Gulch where surface water is present (supplied by the leaking wells 010-10 and 010-11) in an otherwise ephemeral drainage are heavily impacted by livestock and wildlife, as surface water for livestock use is currently scarce elsewhere in this area of the allotment. Outside of the exclosures that were erected to protect the wells and the subsequent riparian areas that have been created as a result of the leaks, soils are compacted and vegetation trampled, exposing the project area to risk of wind and water erosion.

Environmental Consequences, Proposed Action: Although the development of the watering system would cause some additional surface disturbance during the construction phase, this type of range improvement when combined with the other actions already in place per the most recent permit renewal (a change in grazing management and implementation of an adaptive management plan), the Proposed Action is likely to improve overall soil health and stability across the allotment by facilitating better livestock distribution via improved watering options, removing or reducing concentration and associated impacts to soils that currently exists within this reach of Scandinavia Gulch.

Environmental Consequences, No Action: While soil standards are technically being met for the larger allotment, localized soil conditions within the focused project area are not. Bare, compacted soils are widespread, while invasive species dominate any vegetation cover that does exist. These conditions will most certainly persist under this alternative, potentially leading to a failure to meet the upland soil standard for the allotment while contributing to a persistent failure to also meet riparian health standard in areas where (created) riparian areas have the potential to exist.

Environmental Consequences, Plug and Abandon: Aside from compliance with the State of CO, there would be no beneficial impacts with this alternative. Although livestock and wildlife concentrations and associated localized soil impacts would be eliminated at the project area with the removal of available water, these impacts would only relocate to areas that provided water. Impacts to these areas would be exacerbated as other watering areas are limited in numbers and most do not provide the season long water supply that the 010-10 well and proposed additional developments would provide.

Environmental Consequences, Cumulative Impacts: Please refer to the information provided for this section in EA DOI-BLM-CO-N010-2013-0006.

3.2.2 Groundwater Quality

Affected Environment: In April 2014 a groundwater sample was collected from BLM Well #010-11and immediately submitted to a lab for analysis that same day. Since the intent of the flowing water (once controlled) will supply livestock watering needs, the sample results are compared against the Colorado Department of Public Health and Environment (CDPHE) Water

Quality Control Commission's Basic Agricultural Standards for Groundwater (Regulation 41). Table 2 summarizes CDPHE standards and Well #010-11 sample results, which indicates compliance with standards.

Table 2. Summary of BLM#010-11 Groundwater Sample Analysis and CDPHE Agricultural Standards

Parameter	CDPHE Standard	BLM Well #010-11 Sample
Aluminum	5 mg/l	Not detected above the minimum method detection limit
Arsenic	0.1 mg/l	Not detected above the minimum method detection limit
Beryllium	0.1 mg/l	Not detected above the minimum method detection limit
Boron	0.75 mg/l	Not detected above the minimum method detection limit
Cadmium	0.01 mg/l	Not detected above the minimum method detection limit
Chromium	0.1 mg/l	Not detected above the minimum method detection limit
Cobalt	0.05 mg/l	Not detected above the minimum method detection limit
Copper	0.2 mg/l	Not detected above the minimum method detection limit
Fluoride	2 mg//l	Not detected above the minimum method detection limit
Iron	5 mg/l	Not detected above the minimum method detection limit
Lead	0.1 mg/l	Not detected above the minimum method detection limit
Lithium	2.5 mg/l	0.085 mg/l
Manganese	0.2 mg/l	0.012 mg/l
Mercury	0.01 mg/l	Not detected above the minimum method detection limit
Nickel	0.2 mg/l	Not detected above the minimum method detection limit
Nitrite	10 mg/l as N	Not detected above the minimum method detection limit
Nitrite & Nitrate	100 mg/l as N	Not detected above the minimum method detection limit
Selenium	0.02 mg/l	Not detected above the minimum method detection limit
Vanadium	0.1 mg/l	Not detected above the minimum method detection limit
Zinc	2 mg/l	Not detected above the minimum method detection limit
pH	6.5-8.5	8.5 at 12.5°C
Total Dissolved Solids	1037.5 mg/l	830 mg/l

Reference: Colorado Department of Public Health and Environment Water Quality Control Commission Water Quality Regulations. 2013. Regulations #41. http://www.colorado.gov/cs/Satellite/CDPHE-WQ/CBON/1251596877171

The existing wells have steel casings, and well 010-11 is within a fenced exclosure, preventing livestock from congregating around the well itself. Well 010-10 does not have an exclosure, and livestock could gather around the well. Both wells have pooled water at the base of the exposed casing. Due to the lack of well completion information, it is unknown if surface contaminants can travel along the well casing and reach groundwater. Some field notes seem to indicate that

there is the required concrete around the casing and extending downward below ground, presumably for the required distance of 20 feet. From the downhole camera work performed in May, 2014, it appears that the well casings have several slotted segments where groundwater inflow could occur. The first perforated sections were estimated to occur at 130 feet from the surface in both wells. It is assumed that the majority of the inflow occurs near the bottom of the well. Well 010-10 was measured to be 525 feet deep. Well 010-11 had an obstruction at 527 feet, and the camera could not proceed.

From the limited geologic information for the area, it appears that the surface geology consists of sheetwash alluvium (Holocene and Upper Pleistocence) that has been deposited on the Scandinavian Gulch drainage. It is generally fairly shallow (3-29.5 feet thick) and consists of "granules, sand, silt, clay, and minor amounts of pebbles and cobbles derived by mass wasting and sheet erosion on valley- side slopes.". The subsurface geology is mapped as consisting of the Wasatch Formation (Eocene), in the Tipton Tongue of the Green River Formation. It is generally less than 50-300 feet thick, with lacustrine sandstone and papery carbonaceous shale. The perforated sections of casing could start in the sandstone layers of the formation. The main body of the Watasch Formation underlying the Tipton Tongue consists of fluvial arkosic sandstone, mudstone, and conglomerate. The subsurface geology was formed in freshwater environments, which appears to be supported by the electrical conductivity of well 010-10 in 1986 being 1405 umhos/com. Arkosic sandstone can have large sand grain sizes, resulting in fairly good primary permeability, as does conglomerate. Secondary permability could also contribute to groundwater flows from fractures, faults, and weathered bedding planes. If the interbedded mudstones or shales are impermeable, they could create the artesian conditions exhibited by the flowing wells.

