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BROOK MINING CO., LLC.
BROOK MINE
VOLUME 10 OF 12
TFN 6 2/025

Brook Mine
Permit Application
Volume X

Appendix D11

DEQ Exhibit 11

RAMACO

Brook Mine Permit Application Volume X

BROOK MINING CO., LLC.
BROOK MINE
VOLUME 10 OF 12
TFN 6 2/025

VOLUME X

Appendix D11

VOLUME TOC

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VOLUME I	Adjudication 1 of 3	
VOLUME IA	Adjudication 2 of 3	
VOLUME II	Adjudication 3 of 3	
VOLUME III	Appendix D1	Land Use
	Appendix D2	History
	Appendix D3	Archeological and Paleontological Resources
	Appendix D4	Climatology
VOLUME IV	Appendix D5	Topography, Geology and Overburden Assessment
VOLUME V	Appendix D6	Hydrology
VOLUME VI	Appendix D7	Soil Resources Assessment
VOLUME VII	Appendix D8	Vegetation Inventory
VOLUME VIII	Appendix D9	Wildlife
VOLUME IX	Appendix D10	Wetlands
VOLUME X	Appendix D11	Alluvial Valley Floors
VOLUME XI	Mine Plan	
VOLUME XII	Reclamation Plan	

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February 2016

APPENDIX D11 TOC

TABLE OF CONTENTS

D11 ALLUVIAL VALLEY FLOORS D11-1
D11.1 Introduction D11-1
D11.2 Purpose and Scope D11-2
D11.3 Stream Laid Deposits D11-4
D11.4 Water Resources D11-7
D11.4.1 Water Quantity D11-7
D11.4.2 Extent of Subirrigation D11-7
D11.4.3 Extent of Natural and Artificial Flood Irrigation D11-8
D11.4.4 Water Quality D11-9
D11.5 Agriculture Practices D11-10
D11.6 Extent of Alluvial Valley Floor D11-12
D11.7 Mining of Alluvial Valley Floor D11-13
D11.8 References D11-15

LIST OF TABLES

Table D11.4-1. Slater Creek Alluvial Water Levels D11-T1
Table D11.4-2. Precipitation Frequency and Depth D11-T2
Table D11.4-3. Water Quality Summary for Site T4 ..... D11-T3

LIST OF FIGURES

Figure D11.1-1. General Area Map D11-F1

LIST OF EXHIBITS

Exhibit D11.1-1 Potentially Subirrigated Lands
Exhibit D11.3-1 Surficial Geology
Exhibit D11.3-2 Alluvial Transect Geologic Cross Sections
Exhibit D11.4-1 Irrigated Lands and Point of Use
Exhibit D11.6-1 Potential and Declared Alluvial Valley Floor Extents

TFN 6 2/025
RECD DEC 18, 2015

DEQ 11-005

TABLE OF CONTENTS (Continued)

Exhibit D11.7-1 Drill Hole Location and Alluvial Isopach Map of the Big Horn Mine Permit

LIST OF ADDENDA

Addendum D11-1 Brook Mine AVF Preliminary Identification (WDEQ/LQD)

Addendum D11-2 State Decision Documents (SDD 213-T1 and SDD 213-T2)

Addendum D11-3 Borehole and Monitor Well Logs

Addendum D11-4 SEO Water Rights

TFN 6 2/025
RECD JUL 30, 2015

DEQ 11-006

APPENDIX D11 TEXT

ALLUVIAL VALLEY FLOORS

Appendix D11

Prepared by:

WWC Engineering

July 2015

TFN 6 2/025
RECD JUL 30,2015

D11 ALLUVIAL VALLEY FLOORS

Alluvial Valley Floor sections for RAMACO's Brook Mine were prepared by WWC Engineering of Sheridan, Wyoming.

D11.1 Introduction

RAMACO is proposing to develop the Brook Mine. The mine will be located approximately 8 air miles northwest of Sheridan, Wyoming. The alluvial valley floor (AVF) status of the streams that drain the permit area and areas adjacent to the proposed permit area, have not yet been declared by the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD). This Appendix has been prepared as a comprehensive initial application containing all required information pertaining to alluvial valley floors. This Appendix was developed based on WDEQ/LQD Guideline No. 9 to contain sufficient information for WDEQ/LQD to make an AVF declaration of the drainages within and adjacent (1/2 mile) the baseline study area described herein. To assist in development of this Appendix, an Alluvial Valley Floor Preliminary Identification report was prepared and submitted to WDEQ/LQD District III on February 5, 2014. The WDEQ/LQD staff reviewed this report and provided questions and comments in a letter returned to RAMACO on March 25, 2014. A copy of this letter is included in Addendum D11-1. The location of the proposed mine site is presented on Figure D11.1-1.

Based on data presented herein, the Tongue River valley in the areas studied by RAMACO, appears to be an AVF. Portions of these areas are within the Permit area; however, no surface disturbance or mining is proposed there. As such, no material damage is anticipated to this AVF. Further discussion and investigation of the Brook Mine's probable hydrologic impacts on the Tongue River AVF are found in the Mine Plan, Section MP.6, and no further discussion or investigation of this area is included in this study.

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-009

A large portion of the study area for the Goose Creek and Tongue River valleys was previously investigated as part of the Big Horn Coal Mine permit and Welch No. 1 North Mine Permit (Sheridan Enterprises). A portion of Hidden Water Creek was evaluated as a portion of the Big Horn Mine Permit No. 213. These investigations led to the declaration of areas as AVFs on the Tongue River and Goose Creek, but a negative declaration on Hidden Water Creek. These declarations can be found in the Big Horn Mine State Decision Documents (WDEQ/LQD, 1981) and the Sheridan Enterprises State Decisions Documents (WDEQ/LQD, 1989). The areas declared as AVFs are shown on Exhibit D11.1-1 and no further investigation of these areas has been included in Appendix D11. Copies of the State Decision Document are included in Addendum D11-2. As these areas have previously been studied and declarations of AVF or negative declarations of AVF have been made via the State Decision Documents, no additional investigation of these areas was completed as part of this study.

Potential AVF's may exist on the other drainages within and adjacent to the permit. The methods used to determine if the potential AVF's contain alluvial deposits bearing water of a width that may be significant to farming are discussed in the following sections.

D11.2 Purpose and Scope

In a decision by the U.S. District Court for the District of Columbia, Civil Action Number 69-1144 in 1980 (known as the Flannery Decision), the court noted that an AVF must satisfy both geologic criteria (unconsolidated stream laid deposits) and hydrologic criteria (water sufficient to sustain agriculture). Therefore, the court emphasized that the key to the existence of an AVF is the presence of both geologic and water availability characteristics which together sustain agricultural activities.

The Wyoming Environmental Quality Act (W.S § 35-11-103(e)(xviii) defines an AVF as follows:

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-010

"Alluvial valley floor" means the unconsolidated stream laid deposits holding streams where water availability is sufficient for subirrigation or flood irrigation agricultural activities but does not include upland areas, which are generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion deposits by unconcentrated runoff or slope wash, together with talus, other mass movement accumulation and windblown deposits.

It is understood that surface and underground coal mining operations fall under the Surface Mining Control and Reclamation Act ("SMCRA"). Furthermore it is understood that mining will only be prohibited where there is an alluvial valley floor for three reasons: (1) where mining will interfere with or preclude farming; (2) where mining will materially damage the water supply to an alluvial valley floor; or (3) where the essential hydrologic functions cannot be restored after mining.

RAMACO is proposing to conduct both surface and auger mining operations within the proposed permit boundary (see Figure D11.1-1). Auger and/or highwall mining is a hybrid of surface and underground mining. A high wall is excavated to expose the coal to be mined and then a remotely operated continuous miner is sent to excavate the seam without removal of the adjacent overburden. A tunnel is mined to the maximum extent allowed by the equipment and geology. Once the tunnel is completed the equipment is retracted and then begins a new tunnel down the highwall parallel to the tunnel that was just constructed. The miner leaves web pillars between tunnels and it leave barrier pillars between groups of tunnels for safety and to minimize settlement. This method of mining will limit the amount of surface disturbance.

The goal of the investigation performed was to adequately characterize the hydrologic functions within the study area to determine if they meet the formal definitions required for AVF determination and what functions, if any, are essential to the hydrologic system that would require special consideration in order to restore the hydrologic balance if the drainages were to be mined and

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-011

reclaimed. Additionally information is included to allow assessment of material damage to water supplies on alluvial valley floors important to farming, namely the Tongue River valley floor.

D11.3 Stream Laid Deposits

AVFs must be composed of unconsolidated stream laid deposits; therefore, the following illustrates areas which contain stream laid materials within the study area based on publicly available data and data from coring and monitor well construction. The valleys in the study area are made of debris left by stream flow, slope wash, wind and/or land sliding. Previous studies have been conducted which outline those areas of deposition that are the result of stream flow.

The areas within and adjacent to the permit boundary have been studied by B.E. Barnum 1983, S.P. Kanizay 1978, Big Horn Coal Company (Big Horn Mine Permit No. 213-T) and Sheridan Enterprises (Welch No. 1 North Mine Permit No. 497-T1). The study conducted by Kanizay is presented in Exhibit D11.3-1. It is important to identify topographic valleys containing unconsolidated deposits overlain by flood plains or terraces with side slopes underlain by alluvium. Several topographic valleys exist within and adjacent to the proposed permit boundary (Exhibit D11.3-1). The valleys include: Earley Creek valley, East Fork of Earley Creek valley, Slater Creek valley, Hidden Water Creek valley and other minor valleys. The valleys contain mostly ephemeral stream channels except Slater Creek which is described as an intermittent stream.

As seen on Exhibit D11.3-1, the Earley Creek, East Fork of Earley Creek, Slater Creek, Hidden Water Creek, and some of the other minor tributaries contain stream laid deposits but also tend to have slopewash, local terrace and/or alluvial fan deposits. It is apparent that within and adjacent to the proposed permit boundary that geologic characteristics are present which meet the criteria of an AVF. Mapping units that may meet the criteria of AVFs are Alluvium (Qal), Alluvial and Colluvial Deposits (Qac), and Stream Terrace

TFN 6 2/025
RECD DEC 18, 2015

DEQ 11-012

Deposits and Alluvium Undifferentiated (Qat). Mapping units that do not meet AVF criteria are Colluvial Deposits (Qc), Stream Terrace Deposits Uncorrelated (Qt), Pediment Deposits (Qp), Tongue River Member (Tft), and Lebo Shale Member (Tfl). The approximate location boundaries of the Area Disturbed By Surface Mining (af) indicate historic mine workings that have either been reclaimed or contain remnants of previous debris piles, road, and ponded water.

Unconsolidated stream laid deposits are often associated with geomorphic characteristics including channel bars, splays, abandoned meanders, modern flood plains, and terraces. Geomorphic characteristics such as channel bars, abandoned meanders, and modern flood plains are only found in the channels of the Tongue River and Goose Creek in the study area. There are no substantial splays visible in either the Tongue River or Goose Creek channels. None of these geomorphic characteristics are present in Earley Creek, East Fork Earley Creek, Slater Creek, Hidden Water Creek, or the other minor tributaries. The stream channels are essentially straight with slopes too steep to form these geomorphic characteristics. Exhibit D11.3-1 shows the approximate locations of the Stream Terrace Deposits and Alluvium Undifferentiated (Qat) mapping unit. As can be seen on Exhibit D11.3-1, the Qat mapping unit is not present within the study area. The Stream Terrace Deposits Uncorrelated (Qt) mapping unit is found within the study area. However, as mentioned before, the Qt mapping unit does not qualify for AVF criteria.

In addition to the mapping that has been provided herein, information from coring and monitor well construction is included in Addendum D11-3. This addendum includes three alluvial wells which were constructed along Slater Creek and six boreholes constructed perpendicular to the Slater Creek channel to assist with preparation of transects. The alluvial transects are presented on Exhibit D11.3-2. As shown by these transects, colluvial material overlays alluvial material in all boreholes and monitor wells. Also, the colluvial

TFN 6 2/025
RECD OCT 23, 2015

DEQ 11-013

material is generally greater than 10 feet thick. The locations of the boreholes were selected as those that best represent the natural extent of the potential alluvial material of the channel and those that could be reasonably accessed by thc drilling equipment. The presence of scoria colluvial/alluvial material was used as an identifier for the purpose of identifying the natural extent of the channel.

Three bore holes were also constructed along Hidden Water Creek, which are included in AddendumD11-3. The locations of these boreholes are shown on Exhibit D11.3-1. These boreholes show that the Hidden Water Creek valley fill is predominantly angular scoria in a colluvial, silty matrix. Also, the two boreholes (HW-BH-1 and HW-BH-2) located in the channel bottom show that bedrock is shallow at a depth of 3 feet. The third borehole (HW-BH-3) was taken on a terrace approximately 8 feet above the channel bottom. This borehole also had scoria in a silty matrix, but also includes sands and clays. These findings are similar to those found in the Big Horn Mine Permit No. 213-T8, Appendix D6, pages D6-157 to D6-158. Test pits completed within the stream channel of Hidden Water Creek shared the following characteristics:

> "One to two and one-half feet of fine-grained, relatively homogeneous, sediments (silt to very fine sand) overlie coarser, nonhomogeneous, stratified layers of subangular to rounded cobbles and gravel, indicating a decrease in the overall energy environment in more recent times.
>
> Most of these stratified cobbles and gravels were made up of scoria and sandstone chips often with horizontal orientation in a matrix of sand to sandy clay. Weathered coal chips were also evident in some of the stratified layers.
>
> The conclusion verified from the pit observations is that these deposits are unconsolidated and stream laid. Small isolated patches of colluvium or bedrock can be found throughout the alluvial deposits, but these characteristics do not exclude the deposit from being stream laid."

The location of these test pits can be seen in Exhibit D11.3-1. These results show that the materials in the Hidden Water Creek valley do meet the definition of unconsolidated stream laid deposits near the confluence of Hidden Water Creek and the Tongue River, and do not meet the definition of unconsolidated stream laid deposits further upstream. Addendum D11-2 contains the State Decision Documents (SDD) for T1 and T2 of the Bighorn

TFN 6 2/025
RECD OCT 23, 2015

DEQ 11-014

Coal Permit No. 213. Under the heading "Determination" on page 52 of SSD 213-T2 (page Addendum D11-2-96), the document states "No other drainages are of significant size or lack the stream laid deposits necessary to be an Alluvial Valley Floor within the renewal and/or amendment areas."

D11.4 Water Resources

D11.4.1 Water Quantity

Subirrigation and/or natural or flood irrigation occurs on lands within and adjacent to the proposed permit boundary. The following discusses water availability for agricultural practices.

D11.4.2 Extent of Subirrigation

Subirrigation can be inferred from late season color infrared photography. It is assumed if evapotranspiration is occurring late in the season when water is available for plant growth. Color infrared photography measures evapotranspiration and is an indicator of irrigated and subirrigated lands. Potentially subirrigated lands have been identified by RAMACO and are depicted on Exhibit D11.1-1. The boundaries that have been drawn are an interpretation of zones that show late season plant growth within those zones of potential subirrigation. Exhibit D11.1-1 also illustrates the relationship of these subirrigated lands and the geologic criteria discussed previously. Water levels were measured at three monitor wells along or near the thalweg of the Slater Creek channel. These wells are depicted on Exhibit D11.3-1. Data for these wells are presented in Table D11.4-1.

As shown by Exhibit D11.1-1, potential subirrigation appears to occur along the Tongue River, Earley Creek, and Slater Creek within and adjacent to the proposed permit. In addition to infrared aerial photography, the Big Horn Mine Permit No. 213-T8, concluded that "no subirrigation is present during the entire growing season" along Hidden Water Creek. Infrared aerial photography shows that subirrigation does not appear to occur along the East Fork of Earley Creek. This is supported by the existence of a prairie dog town in the drainage

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-015

channel of the East Fork of Earley Creek as indicated on Exhibit D8.2-1 as symbol PDMG.

As shown by Exhibit D11.3-2, the typical alluvial/colluvial potentiometric surface in the materials along Slater Creek is below the root depth necessary for subirrigation that will contribute to the useful production of grass and hay vegetation, though it may allow these plants to survive. This depth is typically only sufficient for water use by trees and shrubs located along the Slater Creek valley. Table D11.4-1 shows that there is little to no seasonal variability to the water levels in the alluvial wells. In this case, subirrigation does not exist in a regulatory sense because no increased production results from the available groundwater, except during years with above average precipitation. This indicates that limited subirrigation in conjunction with precipitation events are the water sources being used by vegetation. The Slater Creek drainage contains several locations of burn, scoria, or clinker material overlying coal that were the result of previous coal fires. The interface between the coal and the scoria is a zone of partially metamorphosed coal ash. This ash band acts as an aquaclude preventing water from entering or escaping the coal. Infiltration of precipitation into the burn and then slow release of the stored water acts as a water source for the subirrigation and surface flow of Slater Creek.

D11.4.3 Extent of Natural and Artificial Flood Irrigation

Flood irrigation with respect to AVFs can be defined as, "supplying water to plants by natural overflow or the diversion of flows, so that the irrigated surface is largely covered by a sheet of water". If overbank flows occur with sufficient frequency and duration to significantly increase forage production adjacent to a stream, this natural flood irrigation can be considered a flood irrigation agricultural activity. Historically, the 2-year runoff event occurs with sufficient frequency and duration to be considered agriculturally useful if it inundates a significant area.

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-016

The ephemeral drainages, within and adjacent to the permit area, flow in response to precipitation events that come in the form of rain and snow. Snow accumulation typically begins in October and melts in early spring. This snow melt along with the spring rains contribute the most to the peak flows observed in late May and early June. Precipitation for the proposed permit area is taken from NOAA Atlas 2 and can be seen in Table D11.4-2. A more in-depth discussion on the project area hydrology is included in Appendix D6. Appendix D6 contains a HEC-RAS analysis of Slater Creek for the 2-year, 24-hour runoff event. The area inundated by this storm event is shown on Exhibit D11.4-1. As shown on the Exhibit D11.4-1, the width of the 2-yr inundation area is approximately 200 feet wide including the channel. This width minimizes the effectiveness of this valley for agricultural purposes using natural flood irrigation.

Exhibit D11.4-1 also shows the locations of permitted water rights within and adjacent to the proposed permit area. Exhibit D11.4-1 also depicts the point of use for the water rights listed in Addendum D11-4. This is an illustration of the artificially irrigated lands, some of which may be naturally subirrigated. As shown by the exhibit most of the artificial irrigation practices that are within or are adjacent to the permit are on the Tongue River valley.

D11.4.4 Water Quality

Wyoming Department of Environmental Quality classifies the Tongue River as a 2AB stream and Earley Creek, Slater Creek, and Hidden Water Creek as 3B streams. Waters classified as 2AB are to be maintained suitable for use as Drinking water, Game Fish, Non-Game Fish, Fish consumption, other aquatic life, recreation, wildlife, agriculture, industry and scenic value. Waters classified 3B streams are to be maintained suitable for use of other aquatic life, recreation, wildlife, agriculture, industry, and scenic value.

Water quality was measured for the Tongue River in water years 2001-2005 by the USGS in report 2007-5146 as site T4. The sample site is near the Montana state line at Decker, presumably at the USGS gaging station

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-017

06306300 as depicted on Figure D11.1-1. Table D11.4-3 provides a summary of the water quality from this site. For further discussion of the water quality of the alluvial materials within the permit area refer to Appendix D6.

D11.5 Agriculture Practices

The primary land use within and adjacent to the permit area in recent history has been agricultural such as grazing, irrigated hay meadows or cropland, and other associated ranching activities. The upper hills within the permit boundary are typical rangeland for Wyoming suitable for cattle grazing. However, the dry, hilly nature of these areas does not lend itself to other forms of agriculture, such as irrigated cropland. Portions of the proposed permit adjacent to the Tongue River are suitable for irrigating hay meadows and cropland through the use of center pivot irrigation, lateral move irrigation (side rolls or wheel lines), and flood irrigation (natural and artificial). These areas can be seen clearly on Exhibits D11.1-1 and D11.4-1. As shown by these exhibits, stream valleys in this area, namely the Tongue River provide the necessary water supply to support farming to hay meadows and cropland.

The Hidden Water Creek valley and the Earley Creek valley do not currently include any hay meadows or cropland inside of the study area as shown on Exhibits D11.1-1, D11.4-1, and Exhibit D8.2-1. Natural or artificial flood irrigation is not feasible on the Hidden Water Creek drainage as a result of unreliable and low flow patterns. While an adjudicated water right does exist on East Fork Earley Creek (Early Creek Ditch No.1), the lack of irrigation, is demonstrated by the absence of a culvert or other type of conveyance structure under Interstate 90 at the location East Fork Earley Creek intersects the interstate. This suggests the East Fork Earley Creek drainage does not supply sufficient water for consistent agricultural practices. In addition, the water right point of use acres for East Fork Earley Creek Ditch No. 1 presented in the SEO permit in Addendum D11-4 do not appear to be irrigated in recent times as depicted in the imagery for Exhibit D11.4-1. The adjudicated acres in Section 10 and 15 of T.57N., R.84W. appear to be comprised of mostly Prairie Dog Modified Grassland and Bottomland Sagebrush Grassland as presented in Appendix D8. This suggests the water right has not been used for irrigation purposes for some time and is likely abandoned.

The Slater Creek valley contains limited hay meadows located within the valley floor north of the permit boundary, as shown in areas marked

TFN 6 2/025
RECD OCT 23,2015

DEQ 11-018

Agricultural Land (AG) in Exhibit D8.2-1. Comparison of Exhibits D8.2-1, D11.1-1, and D11.4-1 within the study area shows that portions of the hay meadows in Sections 2, 3, 11, and 12 of Township 57 North, Range 85 West are located within the boundaries of subirrigation or natural flood irrigation. However, the majority of the areas marked AG are not within the boundaries of subirrigation or the natural floodplain, and as such may be supplied with water through SEO water rights. These water rights are included in Addendum D11-4. The Landen and Williams ditches (shown on Exhibit D11.4-1) appear to be currently unused for production of agricultural vegetation, and are either indistinguishable from the surrounding landscape or are in poor condition. The Hall Ditch, a pipeline, is the only diversion structure that appears to be in use. The Hall Ditch receives its water from the Hall Reservoir which stores year round runoff from a tributary of Slater Creek. The inactivity and poor condition of the ditches (Landen and Williams) that draw water directly from Slater Creek suggests that sufficient surface water is not consistently available for use in agricultural production. The remaining southeast portion of the Slater Creek valley within the permit boundary does not include SEO water rights and water is supplied to vegetation through precipitation events, limited subirrigation, and natural flood irrigation as described in sections D11.4.2 and D11.4.3. Typical widths of these areas range from 100 feet to 500 feet for subirrigation and 80 feet to 450 feet for natural flood irrigation. These widths are generally not economical for farming practices.

The remnants of the former Conable Reservoir dam exist on Slater Creek within the permit area in Section 12 Township 57 North, Range 85 West According to SEO records, the Conable Reservoir permit was filed in 1901 and was originally intended to store water from precipitation events on Slater Draw for irrigation purposes. The Conable Ditch and Lateral, also permitted in 1901, was originally intended to irrigate a hundred acre area encompassing areas of Section 12 and 13 of Township 57 North, Range 85 West using stored water from the Conable Reservoir. Both water rights were cancelled in 1906 furthermore suggesting the areas lack of water as reasoning for the irrigation attempt failure.

Addendum D11-2 provides the SDD for the declared AVFs within and adjacent to the permit area, within these documents the significance to farming is addressed. Irrigated lands within the permit area and adjacent lands are depicted in Exhibit D11.4-1 and ownership of these lands is found in Adjudication. As discussed in Appendix D7, no prime farmlands exist within the permit area.

TFN 6 2/025
RECD DEC 18, 2015

DEQ 11-019

D11.6 Extent of Alluvial Valley Floor

RAMACO is providing the materials included in this AVF study to assist WDEQ/LQD with making a determination as to the existence and extents of AVFs within the study area. Both the East Fork Earley Creek and Earley Creek valleys are located a sufficient distance from the mining area such that no material damages are anticipated based on RAMACO's mining methods.

The potential AVFs determined by this study and declared AVFs are shown on Exhibit D11.6-1. The extents of the potential AVFs were determined to be the portion of the Tongue River valley bottom consisting of unconsolidated stream laid deposits having or capable of supporting subirrigation or flood irrigation agricultural activities. The extents of the unconsolidated stream laid deposits were as identified on Exhibit D11.3-1. The extents of the subirrigation or flood irrigation were as determined by Exhibits D11.1-1 and D11.4-1 respectively.

The Slater Creek valley, Hidden Water Creek valley, and both the East Fork Earley Creek and Earley Creek valleys were not included as an identified AVF on Exhibit D11.6-1. Slater Creek valley was not included for the following reasons:

- A thick layer of colluvial material overlays alluvial material in all boreholes and monitor wells sampled. However, Exhibit D11.3-1 does show that undifferentiated alluvium and colluvium are present.
- The potentiometric surface in the valley is generally too deep for use by grasses and hay crops to enhance production, and
- The width of natural flood irrigation and subirrigation in the valley within the study area are generally insufficient to provide for economical agricultural practices. However, irrigated hayfields can be seen upstream of the permit boundary.

Hidden Water Creek valley was not included for the following reasons:

- All boreholes taken in the valley showed only colluvial material with shallow bedrock, and

TFN 6 2/025
RECD DEC 18, 2015

DEQ 11-020

- No subirrigation or flood irrigation agricultural activities are identified in the valley.

In addition, the Big Horn Coal Permit No. 213-T2 State Decision Documents (SDD) provided in Addendum D11-2 determined the limits of the AVF to the areas referred to as the inferred Alluvial Isopach, as shown in Exhibit D11.7-1, which depicts the "Drill Hole Location and Alluvial Isopach Map" of the Big Horn Mine Permit. The 213-T2 SDD states "No other drainages are of significant size or lack the stream laid deposits necessary to be an Alluvial Valley Floor within the renewal and/or amendment areas." The permit boundary for the Big Horn Mine Permit No. 213-T can be seen in Exhibit D11.1-1, and shows that the downstream section of Hidden Water Creek was determined not to be an AVF. The Big Horn Mine Permit also concluded that this area, being near the Tongue River, has the best and most reliable flow conditions of any irrigable tract in the Hidden Water Creek watershed, but was still determined not to be an AVF. Thus, the remainder of Hidden Water Creek was not included within the potential AVF shown in Exhibit D11.6-1.

The East Fork Earley Creek valley was not included for the following reasons:

- Lack of subirrigation and surface water sufficient for natural or artificial flood irrigation that would enhance the production of agriculturally useful vegetation.

D11.7 Mining of Alluvial Valley Floor

No direct mining is planned on the AVFs located in the Tongue River and Goose Creek valleys; however minor disturbance of the declared AVF in Section 21 of Township 57 North, Range 84 West is anticipated. Further discussion of the AVF disturbance is presented in Mine Plan Section MP.25. Reclamation of the disturbed AVF is described in Reclamation Plan Section RP.10. The areas previously determined to be AVFs by the SDD provided in Addendum D11-2 for the Big Horn Mine Permit 213-T8 can be seen in Exhibit D11.6-1. The SDD provided in Addendum D11-2 states that the following are the essential

TFN 6 2/025
RECD DEC 18, 2015

DEQ 11-021

hydrologic functions of the areas determined to be AVFs within the Tongue River and Goose Creek valleys:

1. "Availability of surface waters of suitable quality and quantity for flood irrigation.
2. Adequate soil, slope, and land-form conditions to permit flood irrigation activities.
3. Ability to transmit groundwaters of suitable quality and quantity, to support subirrigation of certain areas."

The essential hydrologic functions described above are the same for the potential AVF of the Tongue River that has not been declared (as shown in Exhibit D11.6-1). The remaining potential AVF's (those drainages that are tributaries to Tongue River and Goose Creek) essential hydrologic function would be to transmit groundwaters of suitable quality and quantity to support subirrigation of certain areas. A detailed discussion of the Brook Mine's impact on these essential hydrologic functions of the Tongue River is located in Mine Plan Section MP.25. Since no mining is planned in the AVFs located in the Tongue River and Goose Creek valleys, the mining operation will not interfere with the ability of tributaries to Tongue River and Goose Creek to transmit groundwaters from upstream areas to their confluences. Due to the methods of mining at the Brook Mine, no material damage to the declared AVFs is expected. To ensure that the essential hydrologic functions of the AVFs are maintained, a monitoring system consisting of analysis of periodic infrared aerial photography, as well as monitoring wells near the Tongue River Alluvium within the confluences of tributary drainages of Hidden Water Creek and Slater Creek will be established.

TFN 6 2/025
RECD DEC 18, 2015
DEQ 11-022

D11.8 References

Clark, Melanie L. and Mason, Jon P., 2007 Water-Quality Characteristics for Site in the Tongue, Powder, Cheyenne, and Belle Fourche River Drainage basins, Wyoming and Montana, Water Years 2001-2005, with Temporal Patterns of Selected Long-Term Water-Quality Data, USGS Scientific Investigations Report 2007-5146.

Peter Kiewit Son's Company Mining District, 1983. Big Horn Coal Company Permit 213-T8 Appendix D6-Hydrology

Peter Kiewit Son's Company Mining District, 1983. Big Horn Coal Company Permit 213-T8 Appendix D11-Alluvial Valley Floors

S.P. Kanizay, and B.E. Barnum, 1978 and 1983. Geologic Structure Maps of the Monarch Quadrangle, Sheridan County, Wyoming and Bighorn County, Wyoming.

State of Wyoming, 1973. Environmental Quality Act §§ 35-11-01, et. Seq 1997, amended.

U.S. Department of Interior, 1983. Alluvial Valley Floor Identification and Study Guidelines. U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement.

U.S. Department of Commerce, 1973. NOAA Atlas 2. Precipitation-Frequency Atlas of the Western United States. National Weather Service.

U.S.G.S., Surface Water Data for USA: USGS Surface-Water Daily Statistics. Retrieved December 12, 2013 from http://waterdata.usgs.gov/nwis.

WDEQ/LQD, 1981. State Decision Document Big Horn Coal Company Permit 213-T1.

WDEQ/LQD, 1985. State Decision Document Big Horn Coal Company Permit 213-T2.

WDEQ/LQD, 1989. State Decision Document Sheridan Enterprises Permit No. 497-T1.

WWC Engineering, 2014. Brook Mine Alluvial Valley Floor Preliminary Identification.

TFN 6 2/025
RECD OCT 23, 2015

DEQ 11-023

APPENDIX D11 TABLES

Table D11.4-1. Slater Creek Alluvial Water Levels

Station Name	October 2013		December 2013		March 2014		May 2014		July 2014	
	Depth to Water (ft)	Height of Water in Well (ft)	Depth to Water (ft)	Height of Water in Well (ft)	Depth to Water (ft)	Height of Water in Well (ft)	Depth to Water (ft)	Height of Water in Well (ft)	Depth to Water (ft)	Height of Water in Well (ft)
SM578418-AL1	20.65	3.85	20.78	3.72	20.60	3.90	20.15	4.35	20.03	4.47
SM578512-AL1	4.03	17.18	3.81	17.40	3.67	17.54	3.61	17.60	3.84	17.40
SM578513-AL1	9.51	11.26	9.36	11.41	7.66	13.11	6.18	14.59	7.80	12.97

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Table D11.4-2. Precipitation Frequency and Depth

Recurrence Interval	Rainfall Depth (inches)
2-yr, 24-hr	1.5
10-yr, 24-hr	2.35
25-yr, 24-hr	2.83
100-yr, 24-hr	3.57

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DEQ 11-026

Table D11.4-3. Water Quality Summary for Site T4

Parameter	Units	25 percentile	Mean	75 percentile	WDEQ Agriculture Standard
Water Temp	Celsius	1	12	18.5	---
Specific Conductance @ 25 degrees C	microsiemens/ Centimeter	550	620	720	---
pH	standard	8.1	8.3	8.5	4.5 - 9.0
Dissolved Oxygen	mg/L	8	9.5	11	---
Dissolved magnesium	mg/L	29	38	40	---
Dissolved Potassium	mg/L	2.2	2.9	3.2	---
Dissolved Sodium	mg/L	25	31	38	---
SAR ratio	standard	0.7	0.8	0.9	8
Alkalinity as $CaCo_3$	mg/L	195	205	211	---
Dissolved fluoride	mg/L	0.22	0.28	0.31	---
Dissolved Silica	mg/L	4.9	6.1	7	---
Dissolved Sulfate	mg/L	90	110	150	200
Dissolved Solids	mg/L	320	390	470	2000
Dissolved Manganese	mg/L	0.1	0.011	0.02	0.02
Arsenic	mg/L	0.0004	0.0005	0.0007	0.1
Beryllium	mg/L	0.00003	0.00004	0.00006	0.1
Iron	mg/L	0.01	0.017	0.028	5
Selenium	mg/L	0.0003	0.0005	0.0006	0.02
Chloride	mg/L	3.9	4	5	100

Source: Clark, Melanie L. and Mason, Jon P., 2007

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-027

APPENDIX D11 FIGURES

R.85 W. R.84 W.