A large fault is mapped from the southwestern portion of T. 11 N., R. 93 W. to the northeastern portion of T. 11 N., R. 94 W., roughly paralleling Scandinavian Gulch. The west side of the fault is downthrown, with the younger Cathedral Bluffs Tongue formation still overlying the Tipton Tongue. The fault could be a recharge area for Scandinavian Gulch.

Environmental Consequences, Proposed Action: The existing soils and surface geology appear to have fairly rapid permeability, and surface waters could be transported downward, increasing the potential for contamination around the unprotected well casings. The Proposed Action would protect the groundwater quality by bringing the wells into compliance with Colorado's construction standards for water wells. Adequate wellhead protection would insure that contamination of groundwater was not occurring due to surface conditions. Developing pipelines and troughs to provide improved livestock distribution would not affect the groundwater quality.

Environmental Consequences, No Action: The No Action Alternative fails to comply with Colorado's Rules and Regulations for Water Well Construction (2 CCR 402-2) and the Colorado Division of Water Resources' conditions of approval to the well permits (033641-F and 033640-F), and is not a valid alternative.

Environmental Consequences, Plug and Abandon Alternative: Plugging the two wells would also comply with the state's rules and regulations for water wells, protecting the groundwater quality.

Environmental Consequences, Cumulative Impacts: The Proposed Action would bring the two wells under compliance with the existing rules and regulations designed to protect groundwater quality and use. There would be no cumulative impacts to groundwater quality from the Proposed Action. The No Action Alternative could leave the two wells vulnerable to groundwater contamination over time, depending on land use actions. The Plug and Abandon Alternative would not pose any cumulative impacts to ground water quality.

3.2.3 Surface Water Quality, Surface Hydrology

Affected Environment: The following narrative supplements the information provided in EA DOI-BLM-CO-N010-2013-0006: The two leaking/flowing wells now provide perennial water to two sections of Scandinavia Gulch, an otherwise ephemeral drainage, creating small but flourishing riparian zones for dozens of meters downstream of each well. Scandinavia Gulch has a sandy substrate and well overflows disappear long before reaching true perennial waters. Although permanent, these well flows are not subject to the Clean Water Act standards for perennial surface waters. The largest riparian zone (approximately 1 acre just below well 010-11) is mostly protected within an exclosure that was designed to prevent livestock concentration and damage. However, not all of the riparian zones are protected and heavy use of the riparian areas just outside of the enclosures has occurred, introducing sediment and fecal matter to the overflow water.

Environmental Consequences, Proposed Action: Although not subject to federal or state surface water quality standards, the proposed water development project will improve water quality of the well overflow by drawing livestock and wildlife use to many smaller upland developments and removing heavy livestock pressure around the two only sources of available surface water that is currently available only in the riparian area. Upland water developments are considered a best management practice to improve wetland conditions and water quality by improved animal distribution across the landscape and the reduction of concentrated use in the wetlands. Flows that continue to support and even enhance these created areas will continue as part of the flowing well repair/reconfiguration plan.

Environmental Consequences, No Action: The two wetland areas accessible to livestock and wildlife would continue to be heavily used for water and forage. This animal concentration reduces the water quality in the wetland, with increased levels of nutrients and sediments.

Environmental Consequences, Plug and Abandon Alternative: Plugging the two wells would essentially eliminate the surface water in Scandinavia Gulch. Livestock and wildlife would be dependent on any other water sources in the area or the ephemeral shallow ponding in the gulch as a result of a localized thunderstorm or snowmelt.

Environmental Consequences, Cumulative Impacts: Please refer to the information provided for this section in EA DOI-BLM-CO-N010-2013-0006.

3.2.4 Water Rights

Affected Environment: Several groundwater wells have been drilled within the Alkali Springs Allotment, two of which are flowing artesian wells. The BLM does not currently hold a water right on these wells. Using the state of Colorado's Decision Support System, no water rights were found in the Scandinavian Gulch downstream from the two wells, nor were any other well permits besides Farnsworth's. Farnsworth's conditional water rights (81CW0327) were decreed in 1984, but were declared abandoned in 1988.

BLM Well #010-11
According to BLM well records, BLM well # 010-11 was drilled adjacent to Scandinavia Gulch sometime in the late 1970s or early 1980s by Orin Farnsworth, a gold exploration company. The BLM obtained a well permit in 1988 (033640-F) for the well, having two years to comply with the conditions of approval and to submit documentation of a well being drilled and used. The well permit appears to have expired, as BLM submitted the permit with an incorrect location. The BLM attempted to correct the location when they filed a Statement of Beneficial Use, but did not address the terms of the permit or provide any more information on the depth of the well. The Statement of Beneficial Use is not used to document a correction in the location, and the state does not appear to have accepted it. The well is free-flowing as the control valve has failed completely and fallen to the ground, allowing the well to flow freely under artesian flow, producing an estimated 100-200 gallons per minute that drains directly into Scandinavia Gulch.

BLM Well#010-10
BLM Well#010-10 has a similar origination and history as Well #010-11. The cap on this well remains mostly intact but is no longer operational (rusted shut), leaking at the rate estimated to be under 30 gallons per minute. The BLM obtained a well permit in 1988, but it also contained an incorrect well location. A Statement of Beneficial Use was filed with the state prior to the permit expiring, but unfortunately a new incorrect location was provided and again no compliance to the conditions of approval was provided to the state. There is no evidence that the state accepted the BLM's form.

Environmental Consequences, Proposed Action: Under this alternative, Well #010-10 would be repaired and controlled. Well #010-11 would be properly plugged according to state regulations. BLM would then be in a position to acquire groundwater rights on the new well configuration, thus ensuring the BLM's ability over the long-term to provide upland water for livestock and wildlife and to sustain/expand the small lentic areas along Scandinavia Gulch. It does not appear that there are current water rights downgradient from the BLM wells that would be injured by the continued use of the wells. The wells' flows do not continue down the draw, so the plugging of well #010-11, and the reduction of flow from well #010-10, would not impact downstream users.