T. 58 N.

T. 57 N.

06306300

06299980

06298000

Drawing Coordinates: WY83ECF

TFN 6 2/025
RECD NOV 14, 2014

LEGEND

BROOK MINE PERMIT BOUNDARY

06298000 USGS GAGING STATION

0 1 2 3 4

GRAPHIC SCALE (MILES)

RAMACO

BROOK MINE
SHERIDAN COUNTY, WY
1101 SUGARVIEW DR, STE. 201
SHERIDAN, WY 82801

REVISIONS	
Date	Description

FIGURE D11.1-1

GENERAL AREA MAP

Drawn By: MBM
Checked By: JGB
Date: 12/13/13

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FILE GEN_LOC_GAGING

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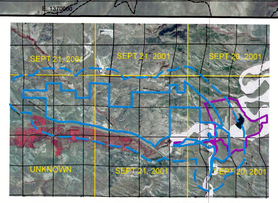
APPENDIX D11 EXHIBITS

R.85 W. R.84 W.

T. 58 N.
T. 57 N.

EAST FORK EARLEY CREEK
EARLEY CREEK
HIDDEN WATER CREEK
SLATER CREEK
TONGUE RIVER
GOOSE CREEK

R.85 W. R.84 W.



FLIGHT DATES FOR INFRARED PHOTOS

PREVIOUSLY DECLARED AVF'S

- DECLARED AVF AS PART OF STATE DECISION DOCUMENT FOR PERMIT 213-T1
- NEGATIVE AVF DECLARATION AS PART OF STATE DECISION DOCUMENT FOR PERMIT 213-T2
- DECLARED AVF AS PART OF STATE DECISION DOCUMENT FOR PERMIT 497-T1

POTENTIAL SUBIRRIGATED LANDS

- POTENTIALLY SUBIRRIGATED LANDS BASED ON SEPT 2001 INFRARED PHOTOGRAPHY

GEOLOGY

- ALLUVIUM (HOLOCENE)–Silt, sand, gravel, and clay on active valley floor of Tongue River; 0-40 ft thick. Largely composed of detritus derived from sedimentary and igneous rocks exposed on flanks of Bighorn Mountains west of map area; may include low terrace deposits (See Exhibit D11.3-1).
- ALLUVIAL AND COLLUVIAL DEPOSITS (HOLOCENE AND PLEISTOCENE)–Clay, silt, sand, and gravel; 0-40 ft thick. Largely valley fill composed mostly of near-source detritus; includes slopewash and local terrace and alluvial-fan deposits (See Exhibit D11.3-1).
- AREA DISTURBED BY SURFACE MINING–Bedrock geology largely obscured by debris piles, roads, and ponded water. Boundary approximately located based on available mapping.

Geology Digitized From
Geologic Structure Maps Of The Monarch Quadrangle, Sheridan County, Wyoming (s.p. Kantzay, 1978), And Big Horn County, Montana
By B.E. Bamum (1983)

LEGEND

- BROOK MINE PERMIT BOUNDARY
- BIG HORN COAL PERMIT BOUNDARY (PERMIT NO. 213-T7)
- AVF STUDY AREA BOUNDARY

N

0 500 1,000 1,500 2,000
GRAPHIC SCALE (FEET)

RAMACO

BROOK MINE
SHERIDAN COUNTY, WY

1101 SUGARVIEW DR, STE. 201
SHERIDAN, WY 82801

REVISIONS	
Date	Description

EXHIBIT D11.1-1

TFN 6 2/025
RECD JUL 30,2015

POTENTIALLY SUBIRRIGATED LANDS

Drawn By:	RAV
Checked By:	JGB
Date:	8/25/2014

FILE: D11-1-1_SUBIRR_LANDS_R1.dwg

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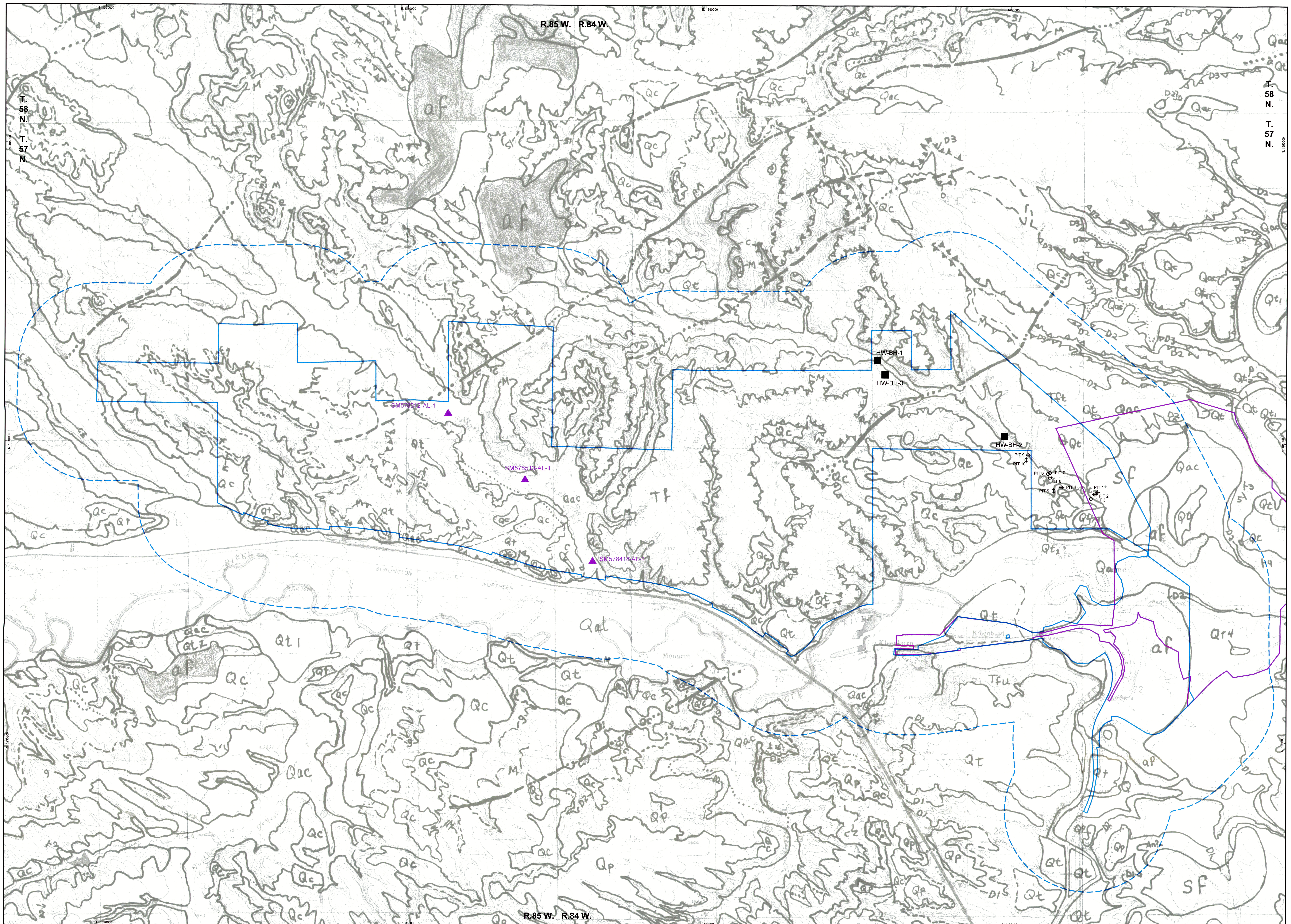
K:\Sheridan\RAMACO\131SRACAD_WWE\DWGS\D11_RESPONSE\D11-1-1_SUBIRR_LANDS_R1.dwg 7/15/2015 10:47:07 AM dave.johnson



BASEMAP:
GEOLOGIC STRUCTURE MAPS OF THE MONARCH QUADRANGLE, SHERIDAN COUNTY, WYOMING (S.P. KANIZAY, 1978), AND BIG HORN COUNTY, MONTANA By B.E.Barnum (1983)

LEGEND

- BROOK MINE PERMIT BOUNDARY
- 1/2 MILE BUFFER BOUNDARY
- BIG HORN COAL PERMIT BOUNDARY (PERMIT NO. 213-T7)
- ALLUVIAL WELL (SM578418-AL-1)
- HIDDEN WATER CREEK BOREHOLE (HW-BH-2)
- HIDDEN WATER CREEK TEST PIT (PIT 4)

af ARTIFICIAL FILL (HOLOCENE) - Mainly spoil from coal mine stripping

sf Subsidence features - Related to old underground coal mines; extent unknown

SURFICIAL DEPOSITS (HOLOCENE AND PLEISTOCENE)

Qal Alluvium - Unconsolidated clay, silt, and sand; locally includes lenses of gravel and contains much organic matter

Qc Colluvium - Unconsolidated heterogeneous aggregates of rock detritus deposited on steep to gentle slopes, usually thick enough to obscure underlying bedrock. Includes slope wash and talus

Qac Alluvium and Colluvium undifferentiated

Qls Landslide deposits - Unconsolidated masses of clay, silt, and sand which have moved downslope as slumps and slides. May include exotic blocks of limestone, sandstone, and conglomerate

Qt Stream terrace deposits uncorrelated

Qt_1 Stream terrace deposits - Unconsolidated stratified and crossbedded silt, sand, and gravel. Divided into 6 deposits (Qt_1, Qt_2, Qt_3, Qt_4, Qt_5, and Qt_6); Qt_1 deposits are lowest topographically and youngest in age

Qat Stream terrace deposits and alluvium undifferentiated - Includes alluvium and gravel deposits on terraces about 12 ft (3.6 m) above present stream levels

Qtc Stream terrace deposits and colluviam undifferentiated - upslope or downslope colluvial material which is gradational with terraces and not distinct on airphotos

Qp Pediment deposits - Unconsolidated silt, sand, and gravel locally derived, stratified and crossbedded. Surfaces usually wedge against Tensleep Sandstone (Pt) to west. Gradient of deposits decrease basinward and merges with stream terraces at intermediate levels

Tw WASATCH FORMATION (EOCENE) - Lenticular interbeds of gray to light-brown, fine to coarse-grained, locally conglomeratic, feldspathic to arkosic, crossbedded sandstone; dark to light-gray or brown or greenish-gray shale, claystone, and siltstone; and subbituminous and lignitic coal beds which grade laterally into carbonaceous shales. Locally coal beds have burned, altering the overlying units to distinctive, dusky-red, resistant clinker outcrops. Base of formation overlies Roland Coals. About 1,000 ft (305 m) exposed east of Little Goose Creek

Tfu FORT UNION FORMATION (PALEOCENE) - Not divided into members south of tongue River where the coals are interbedded with carbonaceous shale and are not as well exposed. In Beaver Creek area west of Bighorn, Wto., several 6 ft (1.8 m) thick conglomerate beds consisting chiefly of carbonate cobble are considered basal Fort Union and appear to be correlative with basal Fort Union of the Mowry Basin area to the south. Contact with the underlying Lance and Bearpaw Formations (Klb) in conformable.

Tft Tongue River Member - Top is marked by Roland coal beds. Pale yellowish-gray sandstone, fine to medium-grained, lenticular, and crossbedded, with light-gray shale and mudstone. Coal and carbonaceous shale common. Extensive burning of coal has produced characteristic fused red clinker and pink to red baked shale beds north and east of the Tongue River

Tfl Lebo Shale and Tullock Members undivided - Lebo Member at top light olive-gray and greenish-gray shale, mudstone, and siltstone interbedded with pale yellowish-brown, fine to medium-grained, lenticular and crossbedded thin sandstone layers. Coal and carbonaceous shale beds are not as well developed. Tullock Member at base is pale yellowish-brown, fine to medium-grained, thick-bedded, massive sandstone and has lenticular thin coal seams and carbonaceous shale

Klb LANCE FORMATION BEARPAW SHALE UNDIVIDED (UPPER CRETACEOUS) - Shales and interbedded sandstone, siltstones, and mudstones. Shales, light olive gray and greenish gray, containing carbonaceous seams and lenses. Siltstone and mudstone, light gray and brown, thin to medium bedded. Sandstone, calcareous, light gray, fine grained, massive, lenticular, and crossbedded. In west central part of map area Bearpaw occurs as slope-valley former between more resistant teapot Sandstone Member of Mesaverde and massive sandstone of Lance. Contact with overlying Fort Union Formation placed at base of cobble conglomerate in Jackson-beaver Creek area and near top of massive crossbedded sandstone at Wolf Creek. Fox Hills Sandstone is mapped with the Lance Formation

Kmv MESAVERDE FORMATION (UPPER CRETACEOUS) - Characteristically consists of two sandstone units separated by shale. Upper member, the Teapot Sandstone Member is very light gray, speckled, medium grained, thick bedded, massive, crossbedded. Middle unit is an unnamed greenish-gray shale. lower member, the Parkman Sandstone Member in yellowish gray, medium grained, thick bedded, massive, crossbedded; contains limonitic concretions. Outcrops of steeply dipping sandstones form knobs along strike. Thickness 700-1,000 ft (213-305 m)

Kcf CODY SHALE AND FRONTIER FORMATION UNDIVIDED (UPPER CRETACEOUS) - Consists chiefly of gray and brown shales; poorly exposed. A 60 ft (18m) zone of bentonitic shale at base, grayish, yellow, green to very light gray. Minor sandstone; 3 ft (1 m) septarian concretions. and black chert pebbles weather out in lower part. Forms major topographic lowland between Mowry Shale (km) and Mesaverde Formation (kmv). Thickness 4,000 ft (1,220 m)

Km MOWRY SHALE (LOWER CRETACEOUS) - Upper part is a light-gray, resistant, brittle, fissile, siliceous shale; weathers silvery gray; contains few thin light-gray to yellowish-gray bentonite beds and commonly fish scales. Lower part is a black nonresistant shale; locally conains thin beds of ligh-gray bentonite. Thickness 300 ft (90 m)

Kt THERMOPOLIS SHALE (LOWER CRETACEOUS) - Mainly olive-black, grayish-red, dusky-yellowish-brown, and dark-gray shale. Variegated claystone 15 ft (6 m) thick, very fine to medium grained, about 265 ft (80 m) below top of formation, is correlated with the Muddy Sandstone in central Wyoming and Newcastle Sandstone in eastern Wyoming. Grayish-black ironstone concretions; cone-in-cone and spherulitic dahllite concretions, 1.5 in. (38 mm) in diameter in lower middle of formation. The base of the Thermopolis is taken at Cloverly Formation (kcv) overlying the Morrison (Jm) at Wolf Creek. Thus, the zone of dahllite concretions is placed in the Thermopolis Formation; Ramsey (1955) also placed the dahllite in Buffalo, Wyo., area (Mapel, 1959); however, shows the zone of dahllite concretions assigned to the Cloverly (Kcl). Thickness approximately 700 ft (215 m); Ramsey (1955 measured 726 ft (221 m)

Kcl CLOVERLY FORMATION (UPPER JURASSIC) - Consists of a 44 ft (13m) thick very light gray sandstone at top, weathers yellowish gray; cherty, crossbedded, lenticular, thick bedded; local thin coal seams. Lower part gray and brown shale and mudstone, poorly exposed. Forms hogback. Thickness 100 ft (30 m)

Jm MORRISON FORMATION (UPPER JURASSIC) - Dominatly varicolored, light-gray, red, green, and purplish-gray claystone and shale with a 32 ft (10m) thick prominent sandstone near base, light gray, fine grained, angular to subangular, crossbedded, friable. Thickness 200 ft (60 m)

Js SUNDANCE FORMATION (UPPER AND MIDDLE JURASSIC) - Grayish-green calcareous shale and sandy shale interbedded with light yellowish-gray to white glauconitic, fine-grained, calcareous sandstone and gray fossiliferous oolitic limestone. Forms valleys below Cloverly (Kcl) hogback with minor ridges of limestone and sandstone. Thickness 290 ft (88 m)

Jgs GYPSUM SPRING FORMATION (MIDDLE JURASSIC) - Reddish brown shale, claystone, and siltsone, thin and medium bedded, with interbeds of thin, light-gray, gypsiferous, vuggy, argillaceous limestone; in places the gypsum is replaced by a brown limestone breccia. Conformable with overyling Sundance Formation (Js). Thickness 174 ft 953 m)

Tc CHUGWATER FORMATION (UPPER AND LOWER TRIASSIC) - Reddish-brown to dusky-red lenticular shale, siltstone, and fine to medium-grained, poorly sorted, crossbedded sandstone. Thickness 613 ft (187 m)

Pge GOOSE EGG FORMATION (PERMIAN) - Interbedded gypsum, red shale, siltstone, and thin beds of light-gray limestone. Upper part is dominantly gypsum with interbedded red siltstone. Mostly covered by soil and colluvium. Thickness 250 ft (76 m)

Pt TENSLEEP SANDSTONE (PENNSYLVANIAN) - Grayish-orange-pink, very fine to medium-grained, well-sorted, thick-bedded, massive to crossbedded, quartz sandstone with thin beds of pink or grayish-yellow dolomite containing nodules and stringers of chert in lower part. Forms prominent upturned flatirons along flanks of Bighorn Mountains. Thickness 190 ft (58 m)

Pa AMSDEN FORMATION (PENNSYLVANIAN) - Upper part consists chiefly of very light gray cherty dolomite, light-brown sandstone, and pale-red shale. Includes at top a unit of medium-crystalline, pale red-purple dolomite. Lower part is light-gray dolomite and red shale. Dolomite contains abundant red, gray and brown chert nodules and stringers. Basal few feet is pale reddish-brown sandstone and siltstone. Thickness 275 ft (84 m)

Mm MADISON LIMESTONE (UPPER AND LOWER MISSISSIPPIAN) - Light-gray, finely cystalline, locally bioclastic, thin-bedded but mainly massive, cavernous, cliff-forming limestone, dolomitic limestone, and dolomite with abundant gray chert nodules in upper part. Basal few feet is light-gray, sandy, dolomitic limestone. Thickness 1,150 ft (350 m)

Ob BIGHORN DOLOMITE (UPPER AND MIDDLE ORDOVICIAN) - Upper part is light-gray to white, massive to medium-bedded, finely crystalline, fossiliferous dolomite and dolomitic limestone. About 300 ft (91 m) thick, cliff forming, contains chert nodules and lenses, weathers to rough, pitted surface. The lower part, about 90 ft (27 m) thick, includes 35 ft (11 m) of light-gray to white, relatively nonresistant, mostly very fine grained, crossbedded quartz sandstone. Lower contact of the sanstone sharp; upper contact grads ino the massive dolomite. Thickness 400 ft (122 m)

Cg GALLATIN AND GROS VENTRE FOMATION UNDIVIDED (UPPER AND MIDDLE CAMBRIAN) - The upper unit, about 150 ft (46 m) thick, is mainly resistant, very pale orange, medium-crystalline, slabby, silt, glauconitic, thick bedded and massive. The lower unit is slope forming, about 430 ft (131 m) thick, of dominantly grayish green micaceous shale with interbedded thin, light-gray, silty, ripple-marked, flat-pebble limestone conglomerate and limestone. Thickness 680 ft (207 m) measured by Ramsey (1955)

Cf FLATHEAD SANDSTONE (MIDDLE CAMBRAIN) - Light-brown to pale yellowish-orange, greenish-gray, fine to coarse-grained, friable but locally quartzitic, thin to thick-bedded, crossbedded quartz sandstone, glauconitic, folliliferous; thin interbeds of green micaceous siltstone and shale. The basal unit is a pebbly arkosic conglomerate. Thickness 532 ft (162 m) measured by Ramsey (1955)

pCr PRECAMBRIAN ROCKS - Dominantly red and gray granitic gneisses cut by dikes of aplite, diabase, olivine gabbro, hornblende diorite and peridotite

CONTACT - Approximately located; dotted where concealed

FAULT - Dashed where approximately located; dotted where concealed. U, upthrown side; D, downthrown side

ANTICLINE - Approximately located

SYNCLINE - Approximately located

STRIKE AND DIP BEDS
- 30° Normal
- 90° Vertical
- 2° Apparent - Strike undetermined

COAL MINE

GRAVEL PIT OR CLINKER QUARRY

S-2 SHALLOW DRILL HOLE, CORED - Drilled in Sheridan, Wyo., by USGS. (Farrow, written commun., 1976)

VERTEBRATE FOSSIL LOCALITIES

RT COAL BED OR ZONE OUTCROP, SHOWING NAME SYMBOL
Approximately located, barbed where outcrop has burned. Names of beds in descending stratigraphic order are abbreviated as follows: U_2, Lower Ulm bed; D, Dow bed; Ar, Arkansas bed; PK, PK bed; N, Bar N bed; B, Burgess bed; H, Heppner bed; W, Wyarno bed; DT, Double top bed; RB, Roland bed (of Baker 1929); SC, Squirrel Creek bed; RT, Roland bed (of Taff, 1909); AS, Above Smith 1 bed; S, Smith bed; An, Anderson bed; D_1, Dietz 1 bed (highest); D_2, Deitz 2 bed; D_3, Deitz 3 bed; M, Monarch bed; M1, Monarch bed, lower bench; S1, Slater Creek bed; C, Carney bed; g, g bed; f, f bed; e, e bed; d, d bed; b, b bed; a, a bed; L, local bed; and cz, carbonaceous shale

N

0 500 1,000 1,500 2,000
GRAPHIC SCALE (FEET)

RAMACO

BROOK MINE
SHERIDAN COUNTY, WY

1101 SUGARVIEW DR. STE. 201
SHERIDAN, WY 82801

REVISIONS	
Date	Description

EXHIBIT D11.3-1

TFN 6 2/025
RECD JUL 30, 2015

SURFICIAL GEOLOGY

Drawn By: RAV
Checked By: JGB
Date: 1/15/14

FILE: D11-3-1_SURF_GEO_R1.dwg

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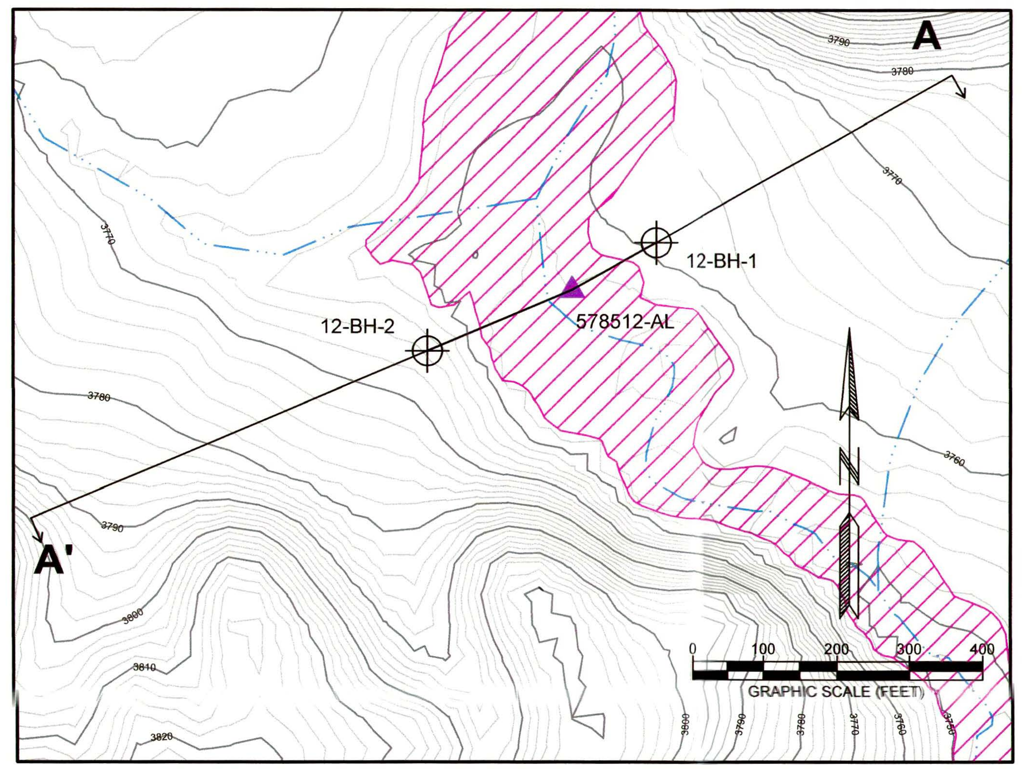
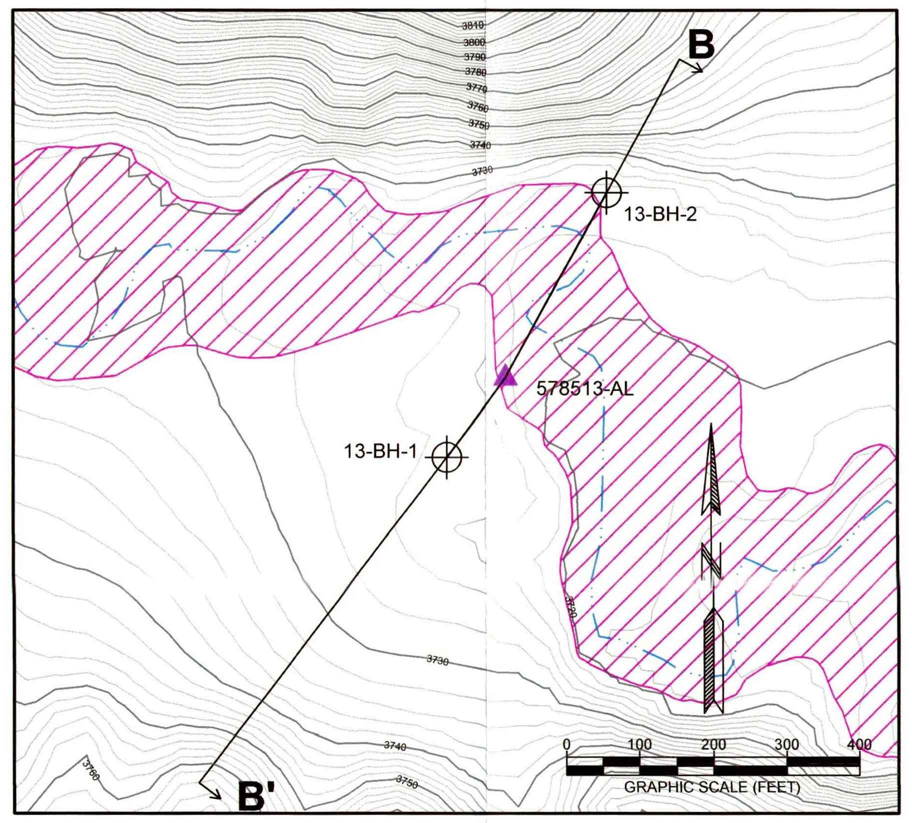