Environmental Consequences, No Action: Under this alternative, uncontrolled flow from the wells would continue, precluding the BLM's ability to acquire groundwater rights. Additionally, the State of Colorado could potentially issue a Cease and Desist Order on each well. Language in the well permits from the 1980s restricts flow rates to no more than 30 gallons per minute from

each well and a flow meter measuring the total yearly discharge. Flow from Well 010-10 appeared to be within the flow allowance; however the unrestricted flow from Well 010-11 is estimated to be well over that rate. Also, the State of Colorado well regulations require a well to have no leaks in the casing and an operational control valve. Regulations require stable and reinforced conditions around the well head, so that surface contaminants do not enter the well bore. Both wells do not meet these regulatory requirements.

If the State were to issue a cease and desist order, the BLM would be forced to either repair or plug and abandon the wells within a short timeframe, typically 60 to 90 days. Costs for a plug/abandon operation on short notice would likely be very high. Overall, it is very problematic for BLM to procure funds for large unplanned regulatory expenses.

Environmental Consequences, Plug and Abandon Alternative: Under this alternative, the BLM would properly abandon the two wells and water rights for the wells would not be needed. There would be no impact to existing water rights from the plugging of the wells.

Environmental Consequences, Cumulative Impacts: Implementation of the Proposed Action would provide BLM with the physical control over an abundant water source (a rare occurrence in the region), as well as an opportunity to turn a long-neglected problem into a project with multi-resource benefits that will have both direct and indirect long term positive impacts to local watershed health. The Proposed Action would enhance management opportunities and flexibility by securing the legal use of perennial water. The BLM's pursuit of water rights for the remaining well is not expected to impact any other water right user, which would be confirmed if the state grants a water right. Under the No Action Alternative, the wells would continue outside of the state's water adjudication system. If there is an existing water right that is being impacted by the unpermitted wells, the water right holder may be unaware of the wells, and not have had an opportunity for legal recourse. This could continue until the state or the water right holder become aware of the wells and take legal action. The Plug and Abandon Alternative would greatly reduce the land management options for the area. The opportunity to utilize perennial water to create or enhance habitat, watershed condition, and overall land health would be foregone.

3.3 BIOLOGICAL RESOURCES

3.3.1 Invasive/Non-Native Species

Affected Environment: Invasive plant species and noxious weeds occur within the affected area. Downy brome, yellow allysum, annual pepperweed, Canada thistle, musk thistle, scotch thistle, halogeton and Russian knapweed and white top occur within or near this area. Other species of noxious weeds could be introduced by casual use, vehicle traffic, livestock, wildlife and other means of dispersal. Principals of Integrated Pest Management (IPM) are employed to control noxious weeds on BLM lands in the Little Snake Field Office.

Environmental Consequences, Proposed Action: Implementation of the Proposed Action would reduce the presence of invasive species throughout the Scandinavia Gulch drainage and adjacent allotments. Containing the flow and dispersing the water resource throughout the gulch would allow the concentration areas surrounding the well heads to recover. Providing additional water

sources down the drainage would improve livestock distribution patterns and pasture management, allowing desirable vegetation to compete with current weed infestations at the well heads and improve the vegetative community throughout the allotments. The temporary disturbance related to installation of the project infrastructure would be minimal.

Environmental Consequences, No Action: This alternative would continue the perpetual disturbed nature of the well head sites. Invasive species populations would continue to persist and likely spread, also providing a seed source throughout the gulch. Additionally, there would be no benefit to invasive species control from developed water sources.

Environmental Consequences, Plug and Abandon Alternative: This alternative would allow for the disturbed areas around the well heads to eventually recover. Without the leaking water sources, livestock concentration would decrease in these areas allowing perennial species to eventually become established, reducing the presence of the invasive annuals. However, there would be no benefit from developed water sources to improve livestock management for invasive species control throughout the allotments, which is the primary objective of the AMP. Without improved management options related to the Proposed Action invasive annuals, such as cheatgrass, would continue to persist and increase throughout the allotment.

Environmental Consequences, Cumulative Impacts: Under the Proposed Action the invasive species within and around the project area would be significantly decreased over time. Plugging and abandoning the well would provide a localized decrease in annual species but no larger scale benefits. The no action alternative would provide a static to increasing invasive species population.

3.3.2 Special Status Animal Species

Affected Environment: There are no ESA listed or proposed species that inhabit or derive important benefit from the project area. Critical habitat for the razorback sucker, Colorado pikeminnow, bonytail and humpback chub is located downstream of the project area. Any impact to Colorado River Fish from the Proposed Action would be in the form of water depletion.

The project area provides important habitat for greater sage-grouse, a BLM sensitive species and a candidate for ESA listing. The entire project area is mapped as preliminary priority habitat (PPH). In addition, the area provides nesting, early brood rearing and winter habitat for greater sage-grouse. There are three active leks within four miles of the project area.

The project area also provides habitat for two additional BLM sensitive species, bald eagles and Brewer's sparrow. Bald eagles would be in the general area in the winter months, opportunistically feeding on winter killed big game. Brewer's sparrows are a summer resident in Colorado and nest in sagebrush stands. Nests are constructed in sagebrush and other shrubs in denser patches of shrubs. This species would likely be nesting in the Proposed Action area from mid-May through mid-July.

Environmental Consequences, Proposed Action: Given that the Proposed Action would result in minor water depletion from within the Colorado River basin, this project falls under BLM

Colorado's Programmatic Biological Assessment (PBA) for water depleting activities (excluding fluid minerals development) on BLM lands in the Colorado River basin in Colorado (BLM 2008).