PLAN VIEW



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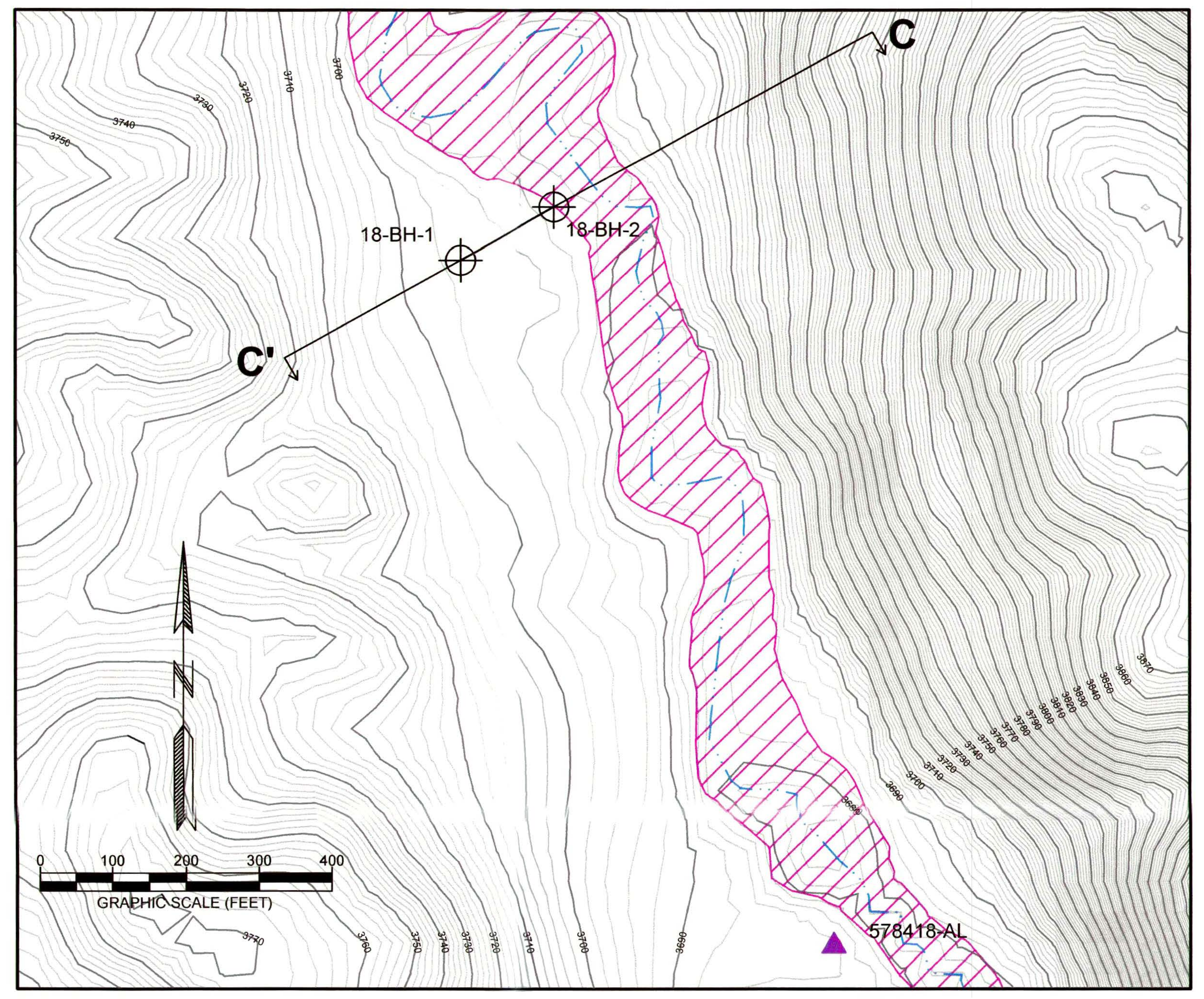
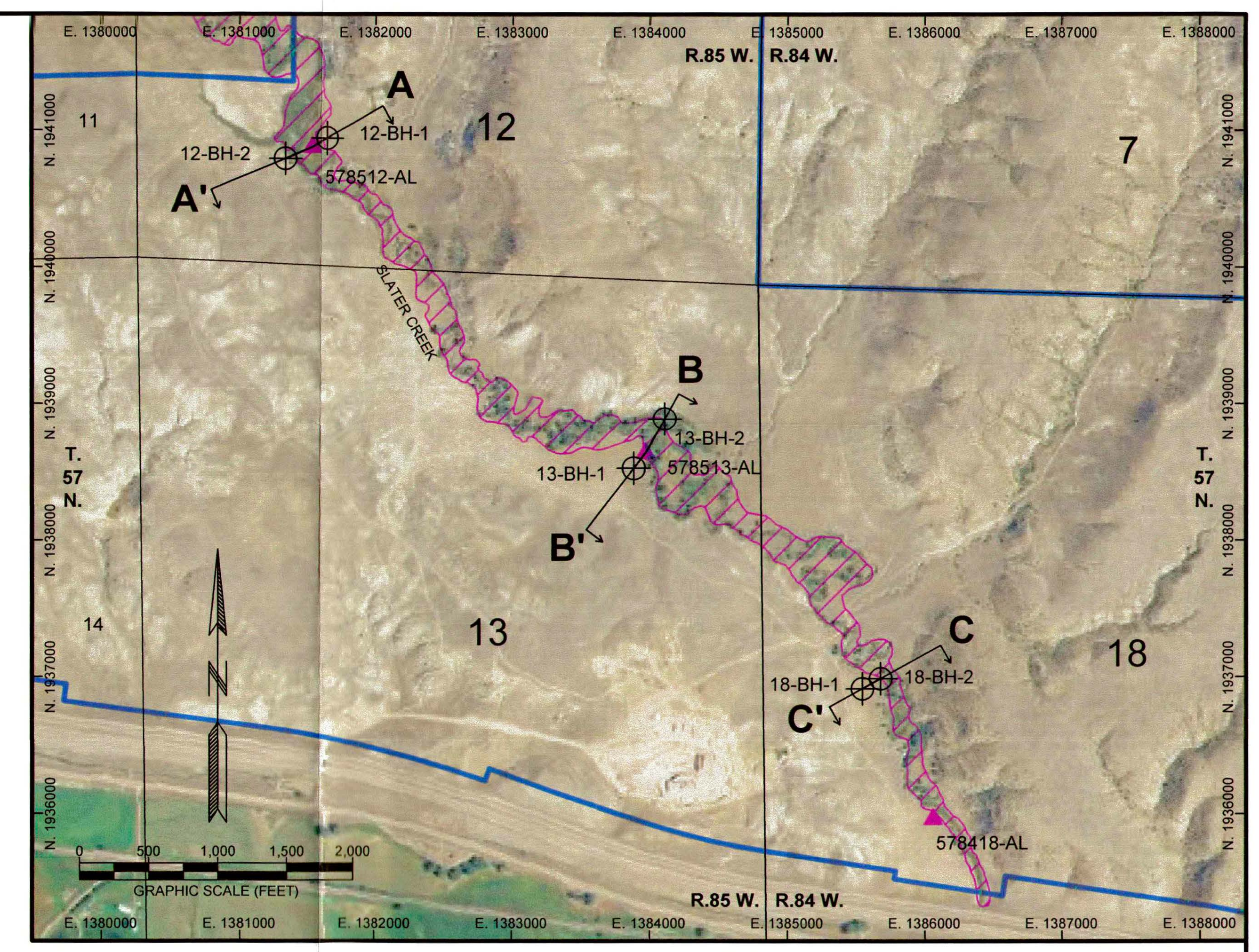
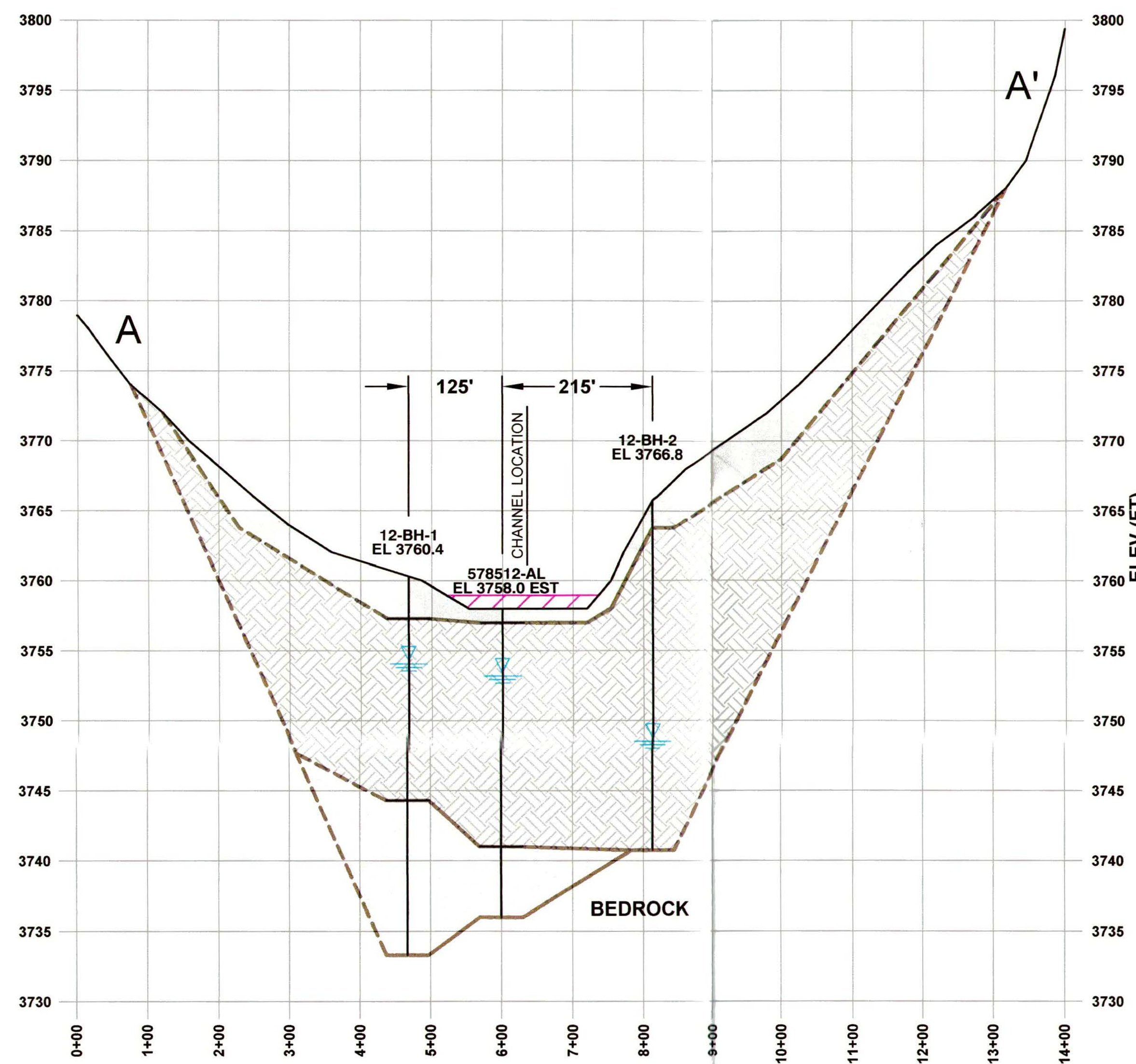


PLAN VIEW

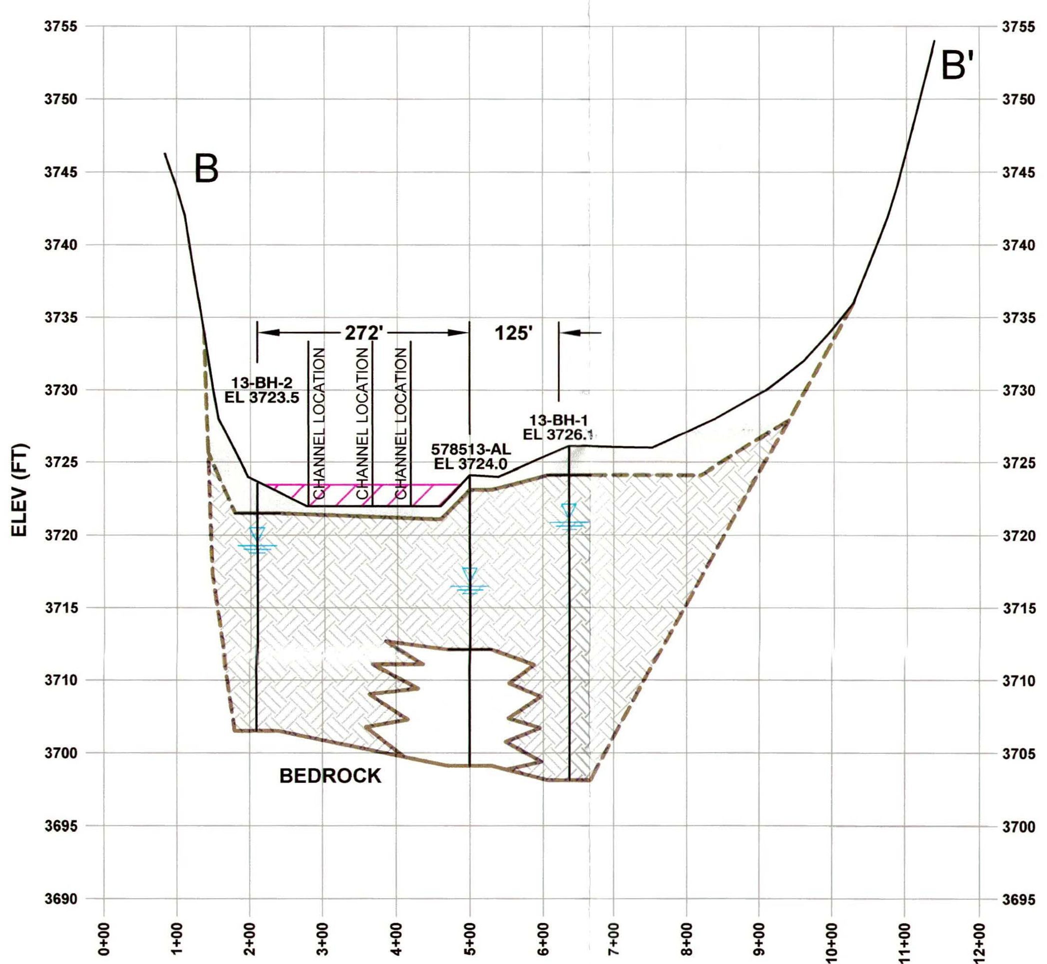


LOCATION VIEW



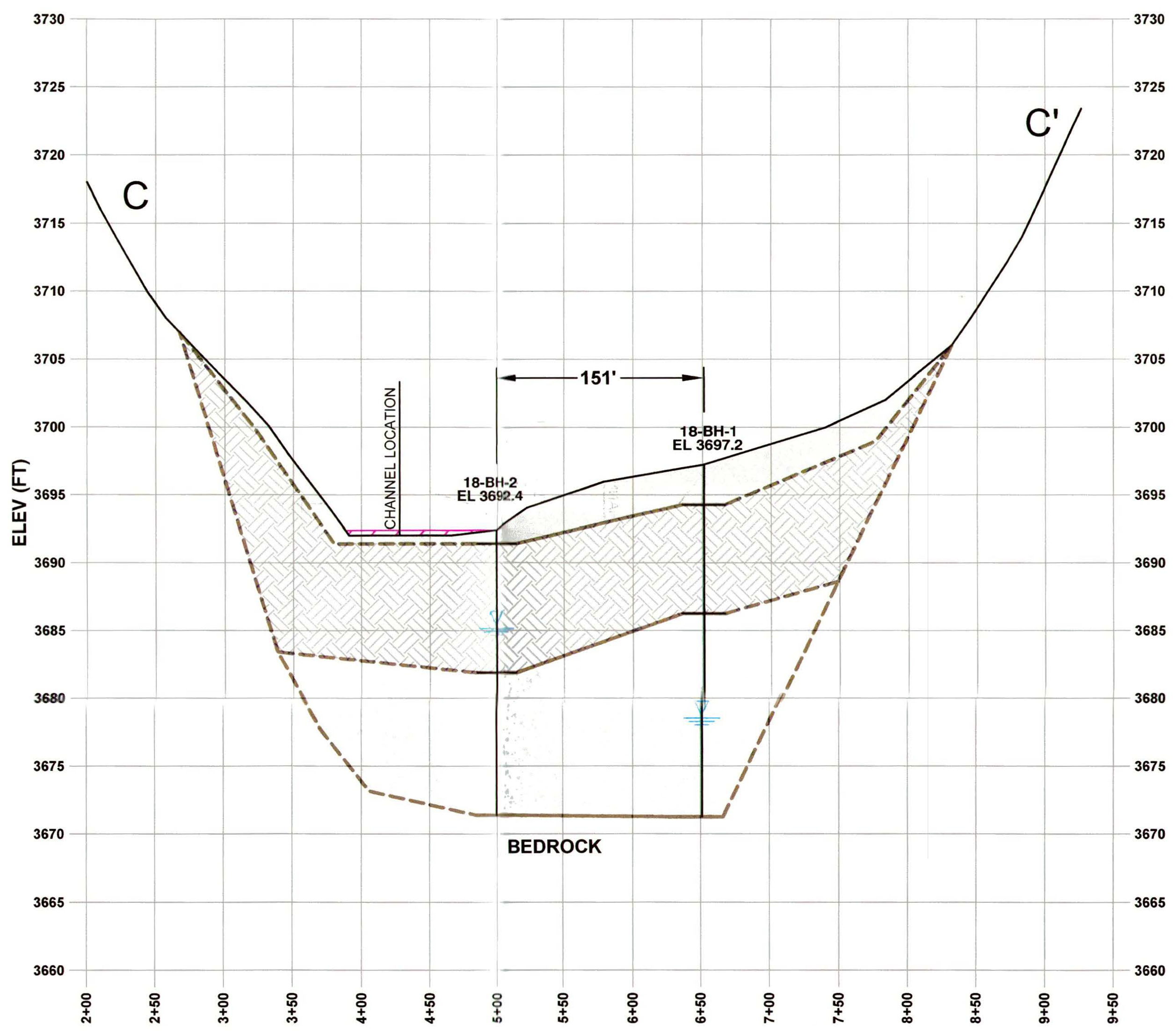
CROSS SECTION A-A'

SCALE: HORIZ. 1" = 200', VERT. 1" = 10'



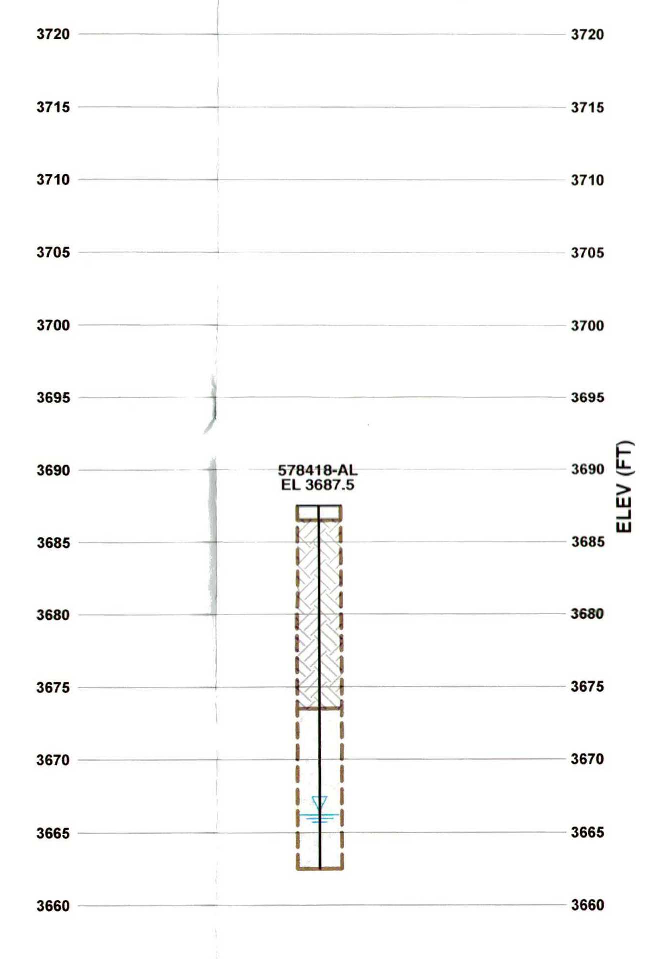
CROSS SECTION B-B'

SCALE: HORIZ. 1" = 200', VERT. 1" = 10'



CROSS SECTION C-C'

SCALE: HORIZ. 1" = 100', VERT. 1" = 10'



578418-AL

SCALE: HORIZ. 1" = 200', VERT. 1" = 10'

LEGEND

- BROOK MINE PERMIT BOUNDARY
- CROSS SECTION LOCATION
- STREAMS
- WATER LEVEL
- ALLUVIAL BORE HOLE
- ALLUVIAL MONITORING WELL
- EXISTING GROUND PROFILE
- TOPSOIL
- COLLUVIUM
- ALLUVIUM/COLLUVIUM
- 2-YR, 24-HR FLOOD INUNDATION AREA

NOTES: 1) REFER TO ADDENDUM D11-3 FOR BOREHOLE AND MONITORING WELL LOGS.
2) CONTACTS DASHED WHERE INFERRED.

CERTIFICATE OF GEOLOGIST

I, Michael J. Evers, hereby certify that this drawing was prepared by myself or under my direct supervision and that it correctly represents the geologic conditions described in the accompanying application which is provided to meet the requirements of the Wyoming Environmental Quality Act and its accompanying regulations.

PROFESSIONAL GEOLOGIST MICHAEL J. EVERS PG-91 WYOMING

Michael J. Evers 7-9-15

RAMACO

BROOK MINE
SHERIDAN COUNTY, WY

1101 SUGARVIEW DR. STE. 201
SHERIDAN, WY 82801

REVISIONS	
Date	Description

EXHIBIT D11.3-2

TFN 6 2/025
RECD JUL 30, 2015

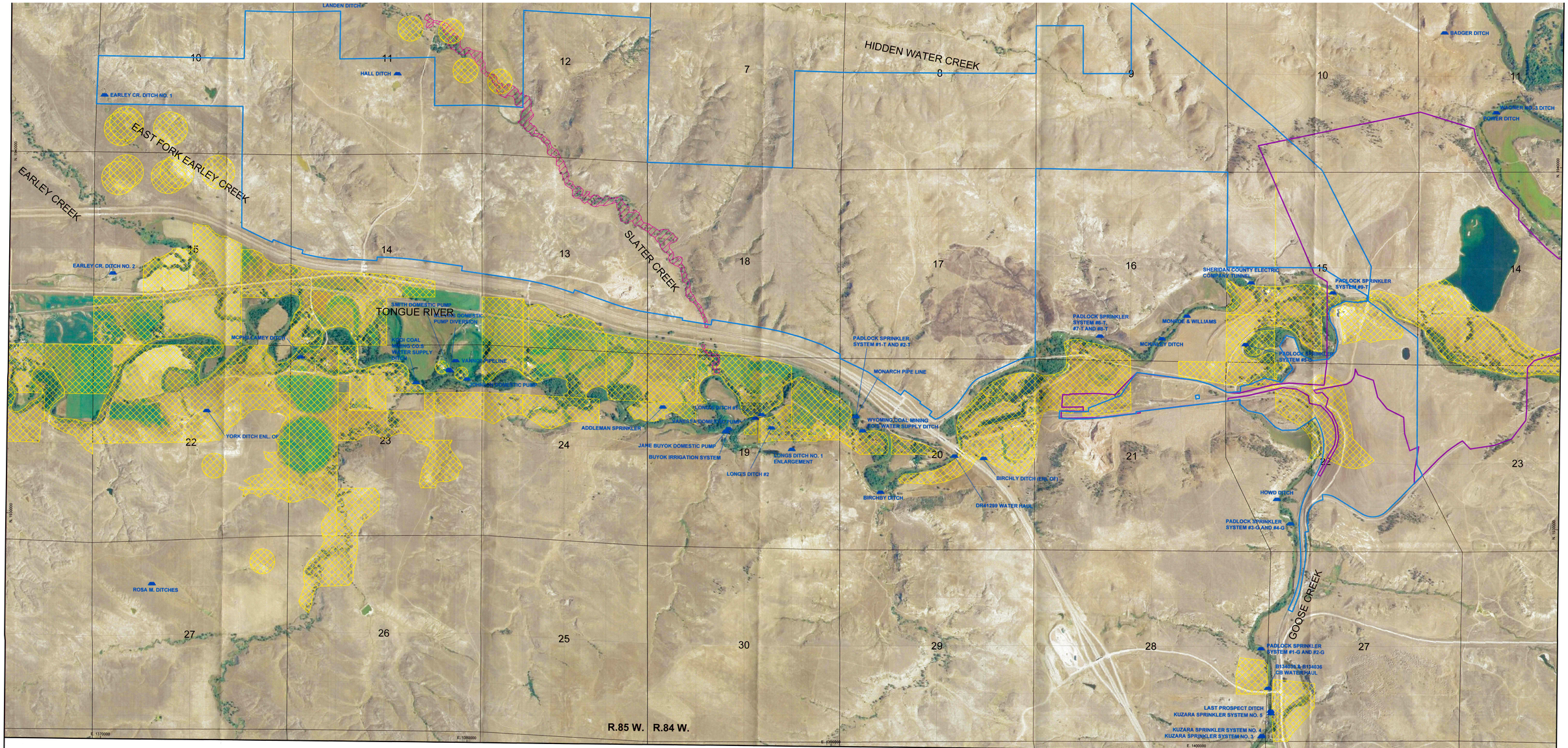
ALLUVIAL TRANSECT
GEOLOGIC CROSS SECTIONS

Drawn By: CIG
Checked By: MJE
Date: 10/23/14

WWC ENGINEERING
www.wwcengineering.com

FILE: D11-3-2_ALLUVIAL_TRANSECTS_R1.dwg

K:\Sheridan\RAMACO\13139\ACAD_WY83EC\DWGS_D11_RESPONSE\D11-3-2_ALLUVIAL_TRANSECTS_R1.dwg 7/9/2015 8:24:00 AM dave johnson



SOURCE: USDA/NAIP 2012 AERIAL PHOTOGRAPHY.

LEGEND

- BROOK MINE PERMIT BOUNDARY
- BIGHORN COAL PERMIT BOUNDARY (PERMIT NO. 213-T7)
- IRRIGATED LANDS
- IRRIGATED LANDS LESS THAN 40 ACRES
- 2-YR, 24-HR FLOOD INUNDATION AREA
- BIRCHBY DITCH (PERMITTED POINT OF DIVERSION)

N

0 500 1,000 1,500 2,000
GRAPHIC SCALE (FEET)

RAMACO

BROOK MINE
SHERIDAN COUNTY, WY
1101 SUGARVIEW DR, STE. 201
SHERIDAN, WY 82801

REVISIONS	
Date	Description

EXHIBIT D11.4-1

TFN 6 2/025
RECD JUL 30,2015

IRRIGATED LANDS AND POINT OF USE

Drawn By:	RAV
Checked By:	JGB
Date:	1/17/14

WWC ENGINEERING
www.wwcengineering.com

FILE: D11-4-1_IRRIGATION_R1.dwg

DEQ 11-034

R.85 W. R.84 W.

T. 58 N.

T. 57 N.

R.85 W. R.84 W.

SOURCE: USDA/NAIP 2012 AERIAL PHOTOGRAPHY.

LEGEND

- BROOK MINE PERMIT BOUNDARY
- 1/2 MILE BUFFER BOUNDARY
- AERIAL EXTENT OF POTENTIAL ALLUVIAL VALLEY FLOORS
- DECLARED AVF AS PART OF STATE DECISION DOCUMENT FOR PERMIT 213-T1
- DECLARED AVF AS PART OF STATE DECISION DOCUMENT FOR PERMIT 497-T1

N

0 500 1,000 1,500 2,000

GRAPHIC SCALE (FEET)

RAMACO

BROOK MINE
SHERIDAN COUNTY, WY

1101 SUGARVIEW DR, STE. 201
SHERIDAN, WY 82801

REVISIONS

Date	Description

EXHIBIT D11.6-1

TFN 8 2/025
RECD NOV 14, 2014

POTENTIAL AND DECLARED ALLUVIAL VALLEY FLOOR EXTENTS

Drawn By: RAV
Checked By: JGB
Date: 8/26/2014

WWC ENGINEERING
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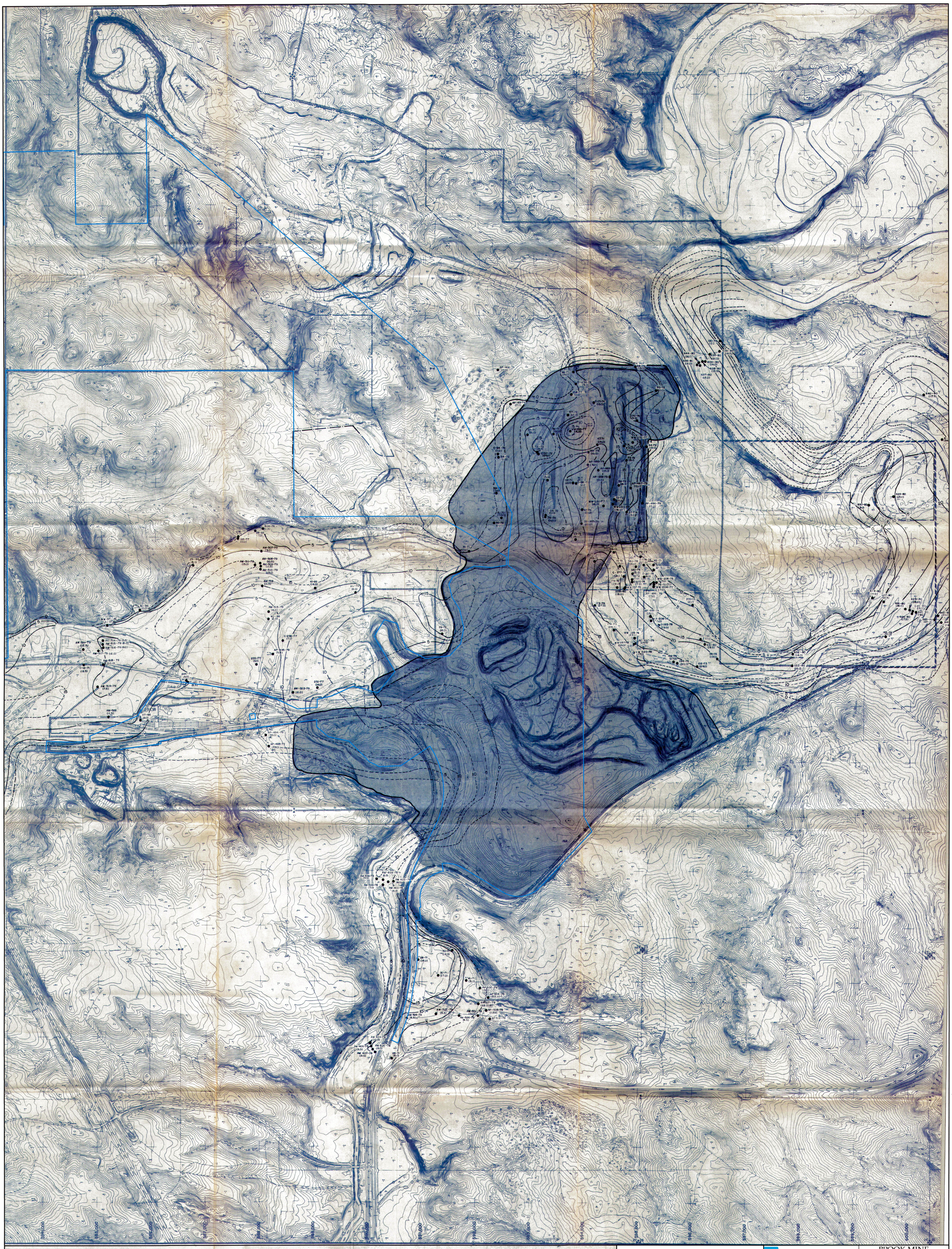
FILE: D11-6-1_AERIAL_AVF.dwg


1/4 Section Corner
Section Corner
213 · TI Boundary
Amendment One
Affected Area
ALLUVIAL ISOPACH
INFERRED ALLUVIAL ISOPACH
DESIGNATES AREAS OF SUBSURFACE DISTURBANCE
380-78 DRILL HOLE NUMBER
(4.0) THICKNESS OF ALLUVIUM (SAND & GRAVEL)
C DESIGNATES THERE IS NO ALLUVIUM PRESENT, THICKNESS IS OF COLLUVIUM (SLOPE WASH MATERIAL) ONLY
AC DESIGNATES THERE IS BOTH ALLUVIUM AND COLLUVIUM PRESENT, THICKNESS IS OF COLLUVIUM OVERLAYING ALLUVIUM
LEGEND
BROOK MINE PERMIT BOUNDARY
N
0 250 500 750 1,000
GRAPHIC SCALE (FEET)
RAMACO
BROOK MINE
SHERIDAN COUNTY, WY
1101 SUGARVIEW DR, STE. 201
SHERIDAN, WY 82801
REVISIONS
Date Description
EXHIBIT D11.7-1
TFN G 2/025
RECD JUL 30, 2015
BIG HORN COAL DRILL HOLE LOCATION AND ALLUVIAL ISOPACH MAP
Drawn By: DCJ
Checked By: JGB
Date: 7/15
WWC ENGINEERING
www.wwcengineering.com
FILE: D11-7-1_IRRIGATION_R1.dwg
K:\Sheridan\RAMACO\1319\ACAD_WY83ECDWG5_D11_RESPONSE\D11-7-1_IRRIGATION_R1.dwg 7/8/2015 2:01:45 PM dave johnson

ADDENDUM D11-1

ADDENDUM D11-1

Brook Mine AVF Preliminary Identification (WDEQ/LQD)

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-038

Tuesday, March 25, 2014

Mr. Randall Atkins
RAMACO Wyoming Coal Company, Inc.
1101 Sugarview Drive
Sheridan, WY 82801

RE: Brook Mine AVF Preliminary Identification, CN160, TFN 6 2/025

Dear Mr. Atkins,

The LQD District III office received your Brook Mine Alluvial Valley Floor (AVF) Preliminary Identification on February 5, 2014. We have reviewed the document for technical accuracy and have made an assessment of the merits of the study. The primary reason for your submittal is to determine if sufficient data has been provided for LQD to make an AVF declaration on the drainages within and adjacent (½ mile) to the proposed Brook Mine Permit Boundary. The study was reviewed by myself and Larry Barbula, Program Principal for coal operations in District III. Our questions and comments are as follows:

Review by Larry Barbula

1. On Exhibit D11-2 show the boundary which delineates adjacent lands included in the study area within ½ mile of the proposed Permit Boundary.

2. In Appendix D11 of the future Permit Application RAMACO should include a map which shows all AVFs (not potential AVFs) within and adjacent to the permit area.

3. The areas noted as irrigated and/or subirrigated compare favorably to areas designated in the draft OSM "Reconnaissance Map of Potential AVF, Sheridan Area" authored by Earth Resource Associates.

4. Does RAMACO want a specific decision of presence or absence of AVFs within or adjacent to the proposed permit area as allowed in WDEQ/LQD Rules and Regulations, Chapter 12, Section 1? Please discuss and make a specific statement on what is requested.

TFN 6 2/025
RECD NOV 14, 2014

3/26/14

5. Preliminarily, all area denoted as "Potential Subirrigated Lands" on Exhibit D11-2 not previously declared AVF appear to qualify as AVF, including Slater Creek, based on this study. **RAMACO can conduct studies to <u>disprove</u> the presence of AVF if so desired.**

6. If RAMACO, within their mining plans, intends to disturb any AVFs, they must first show that these AVFs are not "significant to farming". LQD Guideline No. 9 addresses this formal process. AVFs that are significant to farming may not be disturbed and must be preserved. AVFs not significant to farming must be fully reconstructed if disturbed.
   Based on my review of the materials in this submittal and OSM mapping of potential AVFs, it appears that the areas denoted as "Potential Subirrigated Lands" in Exhibit D11-2 not previously designated AVF appear to qualify for AVF designation, including Slater Creek.

<u>Review by Bj Kristiansen, Project Geologist</u>

Technical Observations

1. Table D11-1 – Please indicate the height (H) of the water column in the well, either in this table or another table somewhere in the narrative. How thick is the saturated zone?

2. Page 8, first paragraph, second sentence – "...observed in late May and early June Precipitation for on the proposed permit area..."
   a. There should be a period between the words June and Precipitation.
   b. The new sentence beginning with the word Precipitation does not make sense. Please clarify that sentence.

<u>CONCLUSION</u>

The stated purpose of this submittal is to determine if sufficient data was presented for LQD to make an AVF Declaration for the drainages within and adjacent to the proposed Brook Mine permit boundary. It is our opinion that the material and narrative presented in the document are not sufficient to make an AVF Determination for any of the stream courses within the study area. There is, however, enough information to warrant a full-scale AVF study of the proposed permit area, particularly within the Hidden Water and Slater Creek drainages. As mentioned by Mr. Barbula, RAMACO can undertake to ***disprove*** the presence of an AVF if so desired. None of the ephemeral tributaries of these drainages appear to have any agricultural value other than to provide dry-land forage to cattle and sheep during the spring and summer. That land use does not qualify for an AVF classification.

A comprehensive AVF study can be a time consuming and confusing experience. It is our purpose to assist you in your endeavors to define and mitigate environmental impacts you may create

TFN 6 2/025
RECD NOV 14, 2014

by mining coal in Wyoming. We will work with you to guide you through the statutory process and help define the regulatory requirements that need to be met in order to issue a Mining Permit.

A well crafted AVF study may contain some of the following informational materials that help define an AVF and subsequent mitigation and reclamation activity:

1. AVF determination narrative –
    a. Presence or absence of an AVF.
    b. Extent of AVF(s).
    c. Evaluation of essential hydrologic functions.
    d. Restoration of essential hydrologic functions to the AVF, if mined.
    e. Material damages within and adjacent to the Mine Plan boundary.
    f. Significance to farming.
    g. Productivity of croplands and mitigation for replacement during mining.
    h. Other site-specific issues as they are determined at the time of implementation of the study.

2. Informational Tables -
    a. Extents of unconsolidated stream-laid deposits; acreages, distances, etc...
    b. Evapotranspiration calculated for the area.
    c. Summary of consumptive use of water.
    d. Climatological data.
    e. Extents of vegetative species; acreages, species types, buffer zones, etc...
    f. Estimates of mean annual flows and agriculturally useful flood flows.
    g. Acreages that could be artificially flood irrigated, sprinkler irrigated.
    h. Federal and State guidelines for interpretation of water quality used for irrigation.
    i. Observed surface water, alluvial, and groundwater quality.
    j. Mechanical analyses of bed and bank materials.
    k. Valley fill hydrologic balances.
    l. Universal Soil Loss Equations.
    m. Post-mining changes to items defined above.
    n. Vegetation productivity comparisons pre and post mining.
    o. Other tabulations of numerical data specific to the study area.

3. Figures –
    a. Water table fluctuations and diurnal fluctuations in alluvial wells.
    b. Alluvial well draw-down curves.
    c. Valley and fill cross sections and profiles.
    d. Generalized stratigraphic columns for coal and interburden.
    e. Figures appropriate to the study area illustrating site specific issues.

4. Maps –
    a. Limits of stream-laid deposits identifying unconsolidated stream deposits and subirrigated/natural flood irrigated lands.

TFN 6 2/025
RECD NOV 14, 2014

b. Surficial Geology.
c. Topography.
d. Slopes.
e. Potentiometric surface contour maps for spring and fall.
f. Maximum drawdown contours in alluvial aquifers.
g. Areal extent of irrigation of any type.
h. Color and Color Infrared photographs.
i. Pre-mining cross section locations.
j. Classification of farmland and rangeland.
k. Soils.
l. Vegetation communities.
m. Wildlife study area.
n. Maps relevant to the proposed permit area.

5. Addenda –
   a. Auger hole data.
   b. Drill hole data.
   c. Backhoe data.
   d. Alluvial well continuous recorder data.
   e. Soil moisture data.
   f. Salinity potential and profiles.
   g. Soil quality data.
   h. Water rights as recorded with the State Engineer.
   i. Published studies pertinent to the lands under investigation.

This list is only a suggested guideline to assist you in understanding the potential topics of investigation that may be assessed in defining and mitigating AVFs. Obviously, the information you provide will be site specific to the proposed mine and may not include some of the issues listed above.

Once we have received your responses to our comments itemized earlier and the Preliminary AVF identification has been approved, we can assist you in beginning the AVF study. Though it may appear a daunting task at first, many mines have already undergone the process and a wealth of information is available to you as publicly accessible permit information. The long-term benefits of beginning the Mine Plan AVF analysis at this stage of the permitting process can not be overemphasized. The appropriate work performed now becomes a part of the permit later and serves as an effective baseline to overall permit approval when the time comes.

We commend your intentions to asses environmental impacts from the mining process and your commitment to acquire a mining permit in a proactive manner. One of our functions is to assist you in the regulatory process, insuring that you understand the statutes and guidelines and are able to follow them to the best of your ability. Proactive planning and environmental assessment partnered with responsible stewardship of the natural resources benefit everyone in the long run. Please feel free to contact me anytime with questions or comments regarding any phase of your permitting process. I will be happy to assist you in any way I can.

TFN 6 2/025
RECD NOV 14, 2014

Sincerely,

Bjarne D. Kristiansen, PG
Project Geologist
LQD District III

\bk

cc: Cheyenne LQD Files
WWC Engineering, c/o Jeff Baron, 1849 Terra Ave., Sheridan, WY 82801

TFN 6 2/025
RECD NOV 14, 2014

ADDENDUM D11-2

ADDENDUM D11-2

State Decision Documents

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-045

STATE DECISION DOCUMENT
BIG HORN COAL COMPANY
PERMIT 213-T1

General Description of Operation:

Big Horn Coal Company is the operator of the Big Horn Mine which is located about 8 miles north of Sheridan, Wyoming. Access to the mine is by State Highway 338.

Big Horn Coal Company has been operating surface coal mines since 1943 in the Sheridan, Wyoming coal fields. Operations at the present mine site, which now occur in Sections 21, 22, 23, 16, 15, 14, 9, 10 and 11 of T57N, R84W, began in about 1948 and have continued to the present. Much of the early mining occurred in the valley bottoms of the Tongue River and Goose Creek. More recent operations have advanced into adjacent upland areas moving out of the creek bottoms. Big Horn Coal was authorized continued operations under the Environmental Quality Act by Permit No. 213C. Considerable underground mining has occurred in the area of the mine site, beginning at the turn of the century and ending in the early 1950's.

Mining at the Big Horn Mine is by truck/shovel or scraper. Five known coal seams exist within the mine area, in descending order: Dietz 2B (Armstrong), Dietz 3 (Upper Monarch), Monarch (Lower Monarch), Carney and Masters. The Carney and Masters seams cannot be economically mined. The approval permit will allow for 5 more years of mining.

FINDINGS

On the basis of information set forth in the application or from information otherwise available, (documented in Appendix A), which has been made available to the applicant, I Walter C. Ackerman find that the applicant has affirmatively demonstrated that:

No. 1. The application is accurate and complete. The applicant has provided LQD with a sworn statement stating that all information contained in the permit application is true and correct to the best of his knowledge. In addition, to the extent necessary and appropriate, independent agency verification supports the accuracy of the application. All information required by the Act and regulations is contained in the application, including:

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Identification of interests	Mining operation plan
Compliance information	Reclamation plan
Resource information	License information
Land use information	Insurance information
Maps and plans	Proof of publication
Permit fee	Required verification

Other agency approvals

No. 2. The reclamation plan can accomplish reclamation as required by the Act.

TFN 6 2/025
RECD NOV 14, 2014
Permit No. 213-T1
Temporary Filing No. 14/216
DATE DEC 3 '87

DEQ 11-046

a. The applicant states that the post-mining topography will blend into the adjacent topography and will be consistent with the post-mining land use of rangeland and wildlife habitat. The applicant has provided pre- and post-mining slope comparisons (Tables DE 1-5, RP-5, 9 and 10), contour maps (Exhibit DE 6, RP-4), and backfilling information (Tables RP-6, 7, and 11) to support these statements.

The slope comparisons indicate that the majority of the post-mining topography will have slopes of less than 20 percent as was the pre-mining case. Although total acreage figures do not agree between the slope comparisons an evaluation of the contour maps indicate pre- and post-mining slope distribution will be similar except for Pit 4. Since the slopes are generally fairly flat stability should not be a problem.

Except for the pit 4 area, the applicant should have sufficient backfill material available to achieve the proposed reclaimed contours. In the Pit 4 area, calculations indicate that a 28% swell factor is necessary to achieve the proposed contours. Typically swell factors above 20% are unlikely, therefore, material will need to be borrowed or the contours adjusted to reflect actual conditions. This could be handled by a stipulation in the approved document since Pit 4 is a rather small area, and it is likely that sufficient material is available to achieve a reasonable post-mining topography.

The acceptability of the proposed post-mining topography from a hydrologic standpoint is discussed in Sections 2.c. and 3. of this document.

Pre-mining uses within the permit area since the late 1880's included agriculture (beef production), mining, transportion corridor, and wildlife habitat. The Sheridan Area Planning Agency has classified the area as rural agricultural land. The lowland areas have been used for hay production. A small portion of the upland area has been used for dryland farming (wheat and barley). Underground mining occurred in the area from the late 1890's to the early 1950's. The area is privately owned.

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In accordance with Chapter II Sec. 3.b.(4)(a) and (b), and Chapter IV Sec. 2.a.(2), Sec. 3.a.(2), Sec. 3.p.(1), Sec. 3.e.(2)(b), Sec. 3.j.(1)(c) and (d), Sec. 3.k., and Sec. 3.j.(5)(a)(i), the applicant must submit a mine plan that will minimize disturbance to fish and wildlife resources and a reclamation plan that will restore habitat to a level commensurate with or superior to that which existed before mining began. Pre-mining habitat consist primarily of

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TFN 6 2/025
RECD NOV 14, 2014
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MIE DEC 3 '81
temporary filing

DEQ 11-047

sagebrush-grassland types with shrublands and pine - juniper areas interspersed. Riparian vegetation occurs along the Tongue River and Goose Creek. Topography surrounding the permit area is more abrupt than that occurring within most of the permit area has been left unaltered for the most part.

The proposed seed mixes (Tables RP1-RP3, pages RP-7 through RP-9) for permanent revegetation are acceptable for the post-mining land uses of rangeland and wildlife habitat. The hayland and croplands in the area will be restored as improved pasture with the potential for possible future use as hayland.

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TFN 6 2/025
RECD NOV 14, 2014
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MLE DEC 3'81
Temporary Filing No. 1 1/217

DEQ 11-048

Table RP1 Permanent Reclamation Seed Mixture

Upland Mixture

Common Name	Rate lbs PLS/Ac
Thickspike wheatgrass	4.0
Western wheatgrass	4.0
Pubescent wheatgrass	1.0
Slender wheatgrass	3.0
Whitmar beardless wheatgrass	3.0
Green needlegrass	3.0
Smooth bromegrass	1.0
Sainfoin	2.0
Total lbs PLS/Ac:	21.0

Shrubs and forbs for Upland seed mixture*

Common Name	Rate lbs PLS/Ac
Rubber rabbitbrush	0.5
Four-wing saltbush	0.5
Common winterfat	0.5
Skunkbush sumac	0.25
Purple prairie clover	0.5
Big sagebrush	0.25
Total lbs PLS/Ac:	2.50

Lowland Mixture

Common Name	Rate lbs PLS/Ac
Thickspike wheatgrass	4.0
Western wheatgrass	4.0
Pubescent wheatgrass	1.0
Slender wheatgrass	3.0
Green needlegrass	3.0
Smooth bromegrass	1.0
Sainfoin	2.0
Canada wildrye	3.0
Total lbs PLS/Ac:	21.0

Shrubs and forbs for lowland mixture*

Common Name	Rate lbs/Ac
Silver sage	0.25
Perennial sweetpea	0.5
Northern sweetvetch	0.5
Wild rose	0.25
Western snowberry	0.25
Total lbs/ac:	1.75

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RECD NOV 14, 2014

213-T1
Temporary Filing No. 1 11217

MLE DEC 3'81

DEQ 11-049

Table RP2 Improved Pasture Land Seed Mixture

Common Name	Rate lbs PLS/ac
Russian wildrye	10.0
Pubescent wheatgrass	7.0
Smooth bromegrass	5.0
Sainfoin	3.0
Total lbs PLS/ac:	25.0

Table RP3 Selected Trees for Permanent Reclamation

Common Name
Box elder
Green ash
Plains cottonwood
Chokecherry
Native plum
Peach leaf willow
Rocky mountain juniper
Ponderose pine

A variety of measures have been proposed to restore wildlife habitat diversity. Four (4) seed mixtures will be interspersed on reclaimed lands (Exhibit RP2). Two of these, an upland mixture and a bottomland mixture, contain native shrub species important to wildlife species. Selected areas will be intensively seeded with shrub species and planted with shrub tubelings and rooted stock (Exhibit RP2). Tree species will also be planted in favorable locations and the applicant has committed to a survival density of forty (40) trees per acre (Exhibit RP2). Rock piles will be established on certain slopes and ridge tops to provide denning habitat (exhibit RP2). Kestrel and mountain blue bird nest boxes be constructed. A final impoundment is proposed for pit 1 to provide wildlife habitat and a sport fishery. Design of the impoundment is being coordinated with Wyoming Game and Fish Department staff at Buffalo to ensure proper design for support of a productive bass population.

After the land is successfully revegetated with these mixes, it will be capable of supporting the post-mining land uses which will be equal to the pre-mining uses. The Game and Fish Department has offered to supply suitable species of fish to stock and maintain a fishery in the final impoundment if its open to public fishing.

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TFN 6 2/025
RECD NOV 14, 2014
213-T1
Temporary Filing No. 1 1/217

DEQ 11-050

The concerns in reclamation are: Cover (protection of the soil resource), production (quality and quantity to support the approved post-mining land uses), and density (of woody plants for forage and shelter).

Ecology of the important species to be used for reclamation.

1. Grasses.

Thickspike wheatgrass (Agropyron dasystachym) is a very effective soil binder. Although its a valuable forage plant its major use us for soil stabilization. Thickspike wheatgrass initiates growth almost three weeks earlier in the spring than western wheatgrass (Agropyon smithii)).

Western wheatgrass is the most important and most successfully established species used for reclamation in the Northern Great Plains. In many areas of Wyoming it occurs as the dominant species under natural conditions. Both Western and thickspike wheatgrass have excellent seedling vigor and are easily established.

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Green needlegrass (Stipa viridula) has been used extensively in range seeding and reclamation in the northern plains with good success. Seedling vigor is excellent and rate of growth is good. It has a high food value to songbirds and small rodents. Green needlegrass has a high forage quality and produces a good forage yield.

Slender wheatgrass (Agropyron trachycaulum) is used as a rapid-developing species in seed mixes in the Northern Great Plains. Its useful as a short-lived species in reclamation plantings and is easily established. The seeds of this wheatgrass germinate quickly, and the seedlings are vigorous and fast growing. Beardless wheatgrass (Agropyron spicatum; formerly A. inerme) has good germination, is fairly easy to establish and is highly palatable.

Grasses to be used in the reestablished pastures are: Russian wildrye (Elymus junceus) which is highly palatable, has good germination, and provides midsummer succulance (provides mid-summer grazing potential); Pubescent wheatgrass (Agropyron trichophorum) a rhizomatous, sodformer, with good palatability and is easily established; Smooth bromegrass (Bromus inermis) also a rhizomatous, sodformer which is highly palatable and is good for wind and water erosion control; and Sainfoin (Onobrychis viciaefolia) a long-lived

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TFN 6 2/025
RECD NOV 14, 2014

Permit No. 213-T1
MIE DEC 3'81
Temporary Filing No. 1 11216

DEQ 11-051

legume which provides forage without causing bloat and fixes nitrogen in the soil. Sainfoin is also being used in the other seed mixes as a nitrogen fixer. Smooth brome grass is also included in the other seed mixes as a minor component in order to add additional cover in the early stages of revegetation. The proposed forbs to be used in the various seed mixes will add diversity to the reclaimed landscape.

The shrubs contained within the seed mixes will provide wildlife with food and shelter. Big sagebrush (Artemisia tridentata) and silver sagebrush (A. cana) are both important browse plants for wildlife. Big sagebrush has a fair ease of establishment, good germination and good persistence and natural spread once established. The palatability of big sagebrush is good. Silver sagebrush is used extensively by livestock and wildlife. In the western Great Plains silver sage is an important antelope survival food during periods when other food sources are scarce.

The seed germination of rubber rabbitbrush (Chrysothomnus nauseosus) is excellent. One of its uses in erosion control is the control of mass soil slippage. Rubber rabbitbrush is easily established and its vigorous seedlings have rapid growth once established. It is an agressive pioneer species and spreads rapidly from seeds.

Four-wing saltbush (Atriplex cancsens) is fairly easily established with good growth rate and persistence. Nitrogen-fixing microorganisms (endotropic mycorrhizae) may occur on the roots of four-wing saltbush. This shrub is highly nutritious and palatable and is a valuable plant for soil stabilization and range restoration.

Winterfat (Ceratoides lanata) is readily established from seed and exhibits excellent seedling vigor. Winterfat has good persistence and palatability and is long-lived. This is a valuable plant in arid lands and can compete with grasses.

Other shrubs that will be used for revegetating the mine site include: skunkbush sumoc (Rhus triobata; wildlife value, soil stabilization), wild rose (Rosa woodsii; erosion control, food for wildlife), and western snowberry (Symphoricarpos occidentalis; livestock and wildlife browse, seeds are utilized by several species of birds).

Several species of native trees will be used for revegetating appropriate portions of the reclaimed mine. These tree species are the following: box elder (Acer negundo), green ash (Fraxinus pennsylvanica), plains cottonwoods (Populus deltoides), chokecherry (Prunus virginiana), native plum

MICRO FILMED JAN 6 '86

TFN 6 2/025
RECD NOV 14, 2014

Permit No. 213-T1
MVE DEC 3 '81 Temporary Filing No. 1 11217

DEQ 11-052

(Prunus americana), peach leaf willow (Salix amygdaloides), rocky mountain juniper (Juniperus scopulorum), and ponderosa pine (Pinus ponderosa). These trees will provide shelter and/or forage for both livestock and wildlife. Some examples follow. Hoofed browsers feed quite extensively on the twigs, foliage, and bark of wild cherries. Birds are also quite fond of wild cherries. Numerous birds and mammals eat the berries of junipers. In addition to their food value junipers provide protective and nesting cover. The seeds, buds, and flowers of the boxelder provide food for many kinds of birds and other animals.

The applicant has committed to stripping all suitable topsoil from the unaffected areas prior to disturbance. The recommended stripping depths in the Soil Survey (Appendix D-7) were determined to be too shallow by the DEQ soil scientists. Therefore, Big Horn Coal Company has agreed to reevaluate the soil stripping depths and will report the increased volumes, replacement depths and volumes of topsoil to be directly replaced in the 1981 annual report. Preliminary estimates concerning the increased topsoil volumes have been provided in Appendix D-7.

Prior to stripping, the area will be staked according to topsoil depth, to serve as a guide to the scraper operator. Visual inspection and additional samples, if necessary, will be used to determine the correct stripping depths. If possible, topsoil will be directly replaced on graded areas rather than stockpiled (page MP-25). The practice of directly replacing topsoil has been determined to maintain nutrients and seed sources, therefore, successful revegetation is accomplished much sooner. All other topsoil will be stored in stockpiles.

Erosion and sediment control methods for the stockpiles are the planting of temporary vegetation and the construction of sediment ditches, if necessary, at the base until the stockpile is stabilized (page MP-26). These procedures should minimize wind and water erosion as required in Chapter IV, Section 2.c. of the Rules and Regulations.

During reclamation the topsoil removed from each pit will be spread evenly over that pit area. Replacement depths have not been established at this time, due to Big Horn Coal Company's reevaluation of the stripping depths and volumes. This information will be contained in the 1981 annual report. Soil analysis will be conducted for N, P, and K on topsoil stockpiled in excess of one year and the appropriate fertilizers will be applied as required by Chapter IV, Section 2.c. of the Wyoming Rules and Regulations.

TFN 6 2/025
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DEQ 11-053

Prior to topsoil application, graded areas are to be scarified on the contour. Topsoil will then be distributed in thick lifts in order to minimize compaction. Topsoil will not be replaced in excess of 120 days before seeding (page RP-4). The methods and practices listed above will aid in returning the capability of the soil materials in supporting an equal or better land use as pre-mining conditions.

No known problems exist with any of the proposed reclamation species which could prevent revegetation from being achieved within a reasonable period of time following mining.

Prior to seeding seed beds will be scarified, disced, and harrowed. Drill seeding will be conducted between the dates of October 15, and April 15. A cover crop of either barley or winter wheat will be used during spring seeding to protect the area from soil erosion. This cover crop will be moved prior to seed set in order to prevent volunteer growth. Fall seeded areas will be mulched with a wood fiber slurry (1 ton/acre) or dry native hay (2 tons/acre). Areas will be fertilized, prior to harrowing, at rates determined by soil analyses.

The above revegetation practices and characteristics and values of the various plant species to be seeded provide evidence to support the applicants claim that the post-mining land uses will be equal to the pre-mining uses.

Revegetated areas will be monitored on a yearly basis after the initial seeding. Monitoring will be conducted at approximately the same time each year and compared to control areas and baseline data in order to determine the success of the revegetation efforts. The WDEQ/LQD Guideline No. 2 for vegetation will be followed in determining revegetation success. Monitoring on a yearly basis will enable the Big Horn Coal Company to keep accurate and precise records for bond release information. Big Horn Coal Company expects to apply for partial bond release on areas that are graded and revegetated on a yearly basis. The following table summarizes areas and dates for expected final bond release on affected areas.

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TFN 6 2/025
RECD NOV 14, 2014
213-T1
MIE DEC 3'81 Temporary Filing No 1 1/217

Table RP4 Final Bond Release

Area	Acres	Date for release
Pit One	375.5	1996
Pit Two	58.4	1997
Pit Three Scraper and Pit Three Truck/Shovel	372.0	1997
Pit Four	38.4	1993
Pit Four	11.4	1996
Pit Five	519.9	1996

Before bond release can be applied for cover and productivity for two consecutive years must at least meet the requirements described in WDEQ/Land Quality Division Guideline 2, Vegetation. Species diversity and composition will be considered satisfactory in reclaimed areas if species measured in post-mining sampling are predominantly those which were seeded in the three reclamation seed mixes. These plant species will allow the land use requirements to be achieved (see discussion in 2 above).

The primary post-mining land use will be rangeland for domestic livestock and wildlife habitat. These were also the pre-mining land uses. The single land use change is that of a single final water impoundment in the SE 1/4 of Section 15, T57N, R84W and NE 1/4 Section 22, T57N, R84W (Exhibit RP3). The application includes letters of approval for this land use change from Dale Pernula, Sheridan County Planner and from Louis Rockett, Fishery Biologist for the Buffalo Office of the Wyoming Game and Fish Department. The letter from the Game and Fish Department includes design specifications that the Department would like to have incorporated into the impoundment design.

AUG 1999 LAND QUALITY DIV. DIST. III

b. The applicant has submitted reclamation plans (Appendix RP), which include reclamation sequence maps and detailed narrative discussions. They are required to show that backfilling, contour in topsoil replacement, hydrologic restoration and revegetation will proceed in a timely manner, as soon as possible after mining.

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Two of the pits (1 and 2) contain areas which were disturbed prior to 1977. The backfilling of these pits is proceeding and will be completed soon for Pit 2 and in 1986 for Pit 1. Bond release for pits 1 and 2 is scheduled for 1996 and 1997, respectively. Since most of the mine facilities are located in the Pit 2 area, final reclamation and bond release cannot be completed until mining in other pits is completed and the facilities are no longer needed. For Pits 1 and 2 recla-

TFN 6 2/025
RECD NOV 14, 2014

213-T1
M/F DEC 3'81 Temporary Filing No. 1 1/2 17

DEQ 11-055

mation is proceeding in a manner and time schedule which reflects the method of mining, the laws in effect when the pits and mine sequence were designed, and the available equipment. Approval is recommended.

Pits 3, 4, and 5 were opened after 1977 and are subject to different regulations than Pits 1 and 2. The applicant should be able to commence rough backfilling within 180 days after coal removal, as required by Chapter IV.3.a.(1)(b). The method of mining is straight forward and, considering the mining equipment and topography of the area, is conducted in such a way as to minimize disturbance and reclaim in a timely manner. Mining will be completed in Pits 3, 4, and 5 in 1987, 1983 and 1986, respectively. Final bond release is scheduled for 1997 on pit 3, 1993 and 1996 on Pit 4 and 1996 on Pit 5.

No permanent spoil piles are proposed. All highwalls will be eliminated. In some cases, the 180-day requirement to commence rough backfilling will not be met. This is due to equipment and pit layout and safety requirements, mainly when a boxcut is opened and when the final cut is backfilled. The areas are relatively small and, in any case, rough backfilling will occur as soon as practicable. Backfilling will be by direct haulback wherever possible.

c. INTRODUCTION

The Wyoming Environmental Quality Act requires that the reclamation plan can accomplish reclamation as required by that act and minimize disturbances to the prevailing hydrologic balance (W.S. 35-11-406). The following is the Administrator's finding of impacts which may occur to the hydrologic balance, and reclamation practices which will be implemented by Big Horn Coal to mitigate these impacts. The finding is divided into sections on groundwater and surface water. (See also discussions on Cumulative Hydrologic Impacts under finding #3).

GROUNDWATER

Geology and Aquifers

The Tongue River Member of the Fort Union Formation which comprises the stratigraphic units to be disturbed at the Big Horn Mine area dip to the east-southeast at approximately 1.5 - 3.0 . The units which function as aquifers include the coal seams and alluvial deposits of the Tongue River and Big Goose Creek.

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TFN 6 2/025
RECD NOV 14,2014

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213-T1
Temporary Filing No. 11214

DEQ 11-056

The Dietz 2B coal seam is virtually dry in the areas to be mined since the seam outcrops above the Tongue River, which is the major recharge mechanism to the coal seams in the area. The Monarch and Dietz 3 coal seams which are presently being mined downdip of the Tongue River, are viable aquifers, and contain an extensive amount of water. The Carney Coal seam which also comprises a viable aquifer, is below mineable limits and should not be affected by the mining operations since it appears to be sufficiently separated by sequences of tight interbedded shales and sandstones (Appendix DF).

The alluvial aquifers of the Tongue River and Big Goose Creek, which have been mined through and disturbed in prior operations, will not be directly impacted by the forthcoming mining operations except in the Pit 3 area where approximately 200,000 cubic yards of alluvial gravels have been stockpiled from the Pit 3 area. Before mining, these gravels comprised part of an alluvial aquifer, which resulted from a historic meander loop of the Tongue River. The pre-mining function of the gravel was to act as a storage medium during peak flow events with subsequent release of water during low flow periods (baseflow).

Recharge and Potentiometric Levels

Recharge to the aquifers of concern should not be overly disturbed after reclamation is completed, since those units downdip from the Tongue River and alluvium should receive more than adequate amounts of water to fully recharge the groundwater system. Considering the relatively high transmissivity values of the coal aquifers, potentiometric surfaces that have been drawn down in adjacent areas should quickly recover to near pre-mining conditions after mining ceases. Monitoring wells completed in reclaimed spoils at the Big Horn Mine have shown that the spoils do have the ability to transmit water and recharge the system.

Recharge to disturbed areas which are stratigraphically above the Tongue River is primarily by surface infiltration through adjacent unsaturated burn areas, as well as direct vertical percolation. These adjacent recharge areas will not be disturbed, thereby preserving the major recharge mechanism. As stated earlier, it appears that spoil hydraulic characteristics are sufficient to transmit water. In areas stratigraphically above the Tongue River, potentiometric surfaces will probably take longer to reach equilibrium, with much of the water coming from adjacent abandoned underground mine workings and other adjacent recharge areas.

Van Voast, Hedges and McDermott (1978) found that the most

MICRO FILMED JAN 6 '86

TFN 6 2/025
RECD NOV 14,2014

MIE DEC 3'81

213-T1
Temporary Filing No. 1 11217

DEQ 11-057

permeable portion of mine spoils is along the old mine floors, which leads to characteristics of a confined aquifer. This phenomenon appears to be occuring at the Big Horn Mine. Since the aquifer is being re-established at approximately the same elevation, the projected potentiometric surface is expected to have the same general gradient and elevation that was present in the Monarch Coal seam before mining (FD-53). The post-mining potentiometric surface is depicted in Exhibit DF-10.

Groundwater Quality

The quality of groundwater at the Big Horn Mine Area varies within and between aquifers. Water quality data is found in Appendix DF-3. The best quality waters are found within the coal seams where TDS values are approximately 1000 mg/l. The alluvial aquifers produce waters which vary greatly both temporarily and spatially in direct response to the Tongue River and Big Goose Creek. Alluvial water is usually of poorer quality, with TDS values ranging from several hundred to several thousand mg/l.

The Big Horn Coal Company has a plan to identify unsuitable (toxic) materials, such as those containing high SAR values, high EC values, low pH values, etc. (Appendix DE (Geology)). The applicant has committed to burying unsuitable materials at least four feet below the regraded surface, above the post-reclamation potentiometric surface, and not in the proximity of any drainage channels, to minimize adverse impacts to groundwater quality (DF-58). Additional information pertaining to toxic material is contained in Finding 2.c.

AUG 1999 LAND QUALITY DIV. DIST. III

The quality of groundwater within reclaimed spoils also varies both temporarily and spatially (Van Voast, et. al., 1978). Work done by Van Voast at the Decker Coal Mine in Southeast Montana, approximately 18 miles from the Big Horn Mine, showed that the quality of groundwater in reclaimed spoils approached the quality of that found in the overburden aquifers. This amounted to about a 3 fold increase in TDS over that found before mining within the coal aquifers.

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Two wells completed in reclaimed spoils at the Big Horn Mine (Pit 1) have been sampled for water quality and it appears that trends are similar to those discussed above (Table DF-11). It should also be noted that a substantial increase in sulfate concentrations was evident. Available literature also suggests that increases in calcium and sodium may also result.

The impact that spoil waters will have on down gradient

TFN 6 2/025
RECD NOV 14, 2014

213-T1
Temporary Filing No. 1 1/2 1 6
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DEQ 11-058

waters is speculative. However, it is expected that as the spoil waters move down gradient, spread-out and encompass larger areas, and mix with unperturbated groundwater, elevated concentrations of dissolved solids, etc. will become diluted and decrease. As time elapses and more pore volumes of water pass through the reclaimed spoil aquifer, the leaching of the soluble materials should reach an equilibrium state and eventually decline.

In summary, it appears reasonable to assume that groundwaters within reclaimed spoils will contain approximately two to three times the TDS concentration as undisturbed coal aquifers. Variable increases in other constituents, such as sulfate and sodium may also occur. With time, these elevated levels should decline as leaching reaches an equilibrium. The impact of changes to water quality and use are discussed in the following section.

Groundwater Rights and Uses

The uses of groundwater at the Big Horn Mine area include livestock watering, domestic uses, and industrial water supply used mostly by the Big Horn mining operation. Mine and private wells are completed in alluvial aquifers along perennial streams and coal aquifers which are regionally significant.

A listing of all valid groundwater appropriations within the Big Horn Coal Company's permit area and a 3 mile radius around it are found in Appendix DF-4 and depicted on Exhibit DF-8. Besides hydrologic monitoring wells belonging to either Big Horn Coal or Peter Kiewit Sons' Company, there are approximately 33 water wells permitted for Sheridan Enterprises, Inc. for hydrologic monitoring, and approximately 62 other wells permitted for livestock and domestic supplies. Of the above 62 wells, most are livestock wells completed in alluvial aquifers.

Information regarding completion zones is not available so it is difficult to assess which groundwater wells within the area may be potentially impacted. Wells completed in units stratigraphically above or below the coal seams being mined face a remote chance of being affected.

Wells located to the east and south of the permit area have the greatest potential for being affected since the hydraulic gradient is primarily in a southeast direction for the Dietz 3 coal seam (Exhibit DF-4) and in an east and northeast direction for the Monarch Coal seam (Exhibit DF-5). Wells to the north and west of the permit have the least potential for

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TFN 6 2/025
RECD NOV 14, 2014

Permit No. 213-T1
Temporary Filing No. 1 1/217

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DEQ 11-059

being impacted since they are located up-gradient of the disturbed area, or beyond the coal outcrops. The worst case, life of mine, groundwater drawdown predictions are shown on Exhibit DF-6. It is improbable that any groundwater users in the area will be adversely affected by drawdowns.

Wells completed in alluvial aquifers have little potential for being affected since no alluvial aquifers are proposed for mining and the quantity and quality of water supplying these aquifers should not be disrupted.