In response to BLM's PBA, the U. S. Fish and Wildlife Service (FWS) issued a Programmatic Biological Opinion (PBO)(ES/GJ-6-CO-08-F-0010) on February 25, 2009, which concurred with BLM's determination that water depletions are "Likely to Adversely Affect" the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. Likewise, the project is also likely to adversely affect designated critical habitats for these endangered fish along the Green, Yampa, White, Colorado, and Gunnison rivers. However, the FWS also determined that BLM water depletions from the Colorado River Basin are not likely to jeopardize the continued existence of the Colorado pikeminnow, humpback chub, bonytail, or razorback sucker, and that BLM water depletions are not likely to destroy or adversely modify designated critical habitat.

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin was initiated in January 1988. The Recovery Program serves as the reasonable and prudent alternative to avoid jeopardy and aid in recovery efforts for these endangered fishes resulting from water depletions from the Colorado River Basin. The PBO addresses internal and external BLM projects including impoundments, diversions, water wells, pipelines, and spring developments. The FWS determined that projects that fit under the umbrella of the PBO would avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion impacts to the Upper Colorado River Basin if they deplete relatively small amounts of water (less than 100 AF) and BLM makes a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in the amount equal to the average annual acre-feet depleted by each project. The PBO instructed BLM to make an annual payment to the National Fish and Wildlife Foundation (NFWF) to cover all BLM authorized actions that result in water depletions. This project will be entered into the LSFO water depletion log which will be submitted to the Colorado State Office at the end of the Fiscal Year. The CSO is responsible for paying depletion fees based on the annual statewide total.

The following narrative supplements the information provided in EA DOI-BLM-CO-N010-2013-0006. The proposed watering tanks would have minimal impacts to greater sage-grouse. Additional water sources would likely improve upland and riparian vegetation conditions by evenly distributing grazing throughout the allotments, in turn, improving grouse habitat. Habitat in the immediate vicinity of the ponds would be degraded by livestock congregation, however, this would not affect the productivity of the surrounding habitat. In addition, the project would potentially create many small wet meadows that may be beneficial to sage-grouse during brood rearing. The proposed project would have very minor impacts to habitat for Brewer's sparrow and will not impact bald eagles.

Noise and an increase in human presence would likely displace wildlife during project construction. Once construction is complete and the disruption is no longer occurring, most species would return to the area. Due to the proximity of several sage-grouse leks, construction should not occur during the lekking or nesting season (March 1 – June 30). This timing limitation would reduce potential displacement of grouse during critical time periods.

Environmental Consequences, No Action Alternative: Under this alternative, a small wet meadow would remain around each well. These meadows would continue to provide a small area of habitat for sage-grouse. However, the AMP would not be implemented under this alternative and improvements in vegetation throughout both allotments would not occur.

Environmental Consequences, Plug and Abandon: Under this alternative, the existing meadows would dry up as there would no longer be any water supply to maintain them. Since the creation of multiple wet meadows at each proposed water site would also not occur, brood rearing habitat for sage-grouse in the two allotments would be reduced. In addition, the AMP would also not be viable under this alternative and it would not be fully implemented. Potential improvements in sage-grouse habitat from better livestock rotation and distribution would not occur.

Environmental Consequences, Cumulative Impacts: Please refer to the information provided for this section in EA DOI-BLM-CO-N010-2013-0006.

3.3.3 Upland Vegetation

Affected Environment: See DOI-BLM-CO-N010-2013-0006.

Environmental Consequences, Proposed Action: Implementation of the Proposed Action is essential for the success of the AMP and moving the Alkali Springs allotment toward meeting all land health standards. See DOI-BLM-CO-N010-2013-0006 for AMP objectives and benefits.

Environmental Consequences, No Action Alternative: Current conditions would continue. The AMP would not fully implement or facilitate any cheatgrass control measures that would help move the Alkali Springs Allotment toward meeting Land Health Standards and improving upland vegetation conditions. Additional adverse impacts to upland vegetation due to the intermittent supply of water to authorized temporary water haul sites would be realized, under the current permit the temporary water haul sites are used and supplied by the permittee as needed. The achievement of the desired livestock distribution would not be consistent. The temporary water haul sites were authorized to be just that, temporary until the water sources associated with the Proposed Action could be developed. Converting the temporary water haul sites to permanent range improvements is not conducive to implementing the AMP over the term of the permit, and not practical to haul water to these sites every year over the term of the permit.

Environmental Consequences, Plug and Abandon: The AMP would not be implementable with elimination of the most consistent and largest volume of livestock and wildlife water on the Alkali Springs Allotment. Upland vegetation would see adverse impacts as the limited number of other grazing season water sources would experience huge increases in animal concentration with the greatest forage use associated with proximity to these limited area. It is anticipated that overutilization of these areas would increase the potential for cheatgrass establishment and dominance. Other water sources in the allotment are runoff fed reservoirs and are not reliable waters sources as runoff varies year to year. And as analyzed above, water hauling would not mitigate this loss due to the impractical nature of this practice on a consistent large scale over the term of the permit and into the future.

Environmental Consequences, Cumulative Impacts: The following narrative supplements the information provided in EA DOI-BLM-CO-N010-2013-0006. The adverse impacts associated with the Plug and Abandon Alternative when combined with other land uses that remove or degrade upland vegetation would have adverse cumulative impacts associated with the reduction of viable native plant species seed sources.

3.3.4 Terrestrial Wildlife (Including Migratory Birds)

Affected Environment: Plant communities in the area are comprised primarily of sagebrush/bitterbrush stands with an understory of grasses and forbs. Pinyon-juniper woodlands are also scattered through the area, primarily on slopes and bluffs and in draws. A variety of wildlife habitats and their associated species occur in the general area. Common species such as coyotes, cottontail rabbits and ground squirrels and a variety of migratory birds likely use these habitats. The allotments provide winter habitat for elk, mule deer and pronghorn.

Environmental Consequences, Proposed Action: The proposed water developments would be beneficial for wildlife. Additional water sources would likely improve upland and riparian vegetation conditions by evenly distributing grazing throughout the allotments, in turn, improving wildlife habitat. The water developments would also provide additional water sources for wildlife species. For more information on the benefits of implementing the AMP, which is only viable under this alternative, please see EA DOI-BLM-CO-N010-2013-0006.