Changes to groundwater quality as a result of mining is discussed in the previous section. Since the predominant consumptive use of the groundwater, which may be potentially impacted is livestock watering, it is not likely that changes to water quality that may occur will change this classification (see DEQ, WQD Rules and Regulations Chapter VIII - Quality Standards for Wyoming Groundwaters. As discussed earlier, TDS values can reasonably be assumed to increase two to three fold within spoil aquifers compared to the undisturbed coal aquifers. Even at 3 fold increase, TDS values should still be well within the livestock watering use category of 5000 mg/l. Although sulfate concentrations may dramatically increase, they should remain below the 3000 mg/l standards for livestock watering.

To assure that the mining and reclamation operations do not have an adverse impact on water users, Big Horn Coal Company is monitoring a multitude of wells for water quality and static water levels. Well locations are found on Exhibit DF-9. Well completion details can be found in Appendix DF-1. Monitoring of these wells will continue beyond reclamation, including the implementation and monitoring of wells completed in reclaimed spoils. Anticipated spoil well locations are found in Exhibit DF-11 with details on completions found on page DF-56.

In respect to W.S. 35-11-415(b)(xii) the Big Horn Coal Company has committed to replacing any water right which is affected by the mining operation (page DF-42). Alternate water supplies are available from the Tongue River, Tongue River alluvium and the Carney Coal seam. The Carney Coal seam, which lies about 100 ft. below the Monarch Coal seam, should provide adequate replacement water.

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SURFACE WATER

General Surface Water Hydrology

The pre-mining surface water system within areas to be dis-

TFN 6 2/025
RECD NOV 14, 2014

Permit No. 213-T1
M/F DEC 3 '81
Temporary Filing No. 11217

DEQ 11-060

turbed, at the Big Horn Mine is unique in that channelized flows in defined channels are absent, except for the P-5 Draw in the Pit 5 area. The surface hydrology of adjacent areas has, in some places, been drastically altered by past underground mining activities. Any impacts to the surface water system have the potential to impact the Tongue River and Big Goose Creek, both perennial streams which pass through the permit area. Previous mining activities have disturbed the hydrologic system of both Big Goose Creek and the Tongue River to unknown degrees, including the disruption and replacement of sections of both stream channels. The present operation has established adequate stream buffer zones to minimize future disturbances to the Tongue River and Big Goose Creek.

Post-Mining Topography

The post-mining topography is depicted on Exhibits RP-3, RP-3A, RR-8 and RP-10. Exhibit RP-3A contains the alternate backfilling plan for the permanent impoundment shown in Exhibit RP-3. Through-drainage has been achieved in all areas except in the immediate drainage of the permanent impoundment. Through drainage will be achieved in this area in the event that the alternate plan (Exhibit RP-3A) is implemented.

Slope comparisons of the post-mining topography are discussed on pages RP-16, RP-32 and RP-35. Slope classes of the post-mining topography are shown in Exhibits RP-4, RP-9 and RP-11. Proposed slope conditions appear adequate to achieve revegetation and subsequent hydrologic stabilization, except in the southeast corner of the Pit 3 area where slopes adjacent to undisturbed lands approach 20-39% slopes (Exhibit RP-4, SW 1/4 Section 14). The applicant has proposed to stabilize and protect the area from erosion with the use of jute soil netting, which has proved to be successful on much steeper slopes on the mine site.

The reclaimed P-5 Draw drainage basin should be about as hydrologically stable as pre-mining conditions after revegetation becomes established. The present P-5 Draw (channel) is apparently being held in a state of equilibrium by bedrock controls. Although these controls are going to be removed by mining, the following considerations govern the stability of the reclaimed P-5 Draw:

1. The drainage area is being reduced by 9.3% which will reduce flow.
2. The width depth ratio has been increased to reduce velocities.

MICRO FILMED JAN 6 '86

TFN 6 2/025
RECD NOV 14, 2014
213-T1
Temporary Filing No. 1 1/2 17

MLE DEC 3'81

DEQ 11-061

3. Good channel revegetation is expected.
4. Channel slope has been reduced.
5. It appears that adequate bedrock control exists both above and below the area to be reclaimed.

It should also be noted that any downstream impacts to the P-5 Draw will be attenuated quickly since the channel downstream of the area to be reclaimed has been drastically disturbed by past underground workings. Most, if not all, runoff passing through areas of the channel that have subsided, enters the underground workings. Therefore, it is doubtful that any adverse surface water impacts generated within the Pit 5 reclamation plan will affect the Tongue River.

Surface water from the P-5 Draw, which enters the groundwater system via the underground workings, should have a negligible effect to the groundwater system since the majority of the suspended sediment will not be transported through the groundwater system and increases in dissolved solids will probably be minimal (see Groundwater Section).

Surface Water Quantity

The quantity of surface water evolving from the reclaimed area may be slightly increased initially after reclamation due to lower infiltration rates. Infiltration rates should eventually return to pre-mining conditions as vegetation becomes more established, organic matter builds-up, and soil structure returns to pre-mining conditions. This change in the runoff regime will be minimal and beyond detection limits in relation to the discharge of the Tongue River. Pit pumpage during the active mining operation, and subsequent discharge via sediment ponds, will add minimal additional flow to the Tongue River. The discharge of pit pumpage water to the Tongue River is expected to be greatest in winter months when the demand for dust abatement water is at a minimum (Appendix MP).

AUG 1999 LAND QUALITY DIV. DIST. III

Surface Water Quality

A complete year of surface water quality data is found in Appendix DF-3. Although this data does not constitute "pre-mining baseline data", since the mine has been operating for many years, it is useful in understanding the system, observing trends, and in predicting impacts from the mining operation.

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The Big Horn Coal Company has committed to burying unsuitable (toxic) materials at least four (4) feet below the regraded surface, above the post-reclamation potentiometric surface,

TFN 6 2/025
RECD NOV 14,2014

213-T1
Temporary Filing No. 1 1621
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and not in the proximity of any drainage channels (DF-58).

The quality of surface waters originating on reclaimed areas should not be much different than pre-mining. There may be a slight increase in suspended solids until vegetation is adequately re-established and runoff returns to pre-mining conditions. Adequate post-mining slope conditions and a history of relatively good revegetation should limit unwarranted sediment production. The presence of stream buffer zones will help attenuate sheet wash sediment delivery to the Tongue River and Big Goose Creek.

During the actual mining operation mine drainage will be controlled through the use of diversions, interceptor ditches, and sedimentation ponds (MP-14). Diversion ditches direct undisturbed area runoff around the operation, while interceptor ditches direct runoff from disturbed areas to sediment ponds for sediment control. Exhibits MP-26, MP-31, and MP-35 show the locations of all diversion and interceptor ditches.

The implementation of sedimentation ponds during the actual mining operation will help in ensuring that receiving waters will not be degraded. Design calculations for sediment ponds are found in Appendix MP-1. Exhibits MP-4 through MP-16 contain the design drawings, and Exhibits MP-2, MP-26, MP-31 and MP-35 show the locations for all existing and proposed sedimentation ponds. All water discharged to the Tongue River will be monitored to ensure that receiving waters are not degraded and effluent criteria, as set forth in E.P.A. N.P.D.E.S. discharge permit WY #0022519 (Appendix MP1), are not exceeded. Sediment ponds will be used to treat runoff until the applicant can demonstrate that runoff from affected lands will not degrade receiving waters.

AUG 1999 LAND QUALITY DIST. III

Permanent Impoundments

A permanent impoundment is proposed as part of the post-mining topography at the Pit 1 area (NE 1/4 of Section 22, T57N, R84W, and SE 1/4, Section 15, T57N, R84W, Exhibit RP-3). It is estimated that approximately 1250 AF of water will be contained in the impoundment, and it should fill to full stage within one year of final grading (RP-23). Groundwater will constitute the majority of the water within the impoundment.

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The primary use will be for sports fisheries and recreational use. Secondary uses include wildlife habitat and livestock watering. The impoundment has been approved by both the Wyoming Game and Fish Commission and the Wyoming State Engineer. Water quality is expected to be sufficient for fish

TFN 6 2/025
RECD NOV 14, 2014

Permit No. 213-T1
MF DEC 3'81 Temporary Filing No. 1 1/2 17

DEQ 11-063

production based on the chemical analysis of five strip mine ponds and 42 fish supporting lakes in Northeastern Wyoming (Exhibit RP-5). Old strip mine ponds just to the north and west of the Big Horn Mine have been documented to support good warm water fisheries, containing both largemouth and smallmouth bass, crappie and green sunfish (KRUMM, 1981 Personal Communications).

Slopes around the impoundment are shown on Exhibit MP-15 and are designed to be 4:1 on the south side, 3:1 on the west and east side and 3:5:1 on the north side. These slopes should not present a hazard to humans, wildlife or livestock.

Impacts to the groundwater system will be minimal since the impoundment will simply act as a transport medium for groundwater flow. No adverse impacts to the surface water are expected since it is doubtful that the impoundment will ever discharge any water to surrounding surface waters (Tongue River). In the event that the impoundment fails; such as the development of inadequate water quality to support the proposed uses or the lack of sufficient water quality, Big Horn Coal Company has committed to implementing an alternative plan (RP-25). The alternate plan includes backfilling the impoundment with approximately 2,370,000 cubic yards of material and providing through-drainage to the area. The post-mining topography incorporating the alternative plan is depicted on Exhibit RP-3A.

Surface Water Rights and Uses

The uses of surface waters at the Big Horn Mine area include; stock watering, irrigation, and industrial water which is used primarily for dust control at the mining operation.

A listing of all valid surface water appropriations (diversions and reservoirs) within 1/2 mile upstream and 3 miles downstream of the permit area is presented in Appendix DF-4 and Exhibit DF-7.

Adverse impacts to surface water quantity and/or quality, which have been previously discussed should be minimal. Olsen and Dettman (1976) of the Argonne National Laboratory studied the water quality effects of the Big Horn Mine, during actual mining, and found that the impact of the mine on concentrations of dissolved constituents was minimal and probably well beyond detection limits.

Surface water quality and quantity monitoring sites have been established both upstream and downstream of the mine site on Big Goose Creek and the Tongue River, on four ephemeral

TFN 6 2/025
RECD NOV 14, 2014

Inc. No. 813-T1
MLE DEC 3'81 Temporary Filing No. 11217

DEQ 11-064

stream sites, as well as on all mine discharges. Specifics on the monitoring sites are found in Appendix DF-2. A committment to post-reclamation monitoring for as long as DEQ deems necessary is found on page DF-86. It is not anticipated that any surface water rights will be impacted by the mining operation.

d. The toxic and acid-forming materials identified at the Big Horn Mine Site are materials that are carbonaceous, are saline, high SAR and/or low pH's. The results of the overburden analysis and the handling procedures are discussed on a pit by pit basis in Appendix D-5. Big Horn Coal Company has committed to special handling of any combustible, toxic, acid-forming materials encountered in the mining process. The material will be selectively placed out of the groundwater, buried by at least four feet of suitable material and sealed by compaction (page MP-29). These practices meet the requirements of Chapter IV, Section 3.c.(3), of the Wyoming Rules and Regulations. Additional information pertaining to the above are discussed in Section No. 2.c. of this document.

3. PROBABLE CUMULATIVE HYDROLOGIC IMPACTS

General

Within the general vicinity of the Big Horn Mine, two additional mining operations may, at some time in the future, produce impacts to the hydrologic system which conceivably could be of a cumulative nature. At the present time Sheridan Enterprises, Inc. is seeking LQD approval of the Welch No. 1 - North permit application (LQD TFN 1 4/216). The proposed mine is located adjacent to the northeast part of the Big Horn Mine permit boundary and contains lands in Sections 1, 2, 3 and 4 of T57N, R84W.

AUG 1999 LAND QUALITY DIV. DIST. III

The Ash Creek Mining Company operates the PSO No. 1 Mine (LQD TFN 1 1/214) located in Section 22, T58N, R84W. Currently the mine is not operating and disturbance is limited to a small open pit and several stockpiles. The mine is located about 3 1/2 miles north of the Big Horn permit boundary. It is not known when active mining will resume.

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Groundwater

It is anticipated that some cumulative impacts may result to the groundwater system as a result of the mining operations at the Big Horn, PSO No. 1, and the Welch No. 1 North Mines. This concern is more critical between the Big Horn Mine and the Welch No. 1 North Mine because they may at some point in

TFN 6 2/025
RECD NOV 14,2014

M/F DEC 3'81

Permit No. 213-T1
Temporary Filing No. 1 1/216

DEQ 11-065

time be virtually adjacent operations and apparently will be mining the same coal seams (Dietz 2, Dietz 3, Monarch).

Quantifying the impacts that both mines, in combination, may have on the groundwater system is not possible due to several contributing factors, such as:

1. It is not known when the Welch No. 1 North Mine will begin operations.
2. The correlation of mining activities between the two mines is unknown (i.e. pit limits, dewatering, backfilling, etc.).
3. The extremely diverse nature of the hydrogeology of the area due to past underground mining, the Tongue River, extensive burn areas (clinker), and discontinuous coal seams, makes it very difficult to assess how extensive impacts may be.

However, it can be reasonably assumed that if both mines are operating at the same time, or recharge to previously reclaimed lands is not complete, that cumulative drawdowns may result. This is evidenced by Figure 2.6-12 of the Welch No. 1 - North Mine (TFN 1 4/216) and Exhibit DF-6 of the Big Horn permit application, which show that worst case drawdown estimates (contours) overlap. Theoretically, this will increase some of the drawdown caused by the Big Horn Mine alone (Exhibit DF-6), especially closer to the Welch No. 1 North operation. The increases in drawdown probably would not be significant because both individual drawdown estimates exhibit worst case conditions and probably would not occur to the predicted magnitude anyway. Also, the analytical techniques used to generate the predictions are probably not sensitive enough to incorporate this additional factor.

AUG 1999
LAND QUALITY DIV.
DIST. III

Cumulative water quality impacts associated with the Big Horn Mine and the Welch No. 1 North Mine are difficult to predict. It appears that the major cumulative impact that could result is simply a larger proportion of aquifer disturbance. It does not appear that water quality parameters, down-gradient of mined areas, will increase in concentration beyond that caused by a single operation since the potentiometric surface maps for both the Big Horn Mine (DF-4, DF-5) and the Welch No. 1 Mine (2.6-1) show flow paths to be in an easterly to southeasterly direction, thereby making the mixing of waters from both sites remote.

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Cumulative impacts to recharge areas will be minimal since recharge is principally along highland areas that have been burned (scoria areas) or through Tongue River alluvium. Figure 2.6-1A of the Welch No. 1 North permit application

TFN 6 2/025
RECD NOV 14, 2014
213-T1
Temporary Filing No. 1 1/217

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DEQ 11-066

depicts some of these recharge areas. Since disturbance to highland scoria areas will be minimal and no further disturbance of the Tongue River is expected, recharge areas should not be adversely impacted.

Cumulative impacts as a result of the PSO No. 1 Mine, including or excluding the Welch No. 1 Mine and the Big Horn Mine, are expected to be minimal. According to the PSO No. 1 mine plan the Anderson and Dietz coal seams are mined at this site. It is believed that the Anderson seam is synonymous with the Dietz 1A which is located stratigraphically higher than the seams being mined at either the Big Horn or Welch No. 1 North Mines. It appears that the Dietz seam being mined at the PSO No. 1 mine is either the Dietz 1B or Dietz 2 seam specified by the Big Horn Mine permit.

If the Dietz seam being mined at the PSO Mine is correlated to the Dietz 1B, cumulative impacts are unlikely since the Dietz 1B is not being mined at the Big Horn Mine because it is located stratigraphically higher than the seams being mined. If it correlates to the Dietz 2 at the Big Horn Mine, cumulative impacts could be possible but are very remote since the Dietz 2 is unsaturated on most of the Big Horn Mine area. Also, it is improbable that the coal seam is continuous between operations due to much burn and subsidence from past underground mining. In summary, it is very doubtful that the PSO No. 1 Mine will contribute any groundwater impacts of a cumulative nature to the Big Horn operation.

Surface Water

Impacts to surface waters generated at the Big Horn, PSO No. 1 and the Welch No. 1 - North Mines have the potential to cumulatively impact the Tongue River since all are located within the Tongue River drainage basin. Impacts associated with the Big Horn Mine and the Welch No. 1 - North Mine may be more direct because both mines are located adjacent to the Tongue River. At both the Big Horn and Welch No. 1 - North Mines only ephemeral type drainage basins will be directly disturbed by surface mining.

AUG 1999
LAND QUALITY DIV.
DIST. III

Surface mining activities at the PSO No. 1 mine will disturb the West Branch of Little Youngs Creek which is ephemeral, and Little Youngs Creek, a small perennial stream tributary to Youngs Creek, which is a tributary of the Tongue River. The confluence of Youngs Creek and the Tongue River is about 5 linear miles downstream from the Big Horn permit boundary.

The connection of post-mining topographies at the various operations is not a concern since mining operations are not

TFN 6 2/025
RECD NOV 14, 2014

213-T1
MF DEC 3'81 Temporary Filing No. 1 11217

DEQ 11-067

planned which would lead to disturbed areas immediately adjacent to each other. Also, no drainage channels will be disturbed by more than one of the operations.

Impacts to surface water quantity and quality, as a result of the Big Horn Mine, are discussed in Finding 2.d. of this document. Adverse cumulative impacts to the quantity of runoff contributing to Tongue River stream flow will be minimal and certainly beyond detection limits due to the very large drainage basin of the Tongue River and the relatively small cumulative area of disturbance.

At this time it is not possible to predict the magnitude of these impacts since it is not known when the Welch No. 1 North Mine will begin operations, or when the PSO No. 1 Mine will resume operations. Therefore, the correlation of mining activities (surface water controls, amount of disturbed area, revegetation, etc.) between operations, which will probably have the greatest affects on the magnitude of cumulative impacts to water quality is not known.

Acceptable surface water controls (sediment ponds, treatment ponds, interceptor ditches, diversion ditches, etc.) and adequate reclamation at the Big Horn, PSO No. 1, and the Welch No. 1 North Mines should minimize cumulative impacts to the water quality of the Tongue River. Although cumulative impacts to water quality of the Tongue River may result they will probably be minimal due to the large contributing drainage area of the Tongue River, and other present land use activities occurring, such as grazing and crop irrigation (return flow from flood irrigation).

Material Damage to Hydrologic Balance

The following are impacts of a cumulative nature which may occur to the hydrologic balance:

AUG 1999
LAND QUALITY DIV.
DIST. III

1. Decreases in surface water quantity contributing to Tongue River stream flow may occur due to evaporation of water in sediment ponds and use of this water for dust suppression. The subsequent decrease in flow of the Tongue River will probably be insignificant and beyond detection limits. It is possible that pit pumpage may move than adequately replace these waters.

2. Degradation of surface water quality could occur, but it is doubtful that any material damage will result due to the following:

   a. Adequate treatment facilities during mining.

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TFN 6 2/025
RECD NOV 14, 2014

MIE DEC 3 '81

Permit No. 213-T1
11217
Temporary Filing Addendum D11-2-24

DEQ 11-068

b. Reclamation and revegetation are expected to be successful.

c. The water quality of the Tongue River has already been degraded, and continued eutrophication and siltation problems from other land use practices are evident.

3. Cumulative drawdowns of groundwater levels may result. This should be a short-term impact and water levels should return to near pre-mining levels once pit pumpage ceases and recharge to backfilled areas is complete.

4. Water quality changes to groundwaters will occur. Material damage to the groundwater system will be minimal since few water supplies are known to utilize these groundwaters and the primary use classification (stock watering) should not change.

No. 4. The area proposed to be mined is not included within an area designated unsuitable for surface coal mining pursuant to W.S. 35-11-425, within an area where mining is prohibited pursuant to section 522(e) of P.L. 95-87, or within an area under review for this designation in an administrative proceeding.

No. 5. The schedule provided in W.S. 35-11-406(a)(xiv) indicates that all surface coal mining operations owned or controlled by the applicant are currently in compliance with this act and all laws referred to in paragraph (a)(xiv) of this section, or that any violation has been or is in the process of being corrected to the satisfaction of the authority, department or agency which has jurisdiction over the violation.

No. 6. Neither the applicant nor operator controls or has controlled mining operations with a demonstrated pattern of willful violations of such nature and duration with such resulting irreparable harm to the environment as to indicate reckless, knowing or intentional conduct.

AUG 1999 LAND QUALITY DIV. DIST. III

No. 7. For the term covered by the permit, the proposed operation will not be inconsistent with other surface coal mining and reclamation operations proposed or contemplated in pending or approved mining permits.

MICRO FILMED JAN 6 96

No. 8. The application provides the rights of entry as required by the act.

No. 9. No threatened or endangered wildlife species are known to reside within the permit area and adjacent lands nor does habitat critical to such species occur in the vicinity of the permit area. Bald eagles are occasionally sighted along the Tongue River which

TFN 6 2/025
RECD NOV 14, 2014

Permit No. 313-T1
Temporary Filing No. 1 4/217

MJF DEC 3'81

DEQ 11-069

flows through a portion of the permit area, but these sightings generally occur during late fall and early winter. Mining is not expected to have adverse impacts on eagle use of the Tongue. Five (5) pairs of golden eagles nest on lands within and adjacent to the permit area. None of these nests will be destroyed during mining and the applicant has committed to monitor possible effects of mine related activities on the nests. As a stipulation, the applicant must report to appropriate state and federal authorities any threatened or endangered species that takes up residence within the permit area or adjacent lands. Upon acceptance of this stipulation, the applicant will be in compliance with Chapter II. Sec. 3.b(4)(b) regarding protection of threatened and endangered species, species of importance, and critical habitat.

No endangered or threatened plant species have been found to exist on the proposed mine site. The activities of the mine will not affect any critical habitat.

No. 10. The existing structures will achieve the performance ensured by applicable design standards and should cause no significant harm to the environment or public health or safety.

No. 11. The operation does qualify as a special category of surface coal mining, (requiring the following findings):

a. ALLUVIAL VALLEY FLOORS

The extent of Alluvial Valley Floors at the Big Horn Mine have been determined to include all those lands within the boundaries of the zero (0) alluvial isopach delineation found on Exhibit DK-7 (Drill Hole Location and Alluvial Isopach Map). Consistent with the definition of Alluvial Valley Floors (W.S. 35-11-103(e)), these lands consist of unconsolidated stream-laid deposits where flood irrigation or subirrigation agricultural activities have, or could have, occurred. Previous mining activity, most of which occurred prior to May 3, 1978, has disturbed much of this area. In accordance with W.S. 35-11-406(n)(v), Big Horn Coal Company has the right to mine said alluvial valley floors. To the extent possible, the operator is required to restore and preserve the essential hydrologic functions of alluvial valley floors in accordance with W.S. 35-11-415(b)(x).

AUG 1999 LAND QUALITY DIV. DIST. III

The amount of Alluvial Valley Floors remaining undisturbed by surface operations is delineated as Potential Subirrigated Areas, Exhibit DK-10. Big Horn Coal Company does not intend to mine any areas delineated as such (DK-84).

Based on available information, the following have been

TFN 6 2/025
RECD NOV 14, 2014
213-T1
Temporary Filing No. 1 11217

DEQ 11-070

determined to be the essential hydrologic functions of Alluvial Valley Floors at the Big Horn Mine:

1. Availability of surface waters of suitable quality and quantity for flood irrigation.

2. Adequate soil, slope, and land-form conditions to permit flood irrigation activities.

3. Ability to transmit groundwaters of suitable quality and quantity, to support subirrigation of certain areas.

Since almost all disturbance, and subsequent reclamation, to Alluvial Valley Floors at the Big Horn Mine occurred before the State Program Submittal, the State is limited by what can be required with respect to restoring and preserving the essential hydrologic functions. However, it appears that the essential hydrologic functions, particularly the ability for flood irrigation, including adequate soil and slope conditions, may have been, or will be adequately reestablished. This should be accomplished by the replacement of topsoil and subsoil material and restoration of acceptable post-mining slope conditions for flood irrigation (Exhibits RP-4 and RP-9). Also in the Pit 3 area, approximately 200,000 cubic yards of alluvial gravels have been stockpiled to aid in the reconstruction of an alluvial aquifer resulting from an old meander loop of the Tongue River. It does not appear that subirrigation was a function of these gravels (Appendix DF). They appear to act as a storage medium during peak flow events, releasing water to the Tongue River during low flow periods. The replacement of adequate soils and slope conditions (Exhibit RP-4), in this area, should reestablish the primary land use of dry land pasture.

b. The Big Horn Coal Company Mine contains no prime farmland as indicated by the Soil Conservation Service letters (Appendix D-7).

No. 12. Two objections to issuance of the mine permit application were received. The owners of property adjacent to the mining operation expressed concern about dust, noise and blasting problems and the devaluation of their property due to the adjacent coal mine (see letter dated August 17, 1981). Sheridan-Wyoming Coal Company expressed concern about maximizing coal recovery and the ability of the permittee to reclaim the property during the term of their lease (see letter dated August 12, 1981). The owners of property adjacent to the permit area withdrew their objection on August 24, 1981 prior to any informal conference or hearing. With respect to the second objection, the Administrator determined the objection to be a property matter outside the scope of

AUG 1999
LAND QUALITY DIV.
DIST. III

TFN 6 2/025
RECD NOV 14, 2014
213-T1
Temporary Filing No. 11217

DEC 3 '81
DEC 3 '81

W.S. 35-11-406(n). This objection was dismissed on this basis (see letter from W.C. Ackerman dated August 27, 1981).

A third party commented on the application, questing why certain leased lands had not been included in the five year area. This comment was also disolved as a property matter (see letter from W.C. Ackerman dated August 27, 1981). No informal conferences or formal hearings were held and no changes were made in the application as a result of these objections and comments.

Dated this 21st day of August, 1981.

W. C. Ackerman

Walter C. Ackerman, Administrator

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TFN 6 2/025
RECD NOV 14, 2014
213-T1
Temporary Filing No. 11217

DEQ 11-072

STATE DECISION DOCUMENT
SHERIDAN ENTERPRISES
PERMIT NO. 497-T1

In compliance with Article 4 of the Wyoming Environmental Quality Act, Sheridan Enterprises, Inc. has applied for a permit to mine coal at the Welch No. 1 North Mine in Sheridan County, Wyoming.

On the basis of information set forth in the application or from that otherwise available and known to the applicant, I find that the applicant has affirmatively demonstrated that:

No. 1. The application is accurate and complete (W.S. 35-11-406(n)(i)).

The applicant has provided a sworn statement certifying that all of the information contained in the permit application is true and correct to the best of his knowledge. In addition, and to the extent necessary and appropriate, independent agency verification supports the accuracy of the application. All of the information required by the Environmental Quality Act and its implementing regulations is contained in the application. This includes identification of interests, compliance information, resource information, land use information, pertinent maps and plans, the permit fee, other agency applications or approvals, an operations plan, a reclamation plan, license information, insurance information, proof of publication, and proof of public notice.

No. 2. The reclamation plan can accomplish reclamation as required by the Act (W.S. 35-11-406(n)(ii)) and Wyoming Department of Environmental Quality, Land Quality Division Rules and Regulations, Chapter IV, Section 2:

(a) The mined land will be restored to a condition equal to or greater than its highest previous use.

The applicant's reclamation plan and associated seed mixtures have been designed to ensure the establishment of diverse and self-regenerating plant communities which will provide forage and browse for livestock and wildlife. Implementation of this reclamation plan will facilitate the return of the approved post-mining land uses of livestock grazing and wildlife habitat which are identical to those occurring on the pre-mining surface. The applicant has not proposed any alternate land uses or permanent water impoundments for the post-mining surface.

(b) The approximate original contours of the land will be reestablished in a manner consistent with the proposed future use of the land (also Chapter IV, Section 3(a)).

TFN 6 2/025
RECD NOV 14, 2014

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The Welch I-North Mine will be a truck/shovel surface mining operation that will recover three seams of coal. Over the life of mine approximately 10 million tons of coal will be mined, and approximately 38.6 million cubic yards of overburden and interburden will be moved. Using a swell factor of 15% gives a final to initial thickness ratio of 91%, which places this operation under the thin overburden regulations of Chapter IV. All material must be returned to within the pit limits.

Because of the room needed to mine the three seams, it will be necessary to construct an 8.3 million cubic yard temporary overburden stockpile. This temporary stockpile will be backfilled within the pit limits later in the mines life as described in the mine plan.

The post-mining topography is presented as Figure 4.3-1 of the permit application. As this mine is not an extremely thin overburden operation, the post-mining slopes and landform configurations are similar to the pre-mining conditions identified in Figure 2.5-2. Figures 4.2-1A and 4.2-1B of the permit application show the percentages of pre-mining and post-mining slope intervals that are within various slope categories.

A weighted average method of analysis shows the pre-mining slope = 9.135% and the post-mining slope = 8.48%.

Detailed backfilling and grading plans are discussed in Section 4 of the permit application.

(c) The reclamation plan provides for the removal, segregation, preservation, and replacement of topsoil or an approved substitute, and for the appropriate management of any toxic, acid-forming, or hazardous materials uncovered or created by the mining operation (also Chapter IV, Section 3(b) and (c)).

The applicant has committed to salvage all suitable topsoil including all suitable B and C horizon material (Mine Plan, Section 3.3.1). During soil removal, pedestals will be left at approximately 300 foot spacings to help verify complete salvage. The topsoil replacement depth will average 17 inches over the entire disturbed area (Reclamation Plan, Section 4.2.2). Special soil reconstruction techniques will be employed on about 42 acres for restoration of the Pine/Juniper Woodland communities. Figure 4.3-1 shows the location of the woodland areas. Reclamation Plan, Section 4.2 describes the specialized soil reconstruction plan.

Prior to topsoil and subsoil replacement the spoil surface will be regraded and sampled to a depth of eight feet on two foot intervals. Sample holes will be spaced at one per two acres. The samples will be analyzed for pH, EC, SAR, ABP, TOC, saturation percent, and texture. (Reclamation Plan, Section 4.2).

TFN 6 2/025
RECD NOV 14,2014

Overburden at the Sheridan Enterprises mine site is generally suitable. However, unsuitable lithologies do occur (Mine Plan, Section 3.3.2.4). The parameters of primary concern are acid pH, nitrates, TOC, EC, and SAR. All unsuitable overburden will be placed 8 feet below the reclaimed surface to insure successful revegetation. Special handling practices to protect water quality include mixing, backfill placement above the water table and below the surface 8 feet, and alternate dumping with suitable material (Mine Plan, Section 3.3.2.4). See Finding 2(i) regarding the adequacy of these practices to protect water quality.

Since the proposed burial depth of unsuitable materials is 8 feet, no special burial commitments regarding ephemeral streams are necessary.

(d) Revegetation of all affected lands will be accomplished in a manner consistent with the reclamation plan and the proposed future use of the land (also Chapter IV, Section 3(d)).

The 753 acre permit area is composed of four vegetation types; mixed grassland, big sagebrush shrubland, skunkbush shrubland and pine/juniper woodland. There is no cropland within the permit area. Approximately 329 acres or 44 percent of the permit area will be affected by mining and mining related activities.

The applicant has stated in the Mine Plan that backfilling and contouring of the pit will commence within 180 days of coal removal. In Pit A, rough backfilling will not commence until the Monarch coal seam is removed from each removal block. Once the Monarch seam is removed, backfilling will occur within 180 days of final removal.

The applicant's reclamation plan calls for the reestablishment of the mixed grassland, big sagebrush shrubland and pine/juniper woodland communities. The skunkbush shrubland will not be replaced because the steep south-facing slopes supporting this vegetation type cannot be effectively reconstructed after mining. Instead, species found in this community are included in the three seed mixtures to be applied to the affected area. Each of these three seed mixtures are composed of a diverse variety of native grasses, forbs and shrubs adapted to this area and capable of supporting the post-mining land uses of livestock grazing and wildlife habitat.

The applicant commits to the reestablishment of shrubs and trees as required by Chapter IV, Section 3.(d)(vi)(A) of the Rules and Regulations. The pine/juniper woodland community is the critical area for tree reestablishment. Therefore, the applicant has stated that special measures will be used to prepare the spoil/topsoil substrate to enhance tree establishment. This includes regrading the spoil so that it

TFN 6 2/025
RECD NOV 14, 2014

will be compacted as much as possible to form an impermeable layer designed to perch water for tree roots. The next step requires the application of 17 inches of topsoil with 40 to 50 percent sand and no more than 15 percent clay over the compacted spoil. The final step entails the placement of flat rock, 6 to 24 inches in diameter, on the soil surface to cover an average of 20 to 50 percent of the surface.

Reference areas representing each of the four vegetation communities have been established and sampled on this permit area. Appropriate reference areas will be used for direct comparison with the reclaimed vegetation communities at the time of bond release evaluation. The reference area methodology was chosen because of the generally overgrazed condition of the permit area which precluded the use of the baseline data for comparison with the reclaimed vegetation (which is required with the use of a control area). The reference areas were located within a portion of the permit area which will not be affected by mining and which appeared to be less overgrazed than the remainder of the permit area. As a result of these differences in range condition, the applicant was not required to statistically prove comparability between the reference area and its associated community.

The applicant has proposed using fourwing saltbush (Atriplex canescens) as an alternative species in the big sagebrush shrubland mixture. The seeding rate for this species is 3 lbs. pls/acre. The Wyoming Game and Fish Department has requested that all seeding of this species be kept to a maximum rate of .5 lb. pls/acre. This reduced seeding rate is preferred because it reduces the likelihood that fourwing saltbush will dominate the shrub component of the revegetated communities. The seeding rate of fourwing is only .5 lb. pls/acre in all of the other mixtures proposed for the mine site. However, the existence of the aforementioned elevated rate makes it necessary that the following general condition be attached to the permit:

> **The use of fourwing saltbush (Atriplex canescens) in the Big Sagebrush Shrubland Supplemental Mixture shall be reduced to .5 lb. pls/acre. This same seeding rate for this species shall be maintained in all seed mixtures applied to the reclaimed surface. The table listing supplemental species for seeding on the Big Sagebrush Shrubland type shall be corrected to .5 lb./acre for fourwing saltbush within 60 days of permit approval.**

The applicant states in the Reclamation Plan that the reclaimed area and the appropriate reference area will be sampled two consecutive years prior to bond release using the same sampling methods as described in the vegetation baseline study. Data on vegetation cover, total ground cover, shrub density and total herbaceous/subshrub production will be compared using standard statistical procedures with a confidence level of 80%. Species

TFN 6 2/025
RECD NOV 14,2014

diversity of the pre-mining and post-mining areas will be compared using the Motyka Index of Similarity.

(e) Unchannelized surface water and ephemeral streams will be diverted around the operation or passed through sedimentation ponds to protect the operation and downstream water rights, and to control unnecessary erosion and water pollution (also Chapter IV, Section 3(e), (f), and (g)).

All ephemeral streams and unchannelized surface water will be diverted around the operation. The diversion and retention system is described in Section 3.2.6 of the Mine Plan and shown on Figure 3.2-5. Undisturbed area runoff from the two primary watersheds (Bosworth Draw and Smokey Draw) will be diverted around the west side of the proposed Pit A. The diversion has been designed to convey the 100-year, 24-hour storm event. Surface water runoff on the eastern side of the mine will be less than on the western side and will be handled by drainage ditches around the stockpile area, drainage ditches along access roads and haul roads and collection benches on the high wall of the mine. A total of six sedimentation ponds will be used to retain runoff from disturbed areas. These ponds have been designed to retain the volume of water and sediment contributed from a 10-year, 24-hour flood event with a 24-hour detention time (or until effluent standards are met). The sediment control system will be adequately placed to control sediment from all disturbed areas during this term of permit.

(f) Although the applicant proposes to mine near or through a perennial or intermittent stream, the original stream channel will be reclaimed. During and after the operation, the water quantity and quality of the stream, and its value as wildlife habitat, will be preserved (also Chapter IV, Section 3(p)(ii)).

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The applicant proposes to mine near but not through the Tongue River or its associated alluvium. The Tongue River is considered an AVF significant to farming. Because there may be impacts to the ground water quality of the Tongue River alluvium due to Pit A ground water discharge the following condition will be attached:

No mining shall take place in the Pit A area until the operator confirms by means of additional pump tests, that the water quality of the Tongue River alluvium will not be degraded.

(g) All permanent water impoundments will be constructed so as to prevent structural failures, safety hazards, and water contamination, and to accommodate revegetation. They will also meet the design criteria and performance standards outlined in Chapter IV, Section 3(h).

The applicant has not proposed leaving any permanent impoundments.

TFN 6 2/025
RECD NOV 14, 2014

(i) The reclamation plan will ensure protection of the quantity, quality, and legal rights to surface water and ground water within and adjacent to the permit area (also Chapter IV, Section 3(i)). Surface water and ground water quality and quantity will be monitored during the course of mining and reclamation operations to determine the extent of the disturbance to the hydrologic balance. The monitoring system is based on the results of the probable hydrologic consequences assessment and monitoring will be adequate to plan for modification of mining activities, if necessary, to minimize adverse effects on the water of the state. Plans for the proper installation, operation, maintenance and removal of all necessary monitoring equipment have been included in the permit application (Chapter II, Section 3(b)(ix)).

The applicant's plans to restore surface water quality and quantity are discussed under 2.(a), (b) and (f) of this SDD.

The applicant has committed to restoring the Smokey Draw and Bosworth Draw drainages and providing adequate topographic diversity to accommodate lower order drainages in other disturbed areas. The designs for the reclaimed drainages will require riprap in selected areas, such as meander bends, for erosion control. The proposed riprap sizing is shown in Table 3.3.10E. The sizing calculations will need to be updated to reflect the final channel designs. Therefore, a permit condition will be added which states:

> **Upon renewal of this permit the sizing of the riprap for the reconstructed reaches of Bosworth Draw shall be redesigned to insure a stable reclaimed channel.**

(j) All constructed or upgraded roads and railroad spurs are included within the permit area from that point where they provide exclusive service and are covered by the reclamation bond (also Chapter IV, Section 3(j)).

MAR 1 '89 RECEIVED LAND QUALITY DIV. DIST. III

As shown on Figures 3.2-1A and 1B of the permit application, primary access to the mine shall be from Wyoming Highway Route 338. The access road to the facilities area has already been constructed to STA 25+90.

On site haul roads will be from 70 to 100 feet wide for two way traffic and from 40 to 70 feet wide for one way traffic. Maximum grades will be 8%. Road design criteria is given in Section 3.2.2.

(k) All buildings and structures constructed, used, or improved by the operator will be removed and dismantled. All support facilities are designed to achieve the performance required by the applicable standards and should cause no significant harm to the environment or public health and safety (also Chapter IV, Section 3(k)).

TFN 6 2/025
RECD NOV 14, 2014

The majority of the facilities have not yet been constructed. The operator's plans are given in Section 3.2.1 of the permit application.

(l) A detailed time schedule for the mining and reclamation progression has been included in the reclamation plan (also Chapter IV, Section 3(a)).

Rough backfilling cannot occur until the Monarch (lowest) seam has been mined. Once the Monarch seam has been removed, rough backfilling and contouring will commence within 180 days of coal removal, and will be accomplished by placement of lifts and compacted by routing equipment.

(o) All exposed surface areas within the permit area will be protected and stabilized to effectively control erosion and air pollution attendant to erosion (also Chapter IV, Section 3(o)).

Air Quality Permit No. CT-214 was issued to Sheridan Enterprises, Inc. on April 19, 1979, a copy of which is included as Appendix IX-F in Volume IX. The permit requires SEI to control fugitive dust emission from roads by treating pit haul roads with asphalt, oil or other suitable chemical dust suppressants. All treated road surfaces are to be maintained on a continuous basis. Fugitive dust emissions from the portable coal crushing facility plant will be controlled by dust suppression sprays located at the dump hopper and primary crusher discharge.

(p) The mining and reclamation plan has been designed to minimize disturbance and adverse impacts on fish, wildlife, and related environmental values, and to achieve enhancement of these resources where practicable (Chapter IV, Section 3(p)).

Baseline Studies

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Baseline studies (Section 2.9, Permit Application) were conducted according to specifications in DEQ Guideline 5 and after consultation with the Wyoming Game and Fish Department. The application complies with applicable standards.

Important Habitats

Important habitats include the Tongue River and adjoining riparian vegetation, 3 acres of surface water, an estimated 10 acres of rock outcrops (Fig. 2.9-1, Appendix D-9), 127 acres of pine/juniper woodland, 257 acres of shrubland (big sagebrush and skunkbush sumac), and a 10 acre prairie dog colony. Mine disturbance will not encroach the Tongue River or adjoining riparian habitat. A 100 ft. buffer zone will be protected along the river (Fig. 3.1-1, Mine Plan). None of the surface water sources will be impacted (Table 2, Section 2.8). The remaining habitats discussed above will be disturbed by mining.

TFN 6 2/025
RECD NOV 14, 2014

Fifty-two acres of pine/juniper woodland will be eliminated. Based upon the applicant's tree density information, 8268 ponderosa pines and 2860 Rocky Mountain junipers (214 trees per acre) will be removed. Approximately 2 to 3 acres of rock outcrops and the 10 acre prairie dog colony in NW¼ Section 2 will be eliminated. Affected surfaces also include 58 acres of shrubland vegetation types.

Stream Diversions

A 100 ft. buffer zone has been established along the Tongue River (Fig. 3.1-1, Mine Plan). The only diversions proposed will intersect ephemeral tributaries of the Tongue River.

Mine Fencing

All perimeter and livestock control fences will be constructed according to Guideline 10, Type III design specifications to allow big game passage (pp. VII-19 and VII-64, Mine Plan).

Powerline Designs

Powerline designs are discussed on p. VII-64 of the Mine Plan. All powerlines will be constructed according to specifications in:

Olendorff, R.R., A.D. Miller, and R.N. Lehman. 1981. Suggested Practices for Raptor Protection on Powerlines -- The State of the Art in 1981. Raptor Res. Rep. No. 4, Raptor Research Foundation, Inc. Univ. Minn., St. Paul. 111 pp.

Mine Traffic

None of the mine roads will be located in crucial or unique habitat. To reduce the potential for wildlife/vehicular collisions, a speed limit of 15 mph will be posted on mine access and work area roads (p. VII-64, Mine Plan). Speed limits up to 45 mph are acceptable.

Mine Facilities

The bulk of mine facilities will be situated in upland habitats in NW¼SE¼ Section 2, primarily in mixed grassland, skunkbush sumac, and big sagebrush vegetation types (Fig. 3.1-1, Mine Plan). The area is sufficiently distant from the Tongue River to reduce the potential of accidental chemical or oil contamination. No crucial or unique habitats will be impacted.

Railroads and Conveyors

There will be no railroads or overland conveyors associated with this mine (p. VII-1, Mine Plan).

TFN 6 2/025
RECD NOV 14, 2014

Nesting Raptors and Migratory Bird Species of High Federal Interest

All activities impacting migratory bird species are subject to federal jurisdiction. The USFWS requires a mitigation program for raptors and selected non-raptor species of high federal interest.

One great horned owl nest and one red-tailed hawk nest were identified on the permit area during baseline studies in 1980 (Fig. 2.9-3, Appendix D-9). Both are located in SW¼ Section 1. A golden eagle nest occurs immediately north of the permit boundary in NE¼ Section 3. Additional nests within 2 miles include 13 kestrel nests, 2 Cooper's hawk nests, 8 red-tailed hawk nests, 3 great horned owl nests, and 5 golden eagle nests. The applicant has committed to monitor all raptor nests on the permit area and a 1 mile perimeter annually (p. VI-66, Mine Plan); however, no commitment is provided indicating a special purpose permit will be acquired before disturbing any raptor nest nor has a 5-year raptor management plan been approved by the USFWS. Consequently, the following stipulations are attached:

> **The applicant must obtain a special purpose permit from the U.S. Fish and Wildlife Service prior to disturbing the nest of any raptor species. Permit acquisition should be coordinated through the USFWS Ecological Services Office in Cheyenne.**
>
> **The applicant shall contact the U.S. Fish and Wildlife Service to develop a 5-year raptor management plan for this mine. The plan and USFWS letter of concurrence must be submitted within 6 months after permit approval.**

Migratory Bird Species of High Federal Interest observed on and adjacent to the permit area included the bald eagle, double-crested cormorant, Cooper's hawk, golden eagle, and Lewis' woodpecker. Cooper's hawk and golden eagle nests are situated immediately north of the permit area. A cormorant rookery is located 15 miles northwest near Tongue River Reservoir. Two positive identifications of Lewis' woodpecker nests were made in July, 1987. One is on the permit area in SW¼ Section 2. The second is 1/4 mile west of the permit boundary in SW¼ Section 3. A third "probable" nest location is 1/4 mile west of the permit boundary in NE¼ Section 4.

The applicant will submit a detailed mitigation plan for the Lewis' woodpecker nest in SW¼ Section 2 prior to the permit term in which it will be impacted (p. VII-65, Mine Plan). Until that time, feeding, nesting, and behavioral patterns will be studied. The applicant has not documented USFWS approval of this proposal. The following stipulation is attached requiring acquisition of a letter from the USFWS approving the mitigation proposal.

TFN 6 2/025
RECD NOV 14,2014

The applicant shall secure a letter from the U.S. Fish and Wildlife Service approving the Lewis' woodpecker monitoring plan described on page VII-65 of the Mine Plan satisfies Federal requirements. The letter and any necessary plan modifications shall be submitted to the regulatory authority within 6 months of permit approval.

The applicant has indicated no mining activities will take place within a 1/4 to 1/2 mile buffer zone surrounding the golden eagle nest in NE¼ Section 3 until USFWS personnel visit the site and a definitive mitigation plan is developed (p. VII-65, Mine Plan). A stipulation is attached requiring the applicant to secure a letter from the USFWS documenting acceptability of this proposal.

The applicant shall contact the U.S. Fish and Wildlife Service to develop a monitoring and mitigation plan for the golden eagle nest in NE¼ Section 3. The plan, along with a USFWS letter of concurrence, must be submitted within 6 months of permit approval.

Wildlife Monitoring

The applicant's wildlife monitoring program appears on page VII-66 of the mine plan. A winter big game survey will be conducted annually during the January/February period. Annual lek attendance surveys and searches for new or previously undiscovered leks will be conducted in April. Raptor nest status surveys and searches for new or previously undiscovered nests will be conducted in March and April. Production at active nests will be determined in June. Big game, upland gamebird, and raptor surveys will encompass the permit area and 1 mile perimeter. Surveys for Lewis' woodpecker nests will be conducted annually on the permit area and 1/2 mile perimeter. The nest in SW¼ Section 2 will be studied to determine the species habitat requirements and behavior. Use of the permit area by threatened or endangered species will be monitored incidentally during wildlife surveys and other mine activities.

All winter big game surveys should be conducted under acceptable conditions -- clear, calm, 100 percent snow cover if possible. Each upland gamebird lek should be counted at least 3 times at approximate 1 week intervals during April to determine peak attendance. The U.S. Fish and Wildlife Service must approve the applicant's monitoring and mitigation proposal for Lewis' woodpeckers. Stipulations are attached to correct these deficiencies.

Winter big game surveys shall be conducted under optimum conditions if possible. Surveys should be delayed until a clear, calm day with 100 percent snow cover. If suitable conditions have not occurred by the end of the January/February period, the survey shall be conducted

TFN 6 2/025
RECD NOV 14, 2014

during the last week of February in the best manner possible.

Upland gamebird lek attendance surveys shall include at least 3 counts of each lek at approximate 1 week intervals to determine peak attendance.

Secondary Impacts

Energy development has been a primary stimulus for local and regional population growth in Wyoming. Such influxes are followed by increased poaching activity and both intentional and unintentional wildlife harassment. The cumulative secondary impact is considered significant. A maximum employment of 96 individuals is anticipated by the second year of mining. To ameliorate this impact, a stipulation is attached requiring the applicant to incorporate a wildlife information segment into the employee orientation program.

The applicant shall include a wildlife information segment within the orientation program for new employees. WGFD district personnel will be available to assist. The Information and Education Division will have a multi-image slide presentation available in the near future.

Habitat Reclamation

Surface disturbance will encompass 329 acres over the 11 year mine life. Affected vegetation communities include 201 acres of mixed grassland, 22 acres of big sagebrush shrubland, 36 acres of skunkbush sumac shrubland, 52 acres of pine/juniper woodland, 8 previously disturbed acres, and a 10 acre prairie dog colony. Average shrub densities include $0.04/m^2$ in the mixed grass community, $1.08/m^2$ in the big sagebrush shrubland, $0.25/m^2$ in skunkbush sumac shrubland, and $0.25/m^2$ in the pine/juniper woodland. These densities are substantially lower than reported for similar communities on mines elsewhere in the state.

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The applicant proposes to restore 3 vegetation types including mixed grassland, big sagebrush shrubland, and pine/juniper woodland (p. 4, Reclamation Plan). No specific acreages have been provided. Species and seed rates are listed in Tables 4.3-1 through 4.3-3 of the Reclamation Plan. In addition, the applicant will establish "high density" shrub patches on 10 percent of reclaimed surfaces (pp. 7 and 9a, Reclamation Plan). A density of 1 shrub per square meter is stated as a reclamation goal. The shrub seed mix is listed in Table 4.3-6. Species, seed rates, and methods are acceptable. However, a stipulation is attached requiring delineation of the proposed shrub mosaic pattern on Figure 4.3-1, Reclamation Plan.

TFN 6 2/025
RECD NOV 14, 2014

The applicant shall submit a shrub mosaic pattern on Figure 4.3-1 within 6 months after permit approval. The illustration will be used for reclamation planning and bond release evaluation.

To mitigate loss of rock outcrops and dissected terrain, the applicant will distribute 6 rock piles (1 per 55 acres) on reclaimed surfaces (p. 7, Reclamation Plan). Reclaimed surfaces will also be recontoured with sufficient topographic variability to promote habitat diversification (p. 1, Reclamation Plan).

The applicant proposes a stocking rate of 213 trees per acre within the pine/juniper communities depicted on Figure 4.3-1 of the Reclamation Plan. No acreage is provided. A stipulation is attached requiring the applicant to restore an area commensurate with the pre-mine figure, 52 acres.

The applicant shall restore at least 52 acres of the pine/juniper vegetation type, commensurate with the disturbed acreage.

Collectively, 58 acres of big sagebrush and skunkbush sumac shrubland will be eliminated by mining. The applicant proposes to reclaim a single type, big sagebrush. No acreage is provided. A stipulation is attached requiring the applicant to restore an area commensurate with the pre-mine figure.

The applicant shall restore at least 58 acres of the sagebrush shrubland, commensurate with disturbed acreages of big sagebrush and skunkbush sumac shrublands.

No. 3. The proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area (W.S. 35-11-406(n)(iii)).

Because there are no other mines near the applicant's property there is no cumulative hydrologic impact assessment requirement. The applicant will perform an additional pump test (as discussed in Section 2(f) of this document) to determine the extent of communication between the reclaimed pit and the Tongue River alluvium.

No. 4. The area proposed to be mined is not included within an area designated unsuitable for surface coal mining pursuant to W.S. 35-11-425, within an area where mining is prohibited pursuant to section 522(e) of P.L. 95-87, or within an area under review for this designation in an administrative proceeding (W.S. 35-11-406(n)(iv)).

No. 5. The proposed operation contains an alluvial valley floor within the permit area which is significant to farming. However, it will not interrupt, discontinue, or preclude farming on said alluvial valley floor that is irrigated or naturally subirrigated. The proposed

TFN 6 2/025
RECD NOV 14,2014

operation will not materially damage the quantity or quality of water in surface or underground water systems that supply the alluvial valley floor (W.S. 35-11-406(n)(v)).

DEQ/LQD identified the portion of the Tongue River flowing through the permit area as an alluvial valley floor (AVF) significant to farming. This declaration is made in a letter dated June 17, 1988 from the Administrator to the applicant. A map delineating the extent of the AVF is attached to this letter and is located within Appendix D-11 of the permit application. This area is characterized by riparian areas, developed rangeland fed by subirrigation, subirrigated cropland and flood irrigated cropland. Animal units supported by these areas constituted 40% of the total production of the Welch Ranch. Therefore, this area cannot be mined.

No. 6. The area to be surface mined does not contain prime farmland (W.S. 35-11-406(n)(vi).

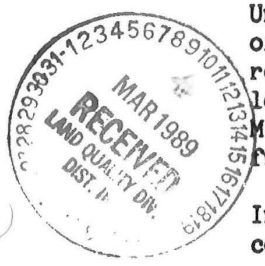
The Soil Conservation Service negative prime farmland determination can be found in a letter located in Appendix 2.1-A of Volume II.

No. 7. The schedule required by W.S. 35-11-406(a)(xiv) and the compliance review conducted by WDEQ/LQD indicates that all surface coal mining operations owned or controlled by the applicant are currently in compliance with this act and all applicable State and Federal laws, or that any violation has been or is in the process of being corrected to the satisfaction of the authority, department or agency which has jurisdiction over the violation (W.S. 35-11-406(n)(vii)).

No. 8. Neither the applicant nor operator controls or has controlled mining operations with a demonstrated pattern of willful violations of such nature and duration with such resulting irreparable harm to the environment as to indicate reckless, knowing or intentional conduct (W.S. 35-11-406(o)).

No. 9. The applicant does not qualify for an experimental practice variance (WDEQ/LQD Rules and Regulations Chapter IX).

No. 10. All appropriate Federal, State, and local government agencies with an interest in historic preservation have approved the proposed operation because it will not adversely effect any sites included in, or eligible for inclusion in, the National Register of Historic Places (WDEQ/LQD Rules and Regulations Chapter XIII, Section 1(a)(v)(C)).



Under contract with the applicant, Thomas Lincoln of the University of Montana's Anthropology Department conducted a Class III cultural resources inventory of the proposed permit area in 1977. The survey located 17 prehistoric archaeological sites within the Welch No. 1 Mine permit area boundaries, three of which were recommended for further investigation (48SH96, 97, and 109).

In the Spring of 1979 Western Cultural Resources Management (WCRM) completed the recommended investigations. Based on its test

TFN 6 2/025
RECD NOV 14,2014

excavations of sites 48SH96, 97, and 109, WCRM concluded that none of these sites met eligibility criteria for listing in the National Register of Historic Places. The State Historic Preservation Office (SHPO) concurred with this assessment on November 5, 1981 (see correspondence attached).

At the request of the SHPO, the applicant retained Marvin Hoyt to conduct a second survey of the permit area in 1982 to record any historic sites that may have been overlooked by Mr. Lincoln. Hoyt located two homesteads and a dugout with outbuildings that date to the early twentieth century. After reviewing his report the SHPO determined that none of these sites met National Register eligibility criteria either (see correspondence attached).

No. 11. The operator does not plan to relocate any public roads (WDEQ Rules and Regulations Chapter XIII, Section 1(a)(v)(D)).

No. 12. For the term covered by the permit, the proposed operation will not be inconsistent with other surface coal mining and reclamation operations proposed or contemplated in pending or approved mining permits (WDEQ/LQD Rules and Regulations Chapter XIII, Section 1(a)(iv)).

No. 13. The mining and reclamation activities proposed will not affect the continued existence of endangered or threatened species or result in the destruction or adverse modification of their critical habitats (WDEQ/LQD Rules and Regulations Chapter IV, Section 3(p)(iii)).

Chapter II, Section 3.(b)(iv)(B) requires a plan to protect threatened or endangered species listed under the Federal Endangered Species Act as amended. Chapter IV, Section 3.(p)(i)(E) requires the operator to report to the Administrator any threatened or endangered species in adjacent to the permit area, which was not investigated in the permit application.

Three endangered wildlife species, the bald eagle, peregrine falcon, and black-footed ferret, could potentially occur on the permit area. Bald eagles are common winter residents within the surrounding region. Additionally, a bald eagle nest is located on the Tongue River approximately 3 miles northeast of the permit area. The proposed mine site lies outside a reasonable zone of visual or auditory disturbance to the nest. Since mining will not encroach the Tongue River or adjoining riparian habitat, no impact to the pair's foraging range is anticipated. Because wintering eagles exhibit wide ranging, opportunistic foraging behavior, mining is expected to have no significant impact on wintering populations.

No black-footed ferret sign was encountered during baseline surveys of prairie dog colonies on and adjacent to the permit area. The applicant has stated a ferret survey will be conducted in accordance with accepted techniques within 1 year prior to disturbing any prairie dog colonies. Results will be submitted to the USFWS for review and clearance (p. VII-66, Mine Plan).

TFN 6 2/025
RECD NOV 14,2014

No peregrine falcons were observed during baseline studies or subsequent monitoring activities; however, the species has been documented migrating through the region on rare occasions. No habitat suitable for nesting occurs on or adjacent to the permit area. No impacts are anticipated.

In the event any threatened or endangered species begin using the permit area, the applicant will notify the U.S. Fish and Wildlife Service (p. VII-66, Mine Plan). Given the potential for relocation of breeding activities by the eagle pair 3 miles northeast of the permit area, it will be particularly important to note any use of adjoining surfaces. Therefore, a stipulation is attached extending the area of responsibility for endangered species observations 2 miles from the permit boundary.

The applicant shall extend the area of responsibility for monitoring threatened and endangered species to encompass a 2-mile peripheral zone surrounding the permit area. All observations of use by threatened or endangered species must be reported to the USFWS. This extended coverage is necessary because of the bald eagle nest 3 miles northeast of the permit area. If this pair shifts their nest site closer to the permit area, a mitigation plan may be necessary.

The application, in conjunction with proposed stipulations, complies with applicable standards.

No. 14. No mining or reclamation activities will take place within the boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System, or any National Forest (WDEQ/LQD Rules and Regulations Chapter XIII, Section 1(v)(A) and (B)).

No. 15. No mining or reclamation activities will be conducted within three hundred feet of any occupied dwelling, public building, school, church, community, institutional building, or public park, nor within one hundred feet of a cemetery (WDEQ/LQD Rules and Regulations Chapter XIII, Section 1(a)(v)(E), (F), and (G)).

No. 16. Public notice was given in the Sheridan Press from November 28, 1988 to December 19, 1988. No objections to the permit were received (W.S. 35-11-406(j) and (k)).

Sheridan Enterprises, Inc. has demonstrated that the Welch No. 1 North surface coal mine permit application substantially complies with Article 4 of the Wyoming Environmental Quality Act and all other applicable State and Federal Laws and regulations. As authorized by W.S. 35-11-406(n) and in compliance with W.S. 35-11-406(p) I do hereby recommend the issuance of Permit No. 497-T1 to the Sheridan Enterprises, Inc., Welch No. 1 North Mine with the following standard conditions, as required by Wyoming Department of Environmental Quality, Land Quality Division Rules and Regulations Chapter XIII, Section 1(a)(viii):

TFN 6 2/025
RECD NOV 14,2014

(A) All operations shall be conducted in accordance with the approved mining and reclamation plan and any conditions of the permit or license;

(B) The rights of entry shall be provided as described by the Act and any regulations promulgated pursuant thereto;

(C) The operation shall be conducted in a manner which prevents violation of any other applicable State or Federal law, and

(D) All possible steps shall be taken to minimize any adverse impact to the environment or public health and safety resulting from noncompliance with this approved mining and reclamation plan and other terms and conditions of any permit or license, including monitoring to define the nature of the noncompliance and warning of any potentially dangerous condition.

Signed this 7th day of March, 1989.

Roger Shaffer
Administrator, Land Quality Division

TFN 6 2/025
RECD NOV 14, 2014

BIG HORN COAL
RENEWAL AND AMENDMENT DECISION DOCUMENT
TFN 1 5/293

I. Description of Operation

The Big Horn Mine is located in Sheridan County, Wyoming, approximately 8 miles north of Sheridan. Access to the mine is by State Highway 338. The mine is operated by the Big Horn Coal Company, a wholy owned subsidiary of Peter Kiewit Sons, Inc.

Big Horn Coal Company has been operating surface coal mines since 1943 in the Sheridan, Wyoming, coal fields. Operations at the present Big Horn mine site began in 1948 and occupy all or portions of Sections 9, 10, 11, 14, 15, 16, 21, 22, 23 and 27, T57N, R84W. Much of the early mining occurred in the valley bottoms of Goose Creek and the Tongue River. More recent operations have included adjacent upland areas.

Mining at the Big Horn site has been with trucks, scrapers and shovels. Five known coal seams exist within the mine area, in descending order: Dietz 2B (Armstrong), Dietz 3 (Upper Monarch), Monarch (Lower Monarch), Carney and Masters. The Carney and Masters seams cannot be economically mined.

The Big Horn Mine was originally permitted under Wyoming's 1969 Open Pit Cut Reclamation Act. Subsequent revisions to the Wyoming Statutes, including approval of the State Program under the federal Surface Mining Control and Reclamation Act of 1977 has resulted in the Big Horn Coal Company receiving permit no. 213-T1 in August, 1981. Permit no. 213-T1 with revisions included 3417.89 acres and authorized disturbances on 1526.5 acres.

Big Horn Coal Company submitted this State Program Permit Renewal Application on December 23, 1982, for the purposes of adding 366.42 acres of new area to the existing area of permit no. 213-T1 and increasing the total permitted disturbance to 1950.5 acres. The area covered in this amendment includes portions of Sections 13 and 14, T57N, R84W. A 40 acre block of federal coal located in the SW1/4NE1/4 of Section 14 is included in this amendment. The applicant holds Federal Coal Lease W-69981 for this parcel of coal.

II. Environmental Setting

a. Geology and Topography

The Big Horn area is located on the western edge of the Great Plains Physiographic Province and is characterized by interstream uplands dissected by the Tongue River and its perennial and ephemeral tributaries. Resistant sandstone beds of the Fort Union and Wasatch Formation form prominent plateaus and ridges while less competent shale and coal beds are expressed as gently rolling hills. Unconsolidated deposits of the Tongue River and

TFN 6 2/025
RECD JUL 30 2015

DEQ 11-089

Goose Creek have formed broad, essentially flat terraces. Typically, coal beds have burned at the outcrop, leaving ridges and knobs of resistant clinker formed by baking of overlying sediments. Elevations in the vicinity of Big Horn Coal Company range from 3500 feet at the Tongue River near the Montana border to around 4800 feet in the upland areas ten miles northwest of the mine. Slopes range from 0 to 60 percent.

The Tongue River member of the Fort Union Formation is composed of interbedded sandstone, shales, siltstone, and coals, representing a fluvial sequence. Coal recovery will be from the Dietz 2B, Dietz 3, and the Monarch (USGS nomenclature) seams.

b. Soils

The majority of soils within the permit area are arid soils of the Torriorthents and Argids. Aridisols are in general well developed. On subirrigated terraces and other areas where moisture accumulates some Alfisols and Mollisols have formed. The majority of soils are fine and fine-loamy with scattered sandy and gravelly areas. Major limitations to topsoil salvage are high E.C., large percentages of coarse fragments, and depth to bedrock. Most soils in the area rate good to fair as a source of topsoil by SCS and Wyoming LQD guidelines.

c. Land Use and Vegetation

The past and present use of the land since the late 1880's has been primarily a combination of agriculture and mining, with secondary uses as a transportation corridor and wildlife habitat. The Sheridan Area Planning Agency has classified the area as "industrial" because of the existing Big Horn Coal mine.

The major agricultural use of the land has been domestic beef production. Livestock carrying capacity for the area has been rated approximately 80 acres per animal unit year. The lowland areas have been used for hay production and grazing. A historical record of the various fields appears in Table D1-2 in Appendix D-1 of the application. Field numbers in this table correspond to field numbers on the Land Use Map, Exhibit D1-1 of the permit document. A small portion of the upland area, field #13, was used for dryland farming with wheat and barley being the major crops.

Underground coal mining began in the area in the late 1890's and ended in the early 1950's. As underground mining operations terminated, surface mining operations started. A history of mining in the area is provided in Appendix D2 of the permit document.

TFN 6 2/025
RECD JUL 30,2015
2/3-T2

The native vegetation in this area is dominated by grasses belonging to the genus Agropyron and shrubs of the genus Artemisia. Important native grasses include: western wheatgrass (Agropyron smithii), bluebunch wheatgrass (A. spicatum), needle and thread grass (Stipa comata), green needlegrass (S. viridula), and blue grama (Bouteloua gracilis). Important shrub species include: big sagebrush (Artemisia tridentata), fringed sagebrush (A. frigida), silver sagebrush (A. cana), skunkbush sumac (Rhus trilobata), western snowberry (Symphoricarpos occidentalis), Wood's rose (Rosa woodsii), common winterfat (Ceratoides lanata), and snakeweed (Xanthocephalum sarothrae).

d. Climate.