Environmental Consequences, No Action Alternative: Current conditions would continue. The AMP would not fully be implemented and potential improvements in wildlife habitat would not occur. In addition, new water sources for wildlife would not be created.

Environmental Consequences, Plug and Abandon: Under this alternative, the two existing water sources would be eliminated removing currently important wildlife water sources. In addition, the AMP would not be fully implemented and new water sources would not be created. Potential improvements in vegetation structure and composition would not occur.

Environmental Consequences, Cumulative Impacts: Please refer to the information provided for this section in EA DOI-BLM-CO-N010-2013-0006.

3.3.5 Wetlands and Riparian Zones

Affected Environment: The following narrative supplements the information provided in EA DOI-BLM-CO-N010-2013-0006.

Two exclosures were built in 2007, one around BLM Well#-10-11 itself and the other around the approximately 1 acre riparian area that is created by the leaking well just below the well in Scandinavia Gulch. The purpose of the exclosures is to protect the well head and to improve conditions for greater sage grouse brood-rearing habitat by excluding livestock. The riparian area within was assessed in 2010 and found to be in decent shape, receiving an upward trend rating. The drainage immediately below the exclosure is heavily impacted by livestock and received a declining trend rating. The surface water created by the well in Scandinavia Gulch does not flow the entire length of the Gulch; the gulch has a sandy substrate and surface water

generated by the well disappears long before reaching the confluence with the Little Snake River.

Environmental Consequences, Proposed Action: The upland water development for livestock watering would not only decrease grazing pressure on the existing riparian area and allow vegetation to establish/improve to the extent possible (surface water dependent) outside the exclosures, but it would also likely to create additional pockets of riparian areas along the development. Each additional watering area developed downstream would be designed to direct tank overflow back down into Scandinavia Gulch, potentially creating several additional small areas that support herbaceous riparian vegetation. This net gain in wetland habitat could prove beneficial as greater sage grouse brood rearing habitat, which is very limited. Also, a properly functioning well would allow BLM to control rate and direction of flow in order arrest/repair the existing severe erosion that has occurred around BLM Well #010-11.

Environmental Consequences, No Action: Under this alternative, uncontrolled flow from the wells would continue to erode away at the ground around the wells, adding sediment to the (now) perennial segments of Scandinavia Gulch. The existing semi-functioning casings or well heads are likely to fail completely, due to age, annual freeze/thaw cycles, etc., which could significantly increase erosion rate around the existing wells. Existing riparian areas would continue to attract wildlife and livestock, leading to the continued degradation of vegetation and channel condition to a point that prevents expansion or improvement of these areas outside of the existing exclosure.

Environmental Consequences, Plug and Abandon: This alternative would eliminate the existing riparian area created by the 010-11 well and remove the potential for development of additional riparian areas with expansion of additional water sources into Scandinavia Gulch. There would be no beneficial impacts from this alternative and adverse impacts to the other limited riparian areas within the Alkali Springs Allotment. Without implementation of the AMP to incorporate beneficial grazing management and with livestock and wildlife water sources reduced below the No Action Alternative option, this alternative would increase the use and impacts of all other limited riparian resources.

Environmental Consequences, Cumulative Impacts: Please refer to the information provided for this section in EA DOI-BLM-CO-N010-2013-0006.

3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT

3.4.1 Cultural Resources

Affected Environment: The Proposed Action is considered an undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA). The BLM has the legal responsibility to consider the effects of its actions on cultural resources located on federal land. BLM Manual 8100 Series; the Colorado State Protocol; and BLM Colorado Handbook of Guidelines and Procedures for Identification, Evaluation, and Mitigation of Cultural Resources provide guidance on Section 106 compliance requirements to meet appropriate cultural resource standards. Section 106 of NHPA requires federal agencies to: 1) inventory cultural resources

within federal undertaking Areas of Potential Effect (APEs), 2) evaluate the significance of cultural resources by determining National Register of Historic Places (NRHP) eligibility and, 3) consult with applicable federal, state, and tribal entities regarding inventory results, NRHP eligibility determinations, and proposed methods to avoid or mitigate potential impacts to eligible sites.

In Colorado, the BLM's NHPA obligations are carried out under a Programmatic Agreement (PA) among the BLM, the Advisory Council on Historic Preservation, and the State Historic Preservation Officer (SHPO). Should an undertaking be determined to have "no effect" or "no adverse effect" by the BLM-LSFO archaeologist, the undertaking may proceed under the terms and conditions of the PA. If the undertaking is determined to have "adverse effects," project-specific consultation is then initiated with the SHPO.

The culture history of northwestern Colorado is presented among several recent context studies. Reed and Metcalf's (1999) study of the Northern Colorado River Basin provides applicable prehistoric and historic overviews as compiled by Frederic J. Athearn (1982) and Michael B. Husband (1984). A historical archaeology context also was prepared for the State of Colorado by Church et al. (2007). Furthermore, significant cultural resources administered by the BLM-LSFO are provided in a Class 1 (archival) overview (McDonald and Metcalf 2006), in addition to valuable contextual data provided by synthesis reports of archaeological investigations conducted for a series of large pipeline projects in the BLM-LSFO management area (Metcalf and Reed 2011; Rhode and others 2010; Reed and Metcalf 2009).

Environmental Consequences, Proposed Action: Historic properties may be directly or indirectly impacted by surface disturbing activities or the construction/modification of a building, structure, facility, or infrastructure. Indirect impacts may include increased soil erosion and gullying, in addition to increased potential for unlawful artifact collection and/or vandalism of cultural resources. Other indirect impacts may include degradation of the historic setting, thereby detracting from the view-shed and historic feeling of nearby cultural resource sites.
The current planning area has been subject to a Class 3 (intensive pedestrian) cultural resources inventory. No cultural resources were identified as a result of the study, as reported in the following:

> Collins, Gary. 2014. Class III *Cultural Resources Inventory of the ScandinaviaGulch Riparian Improvement and Water Development, Moon Pasture Fence, and Five Alkali Springs Water Haul Locations, Moffat County, Colorado.* BLM-LSFO #10.9.2013; OAHP #MF.LM.NR1303. Bureau of Land Management-Little Snake Field Office, Craig, Colorado.