Total annual precipitation for the Sheridan area is approximately 16 inches. Areas north and east of Sheridan in the vicinity of the Big Horn Mine can be expected to receive slightly less. For example: Decker, Montana, located about seven miles northeast of the Big Horn Mine and about 26 miles from the foothills of the Big Horn Mountains, received an average annual precipitation of 12.27 inches during its 24 full years of record (1950-58, 1960-75); whereas during the same 24 years, the Sheridan airport received an average of 15.72 inches.

The Sheridan area precipitation regime, characterized by a late spring, early summer maximum, receives more than half of the annual mean during the period from April through July. Fifty-three and four tenths percent (53.4%) of the total annual mean fell in this period at the Sheridan airport, while 55.9% of the annual mean was delivered from April through July at the Sheridan field station (Exhibits D4-1 and D4-2 of the permit document).

A secondary precipitation maximum occurs in early fall, during the months of September and October, accounting for about 15% of the total annual precipitation (Exhibits D4-1 and D4-2). Nearly 70% of the year's total precipitation falls during the period from April through September, with nearly 77% falling from March through August.

Mean annual snowfall amounts are heavy; 70 inches at the Sheridan airport and 52 inches at the Sheridan field station. However, the winter season has the lowest total precipitation due to the snow's low moisture content.

Examination of the Sheridan airport STability ARay (STAR) program, 1949-1953, indicates a predominance of northwesterly winds, both annually and seasonally.

The Sheridan area has a relatively cool temperature regime. The average annual temperature at the Sheridan airport is 45 degrees

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-72

DEQ 11-091

F, with an average annual maximum and minimum of 58.5 degrees F and 31.5 degrees F, respectively (Table D4-1 in Appendix D-4 of the permit document). July, the warmest summer month, has a monthly mean temperature of 70.4 degrees F. Furthermore, temperatures of 32 degrees F or below have occurred in the spring as late as June 14 and as early in the fall as August 24. The average length of the growing season (that period when temperatures do not fall below 32 degrees F) is 125 days for the Sheridan airport. Average dates of the first fall and final spring freezing temperatures at the Sheridan airport are September 23 and May 15, respectively.

e. Wildlife

Baseline wildlife studies have been conducted on surfaces surrounding the Big Horn Mine site since 1951. The intensity of these studies increased in 1974 with the formation of the Wyoming State Regulatory Program. The study area, located in Sheridan County, northcentral Wyoming encompassed the 213-T1 permit site (4570 acres) plus a buffer zone extending 2 to 6 miles from the permit boundary (Figure D9-1; Permit Application).

The State of Wyoming owns 880 acres of the permit area. Big Horn Coal Company owns an estimated 1780 acres (Exhibit AB-1; Permit Application). The remainder is owned by various other private interests. The applicant has delineated 12 habitat types plus mined or barren areas, revegetated areas, and buildings. Total and affected acreages are listed in Table 4.A.1.

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-T2

DEQ 11-092

Table 4.A.1.

Major Habitat Types - Total and Affected Acreages

Habitat Type	Permit Area	Affected Area
Big Sagebrush-Grassland	885.95	497.85
Ponderosa Pine-Juniper	249.74	133.13
Mixed Shrub-Half Shrub	477.74	141.74
Perennial Grassland	125.98	102.47
Deciduous Streambank	191.99	13.15
Bunchgrass	74.18	4.33
Alfalfa	371.22	55.14
Silver Sagebrush	15.70	9.82
Pasture	65.55	4.35
Silver Sagebrush-Grassland	23.63	17.62
Juniper	38.64	0.00
Annual Forb	156.23	136.81
Mined Areas	630	—
Revegetated Areas	620	—
Buildings	640	—

Habitat components with an important bearing on local carrying capacity include numerous rock outcrops, rough breaks, incised drainages, swales, and diverse slope conditions (Exhibit D9-1; Permit Application). Deciduous forest occurs along the Tongue River and Ponderosa Pine/juniper stands grow on steep slopes within several of the drainages. Dense shrub mosaics occur in favorable sites throughout the permit area. The average shrub cover for vegetation communities throughout the permit area was 10.4 percent and shrub density was 5.7 per square meter.

Surface water within the permit area includes approximately 4.53 miles of the Tongue River and 2.27 miles of Goose Creek. Approximately 1.17 miles of the Tongue occurs within the Amendment 1 boundary and the remainder within the 213-T1 permit area. Typical aquatic habitat is a series of short, fast riffle areas, long runs of moderate depth and velocity, and scattered deep pools. Quiet backwater areas are abundant. Instream cover for fish includes deep pools, cottonwood snags, scattered areas of rubble and boulders, and dense beds of Cladophora spp. which develop each year. Game fish are not overly abundant within the Tongue near Sheridan and this stretch of the river is not considered recreationally important. The most recent disturbance to the river occurred in 1978 when a diversion of approximately 1200 feet was constructed around the Brown-Williams pit in Section 15. The relocated channel has since developed a diverse and stable biological community. Segments of the Tongue River and Goose Creek within the permit area are protected by buffer zones and no

TFN 6 2/025
RECD JUL 30,2015

Permit No. 213-T2

DEQ 11-093

additional disturbance is planned. All other drainages within the permit area are intermittent or ephemeral and not of recreational importance.

f. Surface Water and Groundwater Regime

Surface Water

The Tongue River, a major perennial stream in the area bisects the Big Horn Mine permit area. Streamflow within the Tongue River originates in the Big Horn mountains west of the Big Horn Mine. The Tongue River is tributary to the Yellowstone River, tributary to the Missouri River. The average discharge of the Tongue River at Acme, Wyoming (from 1939-1957) is 403 CFS.

Goose Creek is another perennial stream included in the permit area. The confluence of Goose Creek and the Tongue River is located approximately in the middle of the permit area. The average discharge of Goose Creek just downstream of Sheridan, Wyoming (from 1941-1975) is 184 cfs. The streamflow regimes of both the Tongue River and Goose Creek are typical of perennial streams with mountainous headwater areas. High peak flows result from snowmelt runoff, with the greatest flows occurring in May or June.

The quality of water within both Goose Creek and the Tongue River is very good, although it deteriorates during low flow periods as a result of return irrigation flow and other agricultural practices in the area. The Wyoming DEQ-WQD has classified both streams as Class II - Coldwater Fisheries. It should be noted that construction of the Sheridan sewage treatment plant will be completed by the fall of 1983 which should further improve the quality of water within Goose Creek and the Tongue River, below the confluence of the two.

Approximately 400 feet of Big Goose Creek was diverted and mined through beginning in 1962. Today, the Blackek Pond is part of this channel. In 1973, near the confluence of Goose Creek and the Tongue River, the Tongue River was temporarily diverted to recover coal in the Pit Two area. The river was returned to a reconstructed channel after mining was completed.

The remainder of the permit area is drained by small ephemeral streams which are tributary to the Tongue River. These ephemeral streams are often deeply incised and controlled by bedrock conditions in upper areas. Several no longer convey streamflow because of subsidence resulting from past underground mining.

Groundwater

TFN 6 2/025
RECD JUL 30,2015
Permit No. 2/3-T2

DEQ 11-094

The stratigraphic units within the general Big Horn Mine area that are known to be capable of yielding enough water to be classified as aquifers are the Fort Union coal seams, the Tongue River and Goose Creek alluvium and reclaimed mine spoils. The Fort Union coal seams (Dietz 2 (Armstrong), Dietz 3 (Upper Monarch), Monarch (Lower Monarch), Carney) can usually not be considered aquifers up-dip and to the north of the Tongue River due to the lack of water, extensive burn areas, and past mining activities. Down-dip and to the south of the Tongue River the aquifers are saturated as a result of recharge from the river and constitute viable aquifers which exhibit confined conditions. Groundwater flow within the coal seams is predominately in a southeast direction.

The quality of groundwater within the above aquifers is such that it would not be recommended for domestic consumption. Generally, groundwaters of the aforementioned aquifers are of sufficient quality for livestock uses. Groundwaters within the coal seams contain TDS concentrations of approximately 1000 mg/l. Alluvial groundwater is characterized by being very hard and containing more sulfate than coal seam waters. Spoils water quality is extremely variable and contains highly mineralized water.

g. Cultural Resources

The Northwestern Plains has been isolated by some archeologists as a heuristic device for organizing the prehistoric cultural manifestations of a specific region. This region is defined as: "...the southern one-half of Alberta and Saskatchewan, the eastern two-thirds of Montana, and the northern third of Wyoming (Conner 1968:13)".

The prehistory of the Northwestern Plains is understood within a general chronological frame presented by Mulloy in 1958 and refined by Reeves (1970) through his work in Alberta. In light of this chronological framework, the regional prehistory is divided into a series of broad time periods during which the Native American of the region lived relatively distinctive lifestyles and produced items of material culture which are stylistically distinctive when viewed from the present day (Fig. 2). Archaeological work in the southeastern Montana-northeastern Wyoming border area has yielded results which fit consistently with this general prehistoric outline.

The surveyed area lies within the upper Tongue River drainage. The upper Tongue River drainage may well be viewed as a subregion of the Northwestern Plains, an area bounded by the Bighorn Mountains to the southwest, the Wolf Mountains to the northwest, the Badger Hills to the southeast, and the Tongue River Breaks to the northeast. Archaeological work to date within this subregion

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-T2

DEQ 11-095

indicates that we are dealing with perhaps 9,000 years of hunting and gathering societies following the Paleo-Indian, big game hunting period. It is proposed that members of these hunting and gathering societies, with a band level of socio-political organization, moved throughout this subregion on routes which maximized the exploitation of seasonally available food resources and facilitated certain scheduled activities of social, socio-religious, and technological importance. This hypothetical pattern of a prehistoric lifeway for the upper Tongue River drainage remains sketchy and archaeological fieldwork is just beginning to provide evidence for a few parts of a mosaic which will eventually provide a refined picture of specific group activities throughout a typical calendar year.

There area few reports of archaeological excavations for the upper Tongue River drainage and numerous reports of archaeological surveys. Important excavation reports include those for the Kobold Site (Frison 1970), the Goose Creek Site (Frison 1967), the Foss Thomas Site (Fry 1971), Drifter's Shelter (Fredlund and Fredlund 1974) and Benson's Butte (Fredlund and Fredlund 1974, 1976). Test excavations were conducted at the Big Horn Mine Site, just several hundred yards west of the area surveyed by this project. The excavation results are reported by Metcalf (1974).

Development of coal resources has resulted in numerous archeological surveys being performed for cultural resource inventory purposes. Work by Fredlund (1972) about one mile north of Decker, Montana resulted in the find of an Eden Valley style projectile point made from the local porcellanite. This represents one of the few published reports of Early Prehistoric Period finds in the area.

Loendorf, Barnett, and Larson (1972) reported a survey of selected sites in the Tongue River drainage between Decker and Birney, Montana. Haberman (1973) reported survey work for the Dry, Squirrel, Pond, Pearson, and Spring Creek Drainages. Fredlund and Fredlund (1973) present survey findings along the middle latitudes of Youngs Creek. Additional work in the Youngs Creek drainage and in the Tanner and Squirrel Creek drainages is reported by Fredlund (1975a). Work to the east of the Tongue River Reservoir is also reported (Fredlund 1975b). An overview of archaeological sites in the Tongue River drainage, from the high altitudes of the Bighorn Mountains to the Yellowstone River is presented by Carbone (1972).

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The survey work has revealed a variety of prehistoric site types from this subregion: camp or habitation sites, rockshelters, tipi ring sites, lookouts, hunting camps, eagle catching pits, buffalo jumps and surrounds, numerous rock structures of unknown

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 213-2

DEQ 11-096

function, porcellanite and chert collection-workshop sites, petrographs, and more. Temporarily diagnostic materials from excavations and surface collections indicate occupation of the subregion from the Early Prehistoric through the Late Prehistoric Periods. A pattern of seasonal movement of populations within the upper Tongue River drainage has been suggested by Fredlund and Fredlund (1973: 43-44): summer encampments in the high altitudes of the Big Horn Mountains, and winter-spring encampments in the broken-ridge country at lower elevations. Results from bison kill site excavations demonstrate that multi-family groups were formed in the fall at these lower elevations for communal bison hunting activities (Frison 1972: 18-19; 1970). Archaeologists working in the upper Tongue River drainage area are beginning to look at the variety of site types within such a seasonal round or seasonal transhumance perspective. Other archeologists working in the Northwestern Plains have similarly been working with this concept in explaining settlement patterns in regions of widely varying altitudes (Arthur 1966, 1968; Benedict 1974; Loendorf 1970; O'Brien 1973).

It remains for archeologists working within the upper Tongue River drainages to refine the relative and absolute dating of sites and site components, refine patterns of prehistoric group movement, and integrate the variety of functionally different sites into a coherent pattern of seasonal-round activities.

h. Alluvial Valley Floors

The Tongue River within the amendment area and through the Whitney property to the north of the permit area is an Alluvial Valley Floor. The Tongue is a perennial stream; a major tributary to the Yellowstone River. It is an underfit stream with broad terraces on the valley floor. Large areas of terrace are subirrigated and flood irrigated. The applicant's permit area contains terraces that have been artificially flood irrigated and are quite productive.

III. Description of Renewal Activities:

On August 27, 1981, Big Horn Coal was issued a permit (Permit No. 213-T1) pursuant to the requirements of Wyoming's State Program. Since that time, four permit revisions have been approved and granted for the following changes:

1. An experimental practice variance under the direction of the Abandoned Mine Lands Program.

2. Relocation of the Pit 5 haulroad.

3. Relocation of the Pit 4 haulroad.

FEB 1985
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LAND QUALITY DIV.
DIST. III

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 213-T2

DEQ 11-097

4. Addition of 9.6 acres of disturbance to Pit 4.

This renewal and amendment application includes the following revisions to those activities authorized in Permit 213-T1 and subsequent revisions:

1. Extension of the permit boundary to conduct mining operations in the S1/2 NE1/4 and the SE1/4 of Section 14, and W1/2 SW1/4, SW1/4 and NW1/4 of Section 13. This will add a total of 366.42 acres to the original permit area (see Form 1, Permit to Mine).

2. Expansion of the scoria pit located in the SW1/4 of Section 11 and SE1/4 of Section 10 and the addition of a scoria stockpile in the SE1/4 of Section 10.

3. Additional mining area located in the southern end of the present Pit 3 area in the SW1/4 of Section 14.

4. The addition of a permanent out-of-pit spoil area located in the N1/2 of Section 15 and the S1/2 of Section 10.

5. Numerous sedimentation ponds and ditches are added to provide runoff control on the new areas.

6. The regraded surface for the Pit 3 area has been revised in the W1/2 of Section 14 to accommodate the Amendment One area.

7. A 40-acre block of federal coal is added for the first time. It is located in the SW1/4 NE1/4 of Section 14.

8. A new permanent impoundment located in the SW1/4 of Section 13 and the E1/2 of Section 14 is proposed.

9. Pit 4 will be expanded to include an area in the NW 1/4 of Section 15. This revision was approved in November, 1982, by the DEQ. Also, the method of mining for Pit 4 has changed from a dragline to front-end loader operation.

10. The applicant requests a delay of the reclamation of part of Pit 1 of approximately nine years. TFN 2 3/18

RP 10/12/87

11. PROPOSED PIT 5 REVISION: INCLUDING A PERMANENT OUT-OF-PIT SPOIL AREA & REDESIGNED PIT 5 DI

Exhibit 1 shows the modifications to the existing 213C boundary and Exhibit E6, both exhibits of the permit application, shows the area disturbed at the Big Horn Coal Mine and the years disturbance did or will take place.

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LAND QUALITY DIV.
DIST. #1

In 1981, Metcalf-Zier Archeologists, Inc. surveyed the proposed Amendment One area for Big Horn Coal Company (Fig. 1). Eleven cultural resource sites were recorded, none of them prehistoric sites. Seven of these nine prehistoric sites were recommended for limited

TFN 6 2/025
RECD JUL 30,2015

Permit No. 213-T2

DEQ 11-098

testing in order to provide additional data for evaluating these sites for the National Register. These seven sites are 48SH436, 48SH438, 48SH439, 48SH441, 48SH442, 48SH444 and 48SH445. All of these sites are within Section 14, T57N, R84W, Sheridan County, Wyoming. In addition, approximately twenty acres were surveyed in the NE1/4 of Section 14 in order to locate any additional cultural resource sites (Fig. 1). No additional sites were located.

IV. Description of Impacts and Compliance of Permit Renewal:

a. Topsoil Protection

(1) Evaluation of Compliance

The applicant's topsoil salvage, storage and replacement plan is in compliance with all applicable rules and regulations (See State Decision Document for Permit 213-T1 for detail). There is no significant change in topsoil salvage and replacement over that in permit 213-T1.

(2) Environmental Consequences

The ability of the soil to support plants will not be significantly affected. Mining on the applicant's permit area will have a significant impact on the soils of the Sheridan - Tongue River area. The soils have formed in residuum, colluvium and alluvium from mixed sources. The development of a vertical sequence of soil horizons in response to the 5 soil forming factors of Jenne (1941) in some cases shows long term stability and a high degree of soil development. This development in an undisturbed state is diverse due to differing degrees of influence of the factors.

The postmining soils will be a relatively homogenous mix placed on a monotonous topography. There will be horizon development over the short geologic time scale (1,000's of years). Fertility balances will be disrupted and will take some time to equilibrate. Oxidation due to exposure and drying of soil will cause some loss of organic matter and fertility. These are artificially replaceable losses.

FEB 1985
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LAND QUALITY DIV.
DIST. III

b. Hydrologic Balance - Surface Water

(1) Evaluation of Compliance

Diversions

Areal Coverage of Diversions

Chapter IV, subsection 2.e. and subsection 3.d., among

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 213-T2

DEQ 11-099

other things, require that surface water be diverted around the operation to protect the on-going operation, control water pollution and unnecessary erosion, and to protect the water rights of downstream users. Permanent diversions shall pass the peak runoff from the 100-year flood event, or larger, as specified by the administrator.

The diversion of unchannelized surface water and ephemeral streams is discussed in the Mining Hydrology section of the proposed Mine Plan (page MP-13). The location of diversions are shown on Exhibits MP-2 and MP-3 of the proposed Mine Plan. No diversions are needed in the Amendment 1 area to divert undisturbed area runoff since no major channels will be affected. At least two "interceptor channels" will be constructed in the Amendment 1 area to direct disturbed area runoff to sediment ponds. No permanent diversions are proposed for the Amendment 1 area.

Areal Coverage of Diversions - Intermittent and Perennial Streams

Chapter IV, subsection 2.e. and subsection 3.e.(2), among other things, require the diversion of intermittent and perennial streams to minimize erosion and degradation of water quality. The Wyoming Game and Fish Department shall be consulted prior to the approval of a diversion of a perennial or intermittent stream. Permanent diversions shall contain a channel and floodplain capable of containing the 100-year flood event, or greater, as specified by the administrator. Permanent diversions shall be designed and constructed to be erosionally stable and consistent with the role of the fluvial system. Permanent diversions shall restore aquatic habitats and stream channel characteristics.

No intermittent or perennial streams are proposed for diversion at the Big Horn Mine.

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LAND QUALITY DIV.
DIST. III

Areal Coverage of Sedimentation Control Structures

W.S. 35-11-415(b)(viii) and Chapter IV, subsection 3.g.(1) require that all surface drainage from affected lands, excluding sedimentation ponds, diversion ditches, and road disturbances pass through sedimentation ponds or be sufficiently treated so that drainage from affected lands will not degrade receiving water quality.

TFN 6 2/025
RECD JUL 30,2015
Permit No. 243-T2

DEQ 11-100

The locations of sediment ponds are discussed in the Mining Hydrology section of the proposed Mine Plan (page MP-43) and shown on Exhibits MP-2 and MP-3. Four sediment ponds (Reservoir Nos. 301, 302, 303, and 307) will be used to treat disturbed area runoff from the Amendment 1 area.

The design methods used by the applicant have not changed since original approval. All sedimentation ponds are designed by using the methods and procedures described in the 213-T1 State Decision Document.

All ponds are designed in accordance with all applicable requirements.

Drainage from Acid and Toxic Materials

Chapter IV, subsection 3., among other things, requires that drainage from acid and toxic materials either be treated or prevented. Acid or toxic material must be covered by at least 4 feet of acceptable material and must not be buried or stored in the proximity of drainage channels or flood plains.

The applicant's hydrologic control plan should be adequate to control any drainage from acid and toxic materials during mining. The applicant has committed to placing at least four feet of acceptable material over reclaimed spoil. This subject is further discussed in Section IV.i. (Backfilling and Grading) of this document.

Stream Buffer Zones

Chapter IV, subsection 3.p.(2) specifies that no land within 100 feet of a perennial or intermittent stream shall be affected unless the administrator specifically authorizes such activities upon a finding that the original stream channel will be restored and that the water quality and quantity of that portion of the stream within 100 feet of mining activities will not be adversely affected. The area not to be affected shall be designated as buffer zone and be marked as such in the field and on a mine plan map.

Stream buffer zones are discussed in the Section entitled "Signs, Markers, and Buffer Zones" page 127 of the proposed Mine Plan. Buffer zones have been established along Goose Creek and the Tongue River. The locations of the buffer zones are shown on Exhibit MP-33. In

TFN 6 2/025
RECD JUL 30,2015

Permit No. 213-T2

DEQ 11-101

respect to the Amendment 1 area a buffer zone has been established between the Amendment 1 mine area and the Tongue River.

Postmining Landform Stability and Drainage

Chapter IV, subsection 2.b. and 3.c.(1) and 3.e.(2)(b)(iii) requires the reestablishment of erosionally stable drainage systems and landforms on reclaimed lands. Adequate through drainage and erosionally stable stream channels and floodplains must be provided. In the case of excess spoil, all spoil not required to achieve the approximate original contour, shall be graded to the lowest practical grade while maintaining the hydrologic balance and providing for long-term stability.

The reclaimed topography is shown on Exhibits RP-2 and RP-3 of the proposed Reclamation Plan. The postmining topography and landform stability for areas excepting the Amendment 1 area are discussed in Section No. 2.c. of the original State Decision Document (Big Horn Coal Co., Permit 213-T1). No problems with landform stability are expected in the Amendment 1 area. Most of the drainage in the Amendment 1 area is conveyed by overland flow.

SEE ADDENDUM 1 FOR REVISIONS TO THE P-5 DRAW IN THE PIT 5 AREA. RP 10/12/87

Surface Water Monitoring

Chapter IV, subsection 3.i. requires that surface water from affected lands be monitored for water quality and quantity during the course of coal mining and reclamation operations to determine the extent of disturbance to the hydrologic balance. Water quality monitoring results for discharges other than those authorized by the Wyoming Department of Environmental Quality, Water Quality Division shall be reported quarterly.

The applicant presents an acceptable surface water monitoring program on page MP-120U through MP-120Z of the Mine Plan and pages RP-54 through RP-64 of the Reclamation Plan.

(2) Environmental Consequences

General Surface Water Hydrology

The premining surface water system within areas to be disturbed, at the Big Horn Mine is unique in that channelized flows in defined channels are absent, except for the P-5

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 213-T2

DEQ 11-102

Draw in the Pit 5 area. The surface hydrology of adjacent areas has, in some places, been drastically altered by past underground mining activities. Any impacts to the surface water system have the potential to impact the Tongue River and Big Goose Creek. Previous mining activities have disturbed the hydrologic system of both Big Goose Creek and the Tongue River to unknown degrees, including the disruption and replacement of sections of both stream channels. The present operation has established adequate stream buffer zones to minimize future disturbances to the Tongue River and Big Goose Creek.

Postmining Topography

The postmining topography is depicted on Exhibits RP-2 and RP-3. Exhibits RP-4 and RP-5 show alternate backfilling plans in the event the permanent impoundments fail to demonstrate acceptable water quality and quantity. Through drainage has been achieved in all areas except in the immediate drainage of the permanent impoundments. Through drainage in all areas will be achieved in the event that the alternate plans are implemented.

Proposed slope conditions appear adequate to achieve revegetation and subsequent hydrologic stabilization. Slope comparisons of the postmining and premining topographies are discussed on page RP-9. Tables RP-3 and RP-4 compare slope classes between pre and postmining conditions.

The reclaimed P-5 Draw basin should be about as hydrologically stable as premining conditions after revegetation becomes established. The present P-5 Draw (channel) is apparently being held in a state of equilibrium by bedrock controls. Although these controls are going to be removed by mining, the following considerations govern the stability of the reclaimed P-5 Draw.

1. The drainage area is being reduced by 9.3% which will reduce flows.

2. The width depth ratio has been increased to reduce velocities.

3. Good channel revegetation is expected.

4. Channel slope has been reduced.

5. It appears that adequate bedrock control exists both above and below the area to be reclaimed thereby minimizing potential head-cutting problems.

RP 10/12/87

REFER TO ADDENDUM 1 FOR A REVISED DISCUSSION OF THE RECLAIMED P-5 DRAW AND THE PIT 5 AREA.

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 2/3-T2

DEQ 11-103

It should also be noted that any downstream impacts to the P-5 Draw will be attenuated quickly since the channel downstream of the area to be reclaimed has been drastically disturbed by past underground workings. Most, if not all, runoff passing through areas of the channel that have subsided, enters the underground workings. Therefore, it is doubtful that any adverse surface water impacts generated within the Pit 5 reclamation plan will affect the Tongue River.

Surface water from the P-5 Draw, which enters the groundwater system via the underground workings, should have a negligible effect to the groundwater system since the majority of the suspended sediment will not be transported through the groundwater system.

The establishment of the proposed Trout and Bass reservoirs as part of the final topography is further discussed in Section IV.e. of this document (Permanent Impoundments).

Surface Water Quantity

The quantity of surface water evolving from the reclaimed area may slightly increase initially after reclamation due to lower infiltration rates. Infiltration rates should eventually return to premining conditions as vegetation becomes more established, organic matter builds up, and soil structure returns to premining conditions. This change in the runoff regime will be minimal and beyond detection limits in relation to the discharge of the Tongue River. Pit pumpage during the active mining operation, and subsequent discharge via sediment ponds, will add minimal additional flow to the Tongue River. The discharge of pit pumpage water to the Tongue River is expected to be greatest in winter months when the demand for dust abatement water is at a minimum.

Surface Water Quality

A complete year of surface water quality data is found in Appendix D-5. Although this data does not constitute "premining baseline data", since the mine has been operating for many years, it is useful in understanding the system, observing trends, and in predicting impacts from the mining operation.

The Big Horn Coal Company has committed to burying unsuitable (toxic) materials at least four (4) feet below the regraded surface.

The quality of surface waters originating on reclaimed areas

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 241-T2

DEQ 11-104

should not be much different that premining. There may be a slight increase in suspended solids until vegetation is adequately reestablished and the volume of runoff returns to premining levels. Adequate postmining slope conditions and a history of relatively good revegetation should limit unwarranted sediment production. The presence of stream buffer zones will help attenuate sediment transport to the Tongue River and Big Goose Creek.

During the actual mining operation mine drainage will be controlled through the use of diversions, interceptor ditches, and sedimentation ponds. Diversion ditches direct undisturbed area runoff around the operation, while interceptor ditches direct runoff from disturbed areas to sedimentation ponds for sediment control. The implementation of sedimentation ponds during the actual mining operation will help in ensuring that receiving waters will not be degraded. All water discharged to the Tongue River will be monitored to ensure that receiving waters are not degraded and effluent criteria, as set forth in the NPDES discharge permit WY #0022519 (Appendix MP1), are not exceeded. Sediment ponds will be used to treat runoff until the applicant can demonstrate that runoff from affected lands will not degrade receiving waters.

c. Hydrologic Balance - Groundwater

(1) Evaluation of Compliance

Preservation of Nonaffected Groundwaters

W.S. 35-11-415(b)(viii) requires the operator to prevent, through the mining and reclamation operations and for a period of five years, the pollution of groundwaters.

No material damage to off-site groundwaters is expected as a result of mining the Amendment 1 area and/or the remaining permit area. The proposed monitoring plan should be adequate to determine the impact of the mining operation.

Postmining Groundwater Quality

Chapter IV, subsection 3.a.(2) and 3.c.(3) and d.; subsection 3.f., WQD Regulations Chapter VIII, subsection 3.c. and subsection 4; Chapter IV, subsection 3.i., among other things, require that the mining and reclamation operation minimize adverse effects to groundwaters and protect those uses for which it is suitable. It is recognized that acid-forming or toxic material may have to be isolated from groundwaters to assure nonpollution.

TFN 6 2/025
RECD JUL 30, 2015
2/3-12

DEQ 11-105

The above subject is adequately addressed in Section No. 2.C. of the original State Decision Document (Big Horn Coal Co., Permit 213-T1). The inclusion of the Amendment 1 area does not alter these findings.

Postmining Groundwater Recharge and Availability

Chapter IV, subsection 3.f. requires that the groundwater recharge capacity of the reclaimed lands be restored to a condition which supports the postmining land use, minimizes disturbances to the prevailing hydrologic balance, and provides a rate of recharge that approximates that which was present before mining.

The above subject is adequately addressed in Section No. 2.C. of the original State Decision Document (Big Horn Coal Co., Permit 213-T1). The inclusion of the Amendment 1 area does not alter these findings.

Abandonment of Wells and Exploration Holes

Chapter XV requires the proper plugging; sealing and capping of all wells, exploration holes, and drill holes.

The applicant has committed to capping, sealing and plugging drill holes in accordance with W.S. 35-11-404.

Groundwater Monitoring

Chapter IV, subsection 3.i. requires that groundwater quality and quantity be monitored during the course of surface coal mining and reclamation operations to determine the extent of the disturbance to the hydrologic balance. The monitoring program should be adequate to determine infiltration rates, subsurface flows, and storage characteristics of reclaimed lands and adjacent areas. Additionally, monitoring should determine the effects of reclamation on the recharge capacity of the reclaimed lands.

The applicant's proposed groundwater monitoring which is discussed on page MP120 of the Mine Plan and page RP-41 of the Reclamation Plan is acceptable.

(2) Environmental Consequences

Geology and Aquifers

The Tongue River Member of the Fort Union Formation which comprises the stratigraphic units to be disturbed at the Big Horn Mine area dip to the east-southeast at approximately

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 213-T2

DEQ 11-106

1.5-3.0 degrees. The units which function as aquifers include the coal seams and alluvial deposits of the Tongue River and Big Goose Creek.

The Dietz 2B coal seam is virtually dry in the areas to be mined since the seam outcrops above the North Tongue River, which is the major recharge mechanism to the coal seams in the area. The Monarch and Dietz 3 coal seams, which are presently being mined downdip of the Tongue River, are viable aquifers, and contain an extensive amount of water. The Carney Coal seam which also comprises a viable aquifer, is below mineable limits and should not be affected by the mining operations since it appears to be sufficiently separated by sequences of tight interbedded shales and sandstones.

The alluvial aquifers of the Tongue River and Big Goose Creek, which have been mined through and disturbed in prior operations, will not be directly impacted by the forthcoming mining operations except in the Pit 3 area where approximately 200,000 cubic yards of alluvial gravels have been stockpiled from the Pit 3 area. Before mining, these gravels comprised part of an alluvial aquifer, which resulted from a historic meander loop of the Tongue River. The premining function of the gravel was to act as a storage medium during peak flow events with subsequent release of water during low flow periods.

Recharge and Potentiometric Levels

Recharge to the aquifers of concern should not be overly disturbed after reclamation is completed, since those units downdip from the Tongue River and alluvium should receive more than adequate amounts of water to fully recharge the groundwater system. Considering the relatively high transmissivity of the coal aquifers, potentiometric surfaces that have been drawn down in adjacent areas should quickly recover to near premining conditions after mining ceases. Monitoring wells completed in reclaimed spoils at the Big Horn Mine have shown that the spoils do have the ability to transmit water and recharge the system.

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DIST. III

Recharge to disturbed areas which are stratigraphically above the Tongue River is primarily by surface infiltration through adjacent unsaturated burn areas, as well as direct vertical percolation. These adjacent recharge areas will not be disturbed, thereby preserving the major recharge mechanism.