Environmental Consequences, No Action Alternative: While a no action alternative alleviates potential damage from project activities/improvements, cultural resources are constantly subject to site formation processes or events after creation (Binford 1981; Schiffer 1987). These processes can be both cultural and natural, and may occur instantly or over thousands of years. Cultural formation processes include activities directly or indirectly caused by humans. Natural processes include chemical, physical, and biological processes of the natural environment that impinge upon and/or modify cultural materials.

Environmental Consequences, Cumulative Impacts: The cumulative impacts to cultural resources are broad and include impacts within and adjacent to the project area, in addition to the surrounding area view-shed. However, the region has been historically grazed (for more than 50 years) but the intensity of livestock use has generally decreased over time. Any extant historic properties within or adjacent to the project area—and where potential for impacts exist—are more likely to have sustained impacts as a result of prior livestock/grazing activities or other historic land-use activities (e.g., mining, agriculture, etc.). Continued use and/or development of the area has the potential to detract from the integrity of cultural resources directly through physical disturbance or indirectly through the degradation of the historical environmental setting. An increased utilization of the area also increases the change of illegal collection of cultural material. Alternatively, the development of the area will result in the execution of cultural resource studies. The information and data gained from these potential studies are valuable to the overall knowledge of the area and have the potential to aid in the mitigation of unknown adverse effects.

Mitigation: If historic or archaeological materials are encountered or uncovered during project-related activities, the operator and/or personnel are to halt activities in the immediate vicinity and contact the authorized officer or BLM-LSFO archaeologist. Construction activities may not resume until the nature and disposition of the finding is resolved. Should the find be determined NRHP-eligible, avoidance or mitigation measures shall be developed accordingly.

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2006 *Regional Class I Overview of Cultural Resources for the BLM Little Snake Field Office*. Metcalf Archaeological Consultants, Inc. Eagle, Colorado.

Reed, Alan D. and Michael Metcalf
1999 *Colorado Prehistory: A Context for the Northern Colorado River Basin*. Colorado Council of Professional Archaeologists, Denver.

2009 *Synthesis of Archaeological Data Compiled for The Piceance Basin Expansion, Rockies Express Pipeline, and Uinta Basin Lateral Projects Moffat and Rio Blanco Counties, Colorado and Sweetwater County, Wyoming*. Volume 1. Alpine Archaeological Consultants, Inc., Montrose, Colorado.

Rhode, David, Lisbeth A. Louderback, David Madsen, and Michael D. Metcalf
2010 *Synthesis of Archaeological Data Compiled for The Piceance Basin Expansion, Rockies Express Pipeline, and Uinta Basin Lateral Projects Moffat and Rio Blanco Counties, Colorado and Sweetwater County, Wyoming.* Volume 3. Metcalf Archaeological Consultants, Inc., Eagle, Colorado.

3.4.2 Native American Religious Concerns

Affected Environment: Four Native American tribes have cultural and historical ties to lands administered by the BLM-LSFO. These tribes include the Eastern Shoshone, Ute Mountain Ute, Uinta and Ouray Agency Ute, and the Southern Ute.

American Indian religious concerns are legislatively considered under several acts and Executive Orders including the American Indian Religious Freedom Act, the Native American Graves Environmental Assessment Protection and Repatriation Act, and Executive Order 13007 (Indian Sacred Sites). In sum, and in concert with other provisions such as those found in the NHPA and Archaeological Resources Protection Act, these acts and orders require the federal government to carefully and proactively consider the traditional and religious values of Native American culture and lifeways to ensure, to the greatest degree possible, that access to sacred sites, treatment of human remains, the possession of sacred items, conduct of traditional religious practices, and the preservation of important cultural properties are not unduly infringed upon. In some cases, these concerns are directly related to "historic properties" and "archaeological resources." Likewise, elements of the landscape without archaeological or human material remains also may be involved. Identification of Native American concerns is normally completed during land-use planning efforts, reference to existing studies, or through direct consultation with tribes.

Consultation for the type of proposed undertaking is consulted on annually with the aforementioned tribes. Letters were sent to the tribes in the spring of 2013 describing general projects as planned for the upcoming fiscal year. No comments were received. Project-specific consultation is typically not conducted unless activities are proposed within a previously identified area of tribal concern or if an undertaking may involve culturally significant items, sites and/or landscapes.

Environmental Consequences, Proposed Action: Items, sites, or landscapes determined as culturally significant to the tribes can be directly or indirectly impacted. Direct impacts may include, but are not limited to, physical damage, removal of objects or items, and activities construed as disrespectful (e.g., installation of portable toilets near a sacred site). Indirect impacts may include, but are not limited to, prevention of access (hindering the performance of traditional ceremonies and rituals), increased visitation of an area, and potential loss of integrity related to religious feelings and associations.

There are no known items, sites, or landscapes determined as culturally significant to the tribes within or immediately adjacent to the permit area. The Proposed Action does not prevent access to any known sacred sites, prevent the possession of sacred objects, or interfere with the performance of traditional ceremonies and/or rituals.

Environmental Consequences, No Action Alternative: None

Environmental Consequences, Cumulative Impacts: Continued land-use and/or developments have the additive effect of altering the landscape from that ancestrally known by the tribes. Although specific, culturally sensitive sites have not been identified within the allotment or immediate vicinity, the overarching concern is for cumulative effects that modern culture and/or developments cause upon the landscape.

Mitigation: There are no known adverse impacts to any culturally significant items, sites, or landscapes. If new information is provided by consulting tribes, additional or edited terms and conditions may be required to protect or mitigate resource values.

CHAPTER 4– PUBLIC LAND HEALTH STANDARDS

4.1 INTRODUCTION

The Alkali Springs #04530 Allotment was assessed for compliance with the Colorado Standards of Public Land Health by and interdisciplinary team consisting of three Rangeland Management Specialist and two Wildlife Biologists on June 15th 2003 as part of the Powderwash Landscape Land Health Assessment. This allotment was included in the Scandinavia Landscape Land Health Assessment in 1998, although no determination was made in 1998 this allotment was noted as having more than expected cheatgrass and low production in sagebrush and native grasses.

4.2 COLORADO PUBLIC LAND HEALTH STANDARDS

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

4.2.1 Standard 1 Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Finding of most recent assessment: This standard is met for the Alkali Springs Allotment. Indicators such as the presence of pedestalling, rills, surface litter, and plant cover showed that there is no accelerated erosion and that soils are stable.

Proposed Action: The Proposed Action would continue to facilitate meeting this standard.

No Action: While soil standards are technically being met for the larger allotment, localized soil conditions within the focused project area are not. These conditions will most certainly persist if no change in management occurs, likely leading to a failure to meet the upland soil standard for the allotment while contributing to a persistent failure to also meet riparian health standard in areas where (created) riparian areas have the potential to exist.

Plug and Abandon: Local impacts to soils would improve. Impacts to soils in other areas as a result of this alternative may cause standards not to be met in other areas.

4.2.2 Standard 2 Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Finding of most recent assessment: This standard is currently being met for riparian areas created by the leaking wells INSIDE the riparian exclosure. The standard is not met for these same areas that occur outside the exclosures.

Proposed Action: Activities proposed under this alternative will maintain this standard in areas where this standard is already met and will lead towards improved conditions in areas outside the exclosures where it is not.

No Action: Under this alternative, uncontrolled flow from the wells would continue or even exacerbate (in the event of a complete wellhead failure) current rates of erosion, adding sediment to the (now) perennial segments of Scandinavian Gulch. Existing riparian areas would continue to be the only source of water for wildlife and livestock, encouraging further degradation of an already compromised area. This standard is not likely to be met under this alternative over the long term.

Plug and Abandon: This standard would not apply as the riparian areas assessed would be eliminated.

4.2.3 Standard 3 Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Finding of most recent assessment: This standard is not met in the Alkali Springs Allotment #04530. This was due to the abundance of non-native species such as cheatgrass and annual pepperweed that are adversely influencing the productivity of the native communities and impacting wildlife habitat includes appropriate structure, seral stage distribution, and patch sizes.

Proposed Action: As the AMP was designed to make significant progress toward meeting this standard. The Proposed Action would facilitate significant progress toward meeting this standard as well.

No Action: Current conditions would continue, the AMP objectives in moving these standards toward being met would be constrained.

Plug and Abandon: Current conditions would worsen with elimination of these water sources, the AMP objectives in moving these standards toward being met would be impossible to achieve.

4.2.4 Standard 4 Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Finding of most recent assessment: The allotments provide habitat for greater sage-grouse, a BLM sensitive species and a candidate for listing under the Endangered Species Act. The allotments also provides habitat for two additional BLM sensitive species: bald eagles and Brewer's sparrow. Overall, vegetative communities within the Dry Gulch Allotment are in good condition, providing suitable habitat for sensitive wildlife species. Habitat on the Alkali Springs Allotment was in fair condition and habitat quality has been reduced due to cheatgrass infestations. There are no federally listed threatened, endangered, or BLM sensitive plant species populations identified on these allotments.

Proposed Action: As the AMP was designed to make significant progress toward meeting this standard. The Proposed Action would facilitate significant progress toward meeting this standard as well.

No Action: Current conditions would continue, the AMP objectives in moving these standards toward being met would be constrained.

Plug and Abandon: Current conditions would worsen with elimination of these water sources, the AMP objectives in moving these standards toward being met would be impossible to achieve.

4.2.5 Standard 5 The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands would achieve or exceed the Water Quality Standards established by the State of Colorado.

Finding of most recent assessment: Within the project area there is no naturally occurring perennial surface water in Scandinavia Gulch. This standard does not apply.

SIGNATURE OF PREPARER:

SIGNATURE OF ENVIRONMENTAL REVIEWER:

DATE SIGNED:

Finding of No Significant Impact
DOI-BLM-CO-N010-2014-0012-EA

Based upon a review of this Environmental Assessment and the supporting documents, I have determined that the Proposed Action is not a major federal action and would not have a significant effect on 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 at 40 CFR 1508.27 and do not exceed those effects as described in the Little Snake Record of Decision and Resource Management Plan (2011). An environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context: The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance.

Intensity: The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. Impacts that may be both beneficial and adverse
The beneficial effects of the Proposed Action includes: in authorizing public land grazing this action sustains the local economy as grazing operations would continue to supply personal income to the operator and employees, and would have a proportional influence on the regional, Colorado, and national economy. This action supports the western livestock industry. The authorized livestock operator(s) have mandatory and special terms and conditions that must be met to maintain their grazing preference. This provides a certain level of stewardship of public lands in that if these lands were to become degraded by any activity or event, natural or human in origin, grazing and or other authorized uses would be terminated. This stewardship role of the livestock operator not only mandates proper livestock and forage management but also provides communication with the BLM as to other activities or events that could cause degradation to public lands. Long term effects would be limited in scope.

2. Degree of effect on public health and safety
There would be no effects on public health and safety.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas
There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the area of Proposed Action. As described in the EA, impacts to cultural resources were identified for the Proposed Action. As this action is not a new action but a continuation of historic land uses in this area there would be no affect to unique characteristics of the geographic area.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial
Public input regarding the Proposed Action has been solicited during the planning process. The BLM Little Snake Field Office sent out a Notice of Public Scoping on February 13, 2014 to determine the level of public interest. The only scoping response was from the Colorado State Land Board (SLB) which is in support of the project and provided instructions on entering into a lease or cooperative agreement for the portion of the project that will be located on SLB lands.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk
No highly uncertain or unknown risks to the human environment were identified during analysis of the Proposed Action.

6. 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 Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts
No individually or cumulatively significant impacts were identified for the Proposed Action. Any adverse impacts identified for the Proposed Action, in conjunction with any adverse impacts of other past, present, or reasonably foreseeable future actions would result in negligible impacts to natural and cultural resources.

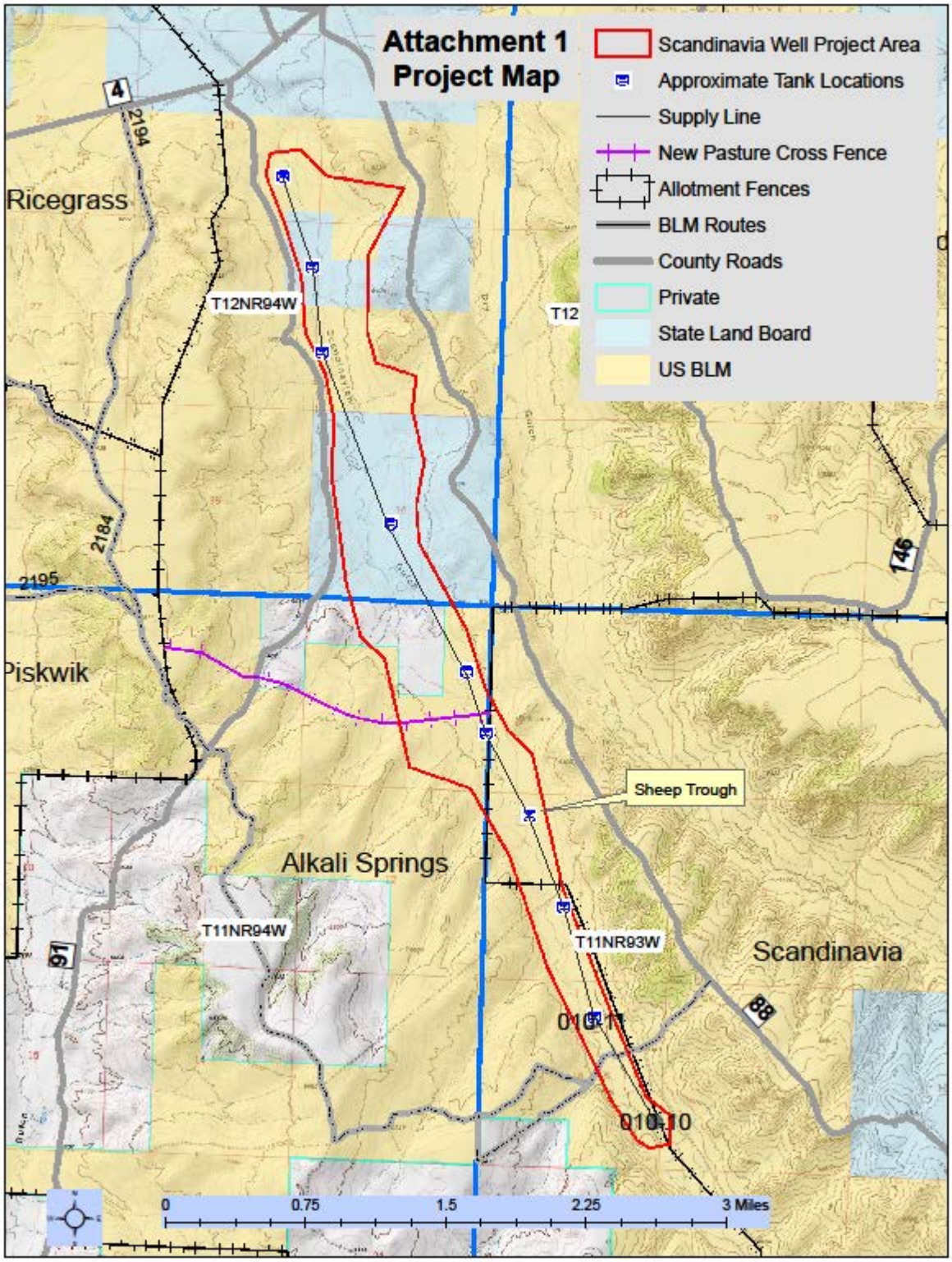
8. Degree to which the action may adversely affect district, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources:
There would be no loss or destruction to these resources. A cultural resources study is initiated prior to any action considered and undertaking under Section 106 of the National Historic Preservation Act. Any adverse effects to Historic Properties are mitigated in consultation with the Colorado Office of Archaeology and Historic Preservation (SHPO).

9. Degree to which the action may adversely affect an endangered or threatened species or its critical habitat
There are no threatened or endangered species or habitats for such species present within this allotment.

10. Whether the action threatens a violation of federal, state, or local environmental protection law
The Proposed Action violates no federal, state, or local environmental protection laws.

SIGNATURE OF AUTHORIZED OFFICIAL: _____/s/ Timothy Wilson_____
Timothy J. Wilson, Acting Field Manager

DATE SIGNED: 08/01/14


Attachment 1
Project Map
Scandinavia Well Project Area
Approximate Tank Locations
Supply Line
New Pasture Cross Fence
Allotment Fences
BLM Routes
County Roads
Private
State Land Board
US BLM
Ricegrass
T12NR94W
T12
Piskwik
Sheep Trough
Alkali Springs
T11NR94W
T11NR93W
Scandinavia
0 0.75 1.5 2.25 3 Miles

ATTACHMENT #2
DOI-BLM-CO-N010-2014-0012-EA
STANDARD PALEONTOLOGICAL STIPULATIONS

The permittee/operator shall immediately notify the BLM Authorized Officer of any paleontological resources discovered as a result of operations under this authorization. The permittee/operator shall suspend all activities in the vicinity of such discovery until notified to proceed by the Authorized Officer and shall protect the discovery from damage or looting. The permittee/operator may not be required to suspend all operations if activities can be adjusted to avoid further impacts to a discovered locality or be continued elsewhere. The Authorized Officer will evaluate, or will have evaluated, such discoveries as soon as possible, but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the Authorized Officer after consulting with the permittee/operator. Within 10 days, the permittee/operator will be allowed to continue construction through the site, or will be given the choice of either (1) following the Authorized Officer's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (2) following the Authorized Officer's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.