Van Voast, Hedges and McDermott (1978) found that the most permeable portion of mine spoils is along the old mine

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 243-T2

floors, which leads to characteristics of a confined aquifer. This phenomenon appears to be occurring at the Big Horn Mine. Since the aquifer is being reestablished at approximately the same elevation, the projected potentiometric surface is expected to have the same general gradient and elevation that was present in the Monarch coal seam before mining. The postmining potentiometric surface for the affected aquifers are shown on Exhibits RP-14, RP-15 and RP-16 of the Reclamation Plan.

Groundwater Quality

The quality of groundwater at the Big Horn Mine area varies within and between aquifers. Water quality data is found in Appendix D-6. The best quality waters are found within the coal seams where TDS values are approximately 1000 mg/l. The alluvial aquifers produce waters which vary greatly both temporarily and spatially in direct response to the Tongue River and Big Goose Creek. Alluvial water is usually of poorer quality, with TDS values ranging from several hundred to several thousand mg/l.

The Big Horn Coal Company has a plan to identify unsuitable (toxic) materials, such as those containing high SAR values, high EC values, low pH values, etc. (Appendix D5 (Geology)). The applicant has committed to burying unsuitable materials at least four feet below the regraded surface and will be required to place unsuitable materials above the postreclamation potentiometric surface, to minimize adverse impacts to groundwater quality.

The quality of groundwater within reclaimed spoils also varies both temporarily and spatially (Van Voast, et al., 1978). Work done by Van Voast at the Decker Coal Mine in southeast Montana, approximately 18 miles from the Big Horn Mine, showed that the quality of groundwater in reclaimed spoils approached the quality of that found in the overburden aquifers. This amounted to about a three fold increase in TDS over that found before mining within the coal aquifers.

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LAND QUALITY DIV.
DIST. III

Two wells completed in reclaimed spoils at the Big Horn Mine (Pit 1) have been sampled for water quality and it appears that trends are similar to those discussed above. It should also be noted that a substantial increase in sulfate concentrations was evident. Available literature also suggests that increases in calcium and sodium may also result.

The impact that spoil waters will have on down-gradient waters must be estimated from only a limited knowledge of

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-T2

the system. It is assumed that as the spoil waters move down-gradient, spread out and encompass larger areas, and mix with unperturbated groundwater, elevated concentrations of dissolved solids, etc. will become diluted and decrease. As time elapses and more pore volumes of water pass through the reclaimed spoil aquifer, the leaching of the soluble materials should decline and reach an equilibrium state.

In summary, it is reasonable to assume that groundwaters within reclaimed spoils will contain approximately two to three times the TDS concentration as undisturbed coal aquifers. Variable increases in other constituents, such as sulfate and sodium may also occur. With time, these elevated levels should decline as leaching reaches an equilibrium. The impact of changes to water quality and use are discussed in the section IV.d.(2) - Water Rights.

d. Hydrologic Balance - Water Rights

(1) Evaluation of Compliance

Replacement of Affected Water Rights

W.S. 35-11-415(b)(xii) requires that the applicant replace, in accordance with State law, the water supply of any owner of interest in real property who obtains all or part of his supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source, where the supply has been adversely affected by surface coal mining operations.

The applicant has committed to replacing any affected water rights on page MP-124 of the permit application.

(2) Environmental Consequences

The uses of groundwater at the Big Horn Mine area include livestock watering, domestic uses, and industrial water supply used mostly by the Big Horn mining operation. Mine and private wells are completed in alluvial aquifers along perennial streams and coal aquifers which are regionally significant.

FEB 1988
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LAND QUALITY DIV.
DIST. III

A listing of all valid groundwater appropriations within the Big Horn Coal Company's permit area and a 3 mile radius around it is found in Addendum D6-3 of the permit application and depicted on Exhibit D6-9 of the permit application. Besides hydrologic monitoring wells belonging to either Big Horn Coal or Peter Keiwit Sons' Company, there are approximately 33 water wells permitted for Sheridan Enterprises,

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-109

Inc. for hydrologic monitoring, and approximately 62 other wells permitted for livestock and domestic supplies. Of the above 62 wells, most are livestock wells completed in alluvial aquifers.

Information regarding completion zones is not available so it is difficult to assess which groundwater wells within the area may be potentially impacted. Wells completed in units stratigraphically above or below the coal seams being mined face a remote chance of being affected.

Wells located to the east and south of the permit area have the greatest potential for being affected since the hydraulic gradient is primarily in a southeast direction for the Dietz 3 coal seam (Exhibit D6-5 of the permit application) and in an east and northeast direction for the Monarch Coal seam (Exhibit D6-6 of the permit application). Wells to the north and west of the permit have the least potential for being impacted since they are located up-gradient of the disturbed area, or beyond the coal outcrops. The worst case, life of mine, groundwater drawdown predictions are shown on Exhibit MP-34 of the permit application. It is improbable that any groundwater users in the area will be adversely affected by drawdowns.

Wells completed in alluvial aquifers have little potential for being adversely affected since no alluvial aquifers are proposed for mining and the quantity and quality of water supplying these aquifers should not be disrupted.

Changes to groundwater quality as a result of mining are discussed in the previous section. The predominant consumptive use of the groundwater is livestock watering. Changes to water quality are not expected to lower this use category (see DEQ, WQD Rules and Regulations Chapter VIII - Quality Standards for Wyoming Groundwaters). As discussed earlier, TDS values can reasonably be assumed to increase two to three fold within spoil aquifers. Even at three fold increase, TDS values should still be well within the livestock watering use category of 5000 mg/l. Although sulfate concentrations may increase, they should remain below the 3000 mg/l standards for livestock watering.

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LAND QUALITY DIV.
DIST. III

To assure that the mining and reclamation operations do not have an adverse impact on water users, Big Horn Coal Company is monitoring a large network of wells for water quality and static water levels. Well locations are found on Exhibit MP-31 of the permit application. Monitoring of these wells will continue beyond reclamation, including the implementation and monitoring of wells completed in reclaimed spoils.

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 241-T2

DEQ 11-110

Anticipated spoil well locations are found on Exhibit DF-11 of the permit application with details on completions found on page DF-56 of the permit application.

The Big Horn Coal Company is required to replace any water right which is adversely affected by the mining operation in accordance with W.S. 35-11-415(b)(xii). Alternate water supplies are available from the Tongue River, Tongue River alluvium and the Carney Coal seam.

e. Hydrologic Balance - Permanent Impoundments

(1) Evaluation of Compliance

Permanent Impoundments

The major feature of the postmining topography will be two permanent water impoundments. Bass Reservoir, which will be located in the Pit 1 area has been previously approved and is discussed in the original State Decision Document (Big Horn Coal Co., Permit 213-T1).

The Trout Reservoir will be constructed in the Pit 3 area. It is designed to be used for recreational purposes (fishing, picnicing, camping). The impoundment will cover approximately 91 acres at the projected high water elevation of 3570 feet.

Design and Construction

The applicant is required to submit contour maps and cross sections which show slope conditions around the impoundment and the anticipated high and low postmining water level.

No large embankments or spillways are proposed. The impoundments will be completely incised. No stability or safety problems are expected. The applicant will be in compliance with all applicable requirements.

APPROVED
LAND QUALITY DIV.
DIST. III

The applicant has included contour maps and cross sections of the impoundments. Slopes around the impoundment will be very gentle. Water level fluctuations should be minimal due to the connection of the impoundment with the Tongue River alluvial aquifer.

Surface Owner Consent

Chapter IV, subsection 3.h.(1)(c) requires that consent be obtained for all permanent impoundments from the surface owner, if the landowner is not the operator or mineral

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-T2

owner.

The applicant owns the land to be occupied by the proposed Trout Reservoir. Surface owner consent is contained in Addendum RP-1 of the application.

Intended Use

W.S. 35-11-407 and Chapter IV, subsection 3.h.(1) requires that the size, contouring, revegetation and water quality and quantity of all permanent impoundments be suitable for the intended use(s). Final grading must provide adequate safety and access for proposed water users. Additionally, the intended land use must be equal to or greater than the premining land use.

The intended land use is for recreational purposes which includes fishing, picnicing, and camping. It is expected that the size, contouring, revegetation and water quality and quantity of the impoundment will be adequate for the intended use.

Hydrologic Balance

Chapter IV, subsection 3.h.(1)(b) and W.S. 35-11-415(b)(xii) requires that the construction of any permanent impoundment not adversely affect the hydrologic balance or water rights.

The construction of Trout Reservoir should not adversely affect the hydrologic balance or water rights. Hydrologic impacts are further discussed in Section IV.e.(2) of this document.

Alternative Plan

Chapter II, subsection 2.b.(3)(e)(v) requires that an alternative plan be included in any mine and reclamation plan where a permanent impoundment is proposed in case the quality and/or quantity of water in the permanent impoundment is insufficient to achieve the intended use.

On page RP-5 of the Reclamation Plan the applicant has committed to backfilling both Trout and Bass reservoirs in the event that the impoundment fails and other available alternatives have been exhausted. Exhibits RP-4 and RP-5 of the Reclamation Plan show the alternative postmining contours.

(2) Environmental Consequences

A major feature of the postmining topography is the estab-

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 213-T2

lishment of two permanent impoundments. Bass Reservoir which will be located in the NE1/4 Section 22, T57N, R84W, and SE1/4, Section 15, T57N, R84W where pit one was located during mining. The impoundment was approved within the original State Decision Document (Big Horn Coal Co., Permit 213-T1). Trout Reservoir is proposed as final reclamation in the Amendment 1 area and results from continued mining of the Pit 3 area. Both impoundments will be used for recreational purposes which include fishing as well as for livestock drinking water. Both Reservoirs will be linked with the Tongue River via the alluvium which will minimize water level fluctuations.

Physical characteristics of both reservoirs are contained in Table IV.e.(2)1. The greatest impact of both impoundments will be the replacement of land surface with water surface. The loss of approximately 127 acres of land is not considered significant, especially when the lack of surface water in the area is considered.

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-T2

Table IV.e.(2)1.

Physical Characteristics of the Bass and Trout Reservoirs

Characteristic	Bass Reservoir	Trout Reservoir
Surface area	36 ac.	91.0 ac.
Volume of water	2,337 ac. ft.	11,581 ac. ft.
Depth	52 feet	270 feet
Length	1,300 feet	2,580 feet
Width	1,200 feet	2,000 feet
Perimeter road length	.87 mi.	1.4 mi.
Shoreline length	.95 mi.	1.7 mi.

The impoundments will cause an increased loss of Tongue River water to evaporation. The annual loss to evaporation is estimated at approximately 318 AF which is considered insignificant when compared to the average annual discharge of the Tongue River (292,000 AF near Acme, Wyoming, 372,000 AF near state line at Decker, MT).

Neither impoundment will be inundated by the 100 year flood event. This will protect the impoundments against flooding which could connect the surface of the reservoirs with the Tongue River.

It is evident that the positive impacts of the impoundments (mainly recreational use by the public) outweigh any probable adverse impacts.

f. Cumulative Hydrologic Impacts

(1) Evaluation of Compliance

Chapter XXIII, subsection 2.a.(1), among other things, requires a determination of the short-term and long-term cumulative impacts to the hydrologic regime, including the expected total qualitative and quantitative, direct and indirect effects of all anticipated mining in the general area.

The addition of the Amendment 1 mine area does not significantly alter the findings contained in the "Probable Cumula-

TFN 6 2/025
RECD JUL 30,2015

Permit No. 2/3-T3

DEQ 11-114

tive Hydrologic Impact" portion (Section 3) of the original State Decision Document, permit 213-T1.

Material Damage to Areas Outside the Permit Area

The addition of the Amendment 1 mine area does not significantly alter the findings contained in the "Material Damage to the Hydrologic Balance" portion (Section 3) of the original State Decision Document.

(2) Environmental Consequences

The addition of the Amendment 1 mine area does not significantly alter the probable cumulative hydrologic impacts discussed in Section 3 of the original State Decision Document.

g. Blasting

(1) Evaluation of Compliance

The applicant's blasting plan has been changed from the original blasting plan submitted in Permit Number 213-T1. The changes stem from the addition of a new mining area. Big Horn Coal Company plans to extend Pit Three to the southeast. The new area, entitled Amendment One, will allow mining to take place 3,000 feet farther to the east than the previously approved mine plan had allowed.

As a result of the additional mining area, Big Horn Coal Company will be blasting within the one-half mile limit set by the WDEQ/LQD Rules and Regulations Chapter VI, Section 5a(7). Blasting will occur approximately 1,950 feet from a dwelling. Administrator approval will be required before blasting can be conducted. The mine sequence map shows that mining within the half mile limit will take place in 1987 and 1988. Big Horn Coal Company will have to obtain the administrator's approval before they start the 1987 cut.

All aspects of the proposed blasting plan remain the same and are in compliance with the WDEQ/LQD Rules and Regulations with exception of administrator approval for conducting blasting within one half mile of a dwelling. Actual administrator approval will not be required until 1987. Big Horn Coal Company has committed to acquiring the administrator's approval prior to conducting blasting operations within one half mile of the Norman Schreibeis residence. The blasting plan can be approved.

(2) Environmental Consequences

TFN 6 2/025
RECD JUL 30,2015

Permit No. 213-T2

DEQ 11-115

The impact from blasting approximately 1,950 feet from the dwelling should be minimal. Big Horn Coal Company has committed to following the weight formula W=(D/60) squared, where D is the distance to the nearest dwelling and W is the maximum allowable weight of explosive period. This will keep the peak particle velocity below one inch per second at the dwelling. The resident may notice an increase in the noise level, but it will remain within the airblast limits set by the Rules and Regulations.

Big Horn Coal Company currently has administrator approval to conduct blasting operations within one half mile of two dwellings. One dwelling is a home and the other is a commercial site. Blasting has been conducted near the dwelling since 1981 with no reported damage. Seismograph readings show peak particle velocities well below 1.0 inch per second at the dwellings. The experience Big Horn Coal Company has acquired over the last couple of years should help them safely conduct blasting within one half mile of the dwelling.

h. Fish and Wildlife Protection

(1) Evaluation of Compliance

From a wildlife standpoint, the most substantial Mine Plan changes include disturbance of an additional 433.23 acres of habitat in the Amendment I area, and creation of a 91 acre trout reservoir for recreational purposes.

The additional habitat disturbance includes 246.8 acres within the pit 3 expansion area, 27.06 acres associated with a scoria pit, and 159.37 acres in the overburden dump area (Table D8-1; Permit Application). Among the more important habitats to be eliminated are 8.58 acres of Deciduous Forest and 14.41 acres of Ponderosa Pine/Rocky Mountain Juniper stands. Approximately 2532 trees are involved. An estimated 19,105 trees will be, or have been removed from the remainder of the permit area (pp. D8-53 and D8-173; Permit Application).

Topography on the Amendment I area is relatively flat, except for embankments and breaks adjoining the Tongue River flood plain (Exhibit D9-2; Permit Application). Portions of steeper topography will be disturbed in East 1/2 Sec. 14, T57N, R84W. This varied surface promotes additional habitat diversity.

The entire permit area is characterized by quite dense shrub growth. Shrub data summarized for 7 vegetation communities

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 243-72

DEQ 11-116

yield a weighted average density of 6.07 shrubs per square meter and 19.31 percent absolute cover on surfaces within disturbance limits of the Amendment I area. Data from surfaces sampled on the remainder of the permit area indicates a weighted average of 10.4 percent shrub cover and 5.7 shrubs per square meter within disturbance limits.

The applicant has proposed to restore native rangeland with 2 basic seed mixes designed for upland and lowland situations (Table RP-7; Permit Application). Each mix contains several grass species of documented forage value to grazing wildlife species. To provide cover and browse, several shrub and forb species will be broadcast seeded in conjunction with the upland and lowland mixes. Species include rubber rabbitbrush, fourwing saltbush, common winterfat, skunkbush, sumac, purple prairie clover, and big sagebrush in the upland mix, and silver sage, wild rose, western snowberry, perennial sweetpea, and northern sweetvetch in the lowland mix. On the Amendment I area, 87 one-eighth acre shrub plots will also receive supplemental shrub seedings at rates listed in Table RP-7 of the permit application. Surfaces within the original permit area will be interspersed with 143 such plots. Locations are illustrated on Exhibits RP-2 and 3 of the permit application. The applicant has stated that efforts will be made to achieve a goal of 1 shrub per square meter over 10 percent of the permit area. Methodologies for shrub plantings will be discussed in annual reports (RP-22; Permit Application).

The applicant has proposed to replace 3,642 trees in mitigation for trees removed from the Amendment I area. These will be distributed throughout the permit area, as illustrated on Exhibits RP-2 and RP-3 of the permit application.

The applicant has delineated only 11 rock pile locations on the permit area and none within the Amendment I area (Exhibits RP-2 and RP-3; Permit Application). It is stated in the text, however that a density goal of 1 rock pile per 25 acres will be established, contingent upon availability of materials. It is further stated on page RP-7 that slopes will be graded with dips and undulations of sufficient magnitude to provide cover, escape corridors, visual barriers, and to promote vegetation diversity. These measures should be sufficient to mitigate the loss of premine land form diversity.

FEB 1993
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LAND QUALITY DIV.
DIST. III

The applicant has proposed to leave a 91 acre permanent impoundment as a trout reservoir for recreational purposes. Such a reservoir can certainly be justified based upon regional fishing demands. The fishery formerly contained in

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 213-73

DEQ 11-117

the Brown-Williams pit received considerable pressure from local residents before the pit was dewatered. Fishing in the Tongue River, on the other hand, is rather limited near Sheridan.

An estimated 562 days will be required to fill the impoundment by alluvial groundwater inflow plus 10 cfs of diverted Tongue River flow (p. RP-83; Permit Application). The impoundment will be protected from Tongue River flooding and possible introduction of trash fish by construction of a berm designed to withstand the 500 year flood flow event. Estimated annual water level fluctuations within the impoundment will mimic those recorded in the Tongue River alluvium, and should not exceed 3 feet. This is an acceptable range.

The Wyoming Game and Fish Department has indicated willingness to stock and maintain fisheries in mine reclamation ponds open to public fishing (letter dated December 18, 1980, p. RP-108; Permit Application). Temperature and dissolved oxygen profiles examined in several nearby mine pit impoundments by L.C. Rockett (1976) provide good evidence that these factors will not be limiting in the proposed trout and bass impoundments (p. RP-171; Permit Application). Inorganic water quality parameters of the trout impoundment are predicted in Table RP-43 of the permit application. Water quality criteria for stock watering and fresh water aquatics are listed in Table RP-44. All predictions fall within acceptable ranges for these uses.

The Wyoming Game and Fish Department has recommended increasing shoreline sinuosity (letter dated December 18, 1980, p. RP-208; Permit Application) and varying littoral zone widths to provide steep drop-offs and productive shallows (p. RP-92; Permit Application). The basin profile (Exhibit RP-3; Permit Application) does not reflect these recommendations. Big Horn Coal has stated, however, that they will work with the Wyoming Game and Fish Department during the construction of both the bass and trout impoundments to ensure proper design. Each impoundment will have shorelines high in sinuosity to provide a productive fishery habitat (pRP-5; Permit Application). As yet, the applicant has not provided an acceptable mechanism to assure permanent public access to either the bass or trout impoundments.

FEB 1985
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LAND QUALITY DIV.
DIST. III

The reclamation proposals summarized above have been found sufficient to restore wildlife habitat, in accordance with Chapter IV, Subsection 2.a.(2) and Chapter IV, Subsection 3.p.(1).

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 2/3-T2

DEQ 11-118

(2) Environmental Consequences

Impacts attributed to this single operation will be of little regional significance. On site effects will be limited to the removal of habitat during years of active mining, causing a temporary reduction in local carrying capacity and displacement of mobile species. Some direct mortality may occur during stripping operations and as a result of mine traffic.

Cumulative impacts are of greater concern, although currently available information is not sufficient to quantify their severity. By year 1993 a total of 1950.5 acres (3.05 square miles) of land will have been affected. Parcels of this land have been or will be unavailable from the time at which topsoil is stripped until reclamation is complete. This impact is minor and of short duration when evaluated for individual mine sites. The cumulative effect of disturbance at Big Horn and surrounding mines, however, will somewhat reduce the regional carrying capacity for all wildlife. This impact is unavoidable and can be ameliorated only through contemporaneous reclamation and enhancement of habitat in areas not scheduled for disturbance.

Secondary impacts are those related to human population growth. As new employees enter the region poaching, hunting, fishing, and wildlife harassment will increase. At present, this impact is not a major concern because large tracts of public land are readily accessible in nearby areas.

Big Game

The Big Horn permit site lies within the Clearmont antelope unit and straddles the Powder River and East Big Horn mule deer herd units. Most of the permit area lies outside occupied antelope range, though the east edge extends somewhat into yearlong range. The majority of the permit area is winter/yearlong mule deer range, though a small portion of unoccupied habitat occurs in the northeast. The amount of habitat to be lost or degraded by the Big Horn operation is small in comparison to the total available in herd units. Hence, habitat reduction due to this single operation will not be of regional significance. Assuming reclamation is successful, the on-site impact will involve eliminating parcels of habitat from the time mining commences to the completion of reclamation. After mining, big game winter use of the permit area may decline during heavy snowfall due to a substantial reduction in shrub and tree growth on reclaimed surfaces. This impact will persist for several

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LAND QUALITY DIV.
DIST. NO

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 213-73

DEQ 11-119

decades, until sufficient shrub and tree cover recolonizes the surface. The site is not considered an important wintering area, however, and its availability to big game during winter months is not essential.

Raptors

Six red-tailed hawks, 4 American kestrel, and 1 great horned owl nests occur within the permit area (Exhibit D9-6; Permit Application). Six unidentified nests are also plotted within the permit area. Mining is scheduled to remove 1 red-tailed hawk nest, 1 great horned owl nest, and an American kestrel nest (p. D9-65; Permit Application). The applicant has stated that special purpose permits will be obtained from the U.S. Fish and Wildlife Service prior to the "take" of each of these nests. Appropriate mitigation plans will be developed as a condition for issuance of the USFW special purpose permits.

Five golden eagle nests were reported within the study area but outside permit limits. A sixth nest has recently been reported in SE 1/4 Sec 9, T57, R84W. Buffer zones have been delineated by the USFWS around the 3 nests nearest the permit area: Chiggy's eagle, Wilson's eagle, and the Sec 9 eagle. All eagle nests are sufficiently isolated from mine disturbance that productivity should not be affected.

Raptor use of the permit site for hunting will decline as the prey base is eliminated, but should increase on reclaimed surfaces as small mammals respond to the restoration of forage and den sites. That portion of the raptor prey base dependent upon shrubs may be eliminated or reduced for several decades, until sufficient shrub growth recolonizes the surface. This impact, however, is not considered regionally significant.

Upland Gamebirds

No sage grouse have been recorded on the permit area. Ring-necked pheasants are regularly stocked along the Tongue River by the WGFD. Observations of this species within the permit area, however, have been rather limited. One sharp-tailed grouse lek, the Hidden Water Lek, occurs in the northwest corner of the pit 5 area. The pit 5 mine plan includes an overburden stockpile which will cover the Hidden Water Lek. Birds using the lek will either be displaced elsewhere or eliminated from the local population.

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Passerines

TFN 6 2/025
RECD JUL 30,2015

Permit No. 213 T2

DEQ 11-120

Passerines are highly mobile and will be displaced as mining progresses. Some changes in community composition may be expected as reclaimed habitat is repopulated. Shrub cover and patchiness are related to nesting passerine abundance. Since shrub cover will be substantially reduced at the time of bond release, a reduction in breeding passerine abundance is expected. As shrubs spread over time, passerine abundance should increase to premine levels.

Small Mammals

A number of small mammal species will be displaced or eliminated as mining progresses. The most limiting habitat components on reclaimed surfaces will be cover and den sites. Rock piles will provide isolated cover situations, permitting occupancy of that amount of surface falling within the cruising radius of each species able to utilize this form of cover. Those species dependent upon shrubs for cover and/or browse are expected to decline after mining, but should steadily increase over time as shrub cover spreads.

Waterfowl

Use of the permit site by waterfowl is restricted to Goose Creek and the Tongue River. Except for one relocated segment of the Tongue, a buffer zone will be maintained along these streams. The creation of a 36 acre bass reservoir and 91 acre trout reservoir will provide additional habitat after mining. The impact to waterfowl has, therefore, been sufficiently mitigated.

Mammalian Predators

Most predators are wide ranging, mobile species and will be displaced as mining progresses. There may be some population reductions as individuals compete in territories to which they are displaced. The presence of other mines in nearby areas will further reduce available habitat. As reclamation is completed and the prey base becomes reestablished, predator populations will respond. Overall, the impact to predators is expected to be of short duration and minor.

Threatened and Endangered Species

No black-footed ferrets or their sign were encountered during baseline studies. Prairie dogs are a key prey item of the black-footed ferret. No prairie dog colonies occur on the permit area. No impacts are anticipated.

TFN 6 2/025
RECD JUL 30,2015

Permit No. 2/3-T2

DEQ 11-121

Three peregrine falcons have been observed during spring and fall migration periods. No cliffs or escarpments suitable for nesting, however, occur on the permit area. No impacts are anticipated.

Bald eagles winter throughout the surrounding region. No roosts occur on or adjacent to the site. A bald eagle nest is located approximately four miles northeast of the mine site, in northcentral section 29, T58, R83W. The nest is sufficiently isolated that mining should not disrupt breeding activities. Due to the wide ranging, opportunistic feeding habits of this species, the mine should not adversely affect foraging activities.

Aquatic Areas

Aquatic habitat along the Tongue River within the permit area consists of a series of short, fast riffle areas, long runs of moderate depth and velocity, and scattered deep pools. The most widely spread fish species included carp, northern redhorse, white suckers, stonecat, and rock bass. The sauger is the most important game fish. Other game species included mountain whitefish, brown trout, rainbow trout, northern pike, black bullhead, stonecat, smallmouth bass, green sunfish, rock bass, white crappie, and yellow perch. Angler use of the Tongue River fishery appears to be quite limited near the permit area. Favored areas are the headwaters of the Tongue in the Big Horn National Forest and Tongue River Reservoir downstream in Montana. Neither of these areas will be impacted by mining.

In 1977, Big Horn Coal Company permanently relocated an approximate 1200 foot stretch of the Tongue River to dewater the Brown Williams pit. Fish contained in the pit were netted and transferred to the main river channel prior to dewatering. Aquatic fauna rapidly colonized the relocated stream channel. Maximum macroinvertebrate densities were achieved in 40 days, with maximum diversity lagging somewhat behind (p. D9-338; Permit Application). Nongame fish began to take up residence within 1 to 2 days and game fish about 14 days after opening of the channel. Reconstructed habitat in the channel consisted of snag areas, boulders, and rip-rap. Pools have formed naturally by scour and deposition during spring flood periods.

Sedimentation ponds and interceptor channels will prevent excessive silt depositions to the Tongue River. Compliance with NPDES permits will preclude adverse impacts due to mine discharges. The Big Horn operation is not expected to degrade the aquatic biota of the Tongue River.

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-122

From a fisheries standpoint the creation of 2 final impoundments will have a positive impact, mitigating recreational opportunity lost with dewatering of the Brown-Williams pit. A bass reservoir will be created in the SE1/4, Section 22, T57N, R84W. Primary use will be a recreational sport fishery. The impoundment will encompass 36 surface acres, with a maximum depth of 52 feet.

A trout reservoir will be created in Sections 13 and 14, T57N, R84W and will interconnect with the Tongue River alluvium. The reservoir size will be 91 surface acres and 270 feet maximum depth. Both reservoirs may be accessed from Interstate 90 and Highway 338. The applicant has not yet included a satisfactory mechanism to assure permanent public access, however.

Secondary Impacts

Secondary impacts have resulted from population growth in the Sheridan region. Energy development has been a primary stimulus for human influxes. Illegal use of wildlife has risen, and road kills are more frequent due to the greater traffic volumes.

At present, the Big Horn Mine employs approximately 300 personnel (Sam Scott, personal communication). This number is expected to remain relatively constant over the life of mine. Associated with this work force are families and individuals employed by construction and service industries. The large population segment directly and indirectly supported by the Big Horn operation has contributed somewhat to secondary impacts.

Thus far, the impact has not been considered regionally significant because large tracts of public land are readily accessible in nearby areas such as the Big Horn National Forest. Potential mitigation might consist of increasing the opportunity for outdoor recreation in the region, and increasing the wildlife law enforcement staff to handle increased enforcement problems. The applicant's proposal to create 2 permanent fishing impoundments is a step toward mitigating secondary impacts by providing additional fishing opportunity to the local population.

1. Backfilling and Grading

(1) Evaluation of Compliance

The applicant proposes to make a major change in the mine plan for the No. 3 pit. The changes include expanding the

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-T2

DEQ 11-123

mining limits to the east to recover additional deeper coal. The other active pits, No's 1, 4, and 5, remain the same in size and operation. The mining schedule for Pit No. 1 is changed, however. The applicant requests a delay in contemporaneous reclamation of part of this pit. Pits No. 4 and No. 5 will be reclaimed during the permit term. Approval of these changes is recommended.

The applicant has provided baseline information on overburden quality and an operational monitoring program so that unsuitable material can be delineated and handled specially. Additionally, a regraded spoil sampling program is provided that will ensure 4' of suitable surface material for the test zone.

Due to the high SAR of the premining water, overburden with high SAR will not be special handled. Any potentially low pH water that reaches the permanent impoundment will be diluted by the large volume of water in the pond and is not a concern.

The proposed changes from the present permit relating to backfilling and grading in the original permit are noted as follows:

a. The first change, the expansion of Pit No. 3 to the east, is included in the renewal by an amendment to the permit boundaries. This pit is to be mined by truck/shovel using haulback mining methods. This pit will be in operation during the entire term. The applicant proposes leaving a permanent impoundment near the final highwall. The shoreline of the impoundment will be reclaimed to provide access at all points. It is also proposed to plant game fish in the impoundment. The out-of-pit spoils from Pit No. 3 will cover an area which has caved severely due to the old underground workings below.

   An analysis of typical mine spoils showed a factor of safety for the highest and steepest spoil piles to be in excess of 2.9.

   The area to be covered with spoil is located over an abandoned underground coal mine. The applicant expects the weight of the spoil and and the movement of nearby equipment to accelerate the rate of subsidence. Vertical displacement of the spoil fill is not expected.

   Calculations show that there will be approximately 13.4 million cubic yards of excess spoil at this mine,

TFN 6 2/025
RECD JUL 30,2015
Permit No. 211-72

approximately 9.8 million yards will be placed in a permanent spoil pile, the rest will be backfilled within pit limits to help achieve approximate original contours.

The proposed excess spoil disposal area meets all the requirements of Chapter IV.3.c.(1). Approximate original contours will be achieved for the new areas.

b. The second change involves the mining sequence of Pit No. 1. Except for the mining of a small amount of coal, no overburden will be removed during the five year renewal term. Reclamation of the northwest end will take place. The present approved plan had called for the pit to be completed by the second renewal year. Since future mining beyond this renewal will be to the south of Pit No. 1 the delay in completing Pit No. 1 is environmentally acceptable.

* C. SEE ADDENDUM 1 FOR THE CHANGE IN BACKFILLING FOR PIT 5. RP 10/12/87

(2) Environmental Consequences

The impact to the Eocene and later geology of the area will be insignificant. The relative area is small and there are no unique features. The interbedded sandstones, shales, siltstone and coal will be excavated, mixed to varying extents and redeposited. This will alter the particle size distribution and geochemistry. Mixing upon mining and special handling of the large volumes of unsuitable material will prevent damage to rooted plants on the surface and shallow groundwater. This change is essentially permanent.

The replaced topography will be significantly altered, however, it will support the approved postmining land use. A topography created in response to erosion on roughly horizontal strata of consolidated interbedded sandstones, siltstones, and shales will be replaced by a topography created in response to erosion on a homogeneous unconsolidated mix with little surface variability. Aspects and slopes will change with a subsequent change in microclimate that will affect plant communities. This will not affect reclamation success by presently required standards.

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DIST. III

j. Contemporaneous Reclamation

(1) Evaluation of Compliance

Surface mining at this site began in 1956 (1982 Annual Report) and is scheduled to end in 1997. The total life of the mine is 41 years. The applicant's Reclamation schedule is shown on Exhibits RP-10 and RP-11 in map form on a pit by

TFN 6 2/025
RECD JUL 30,2015

Date Issued 2/3-72

DEQ 11-125

pit basis and is summarized on Table RP-10 of the permit application.

A total of 1950.5 acres are scheduled to be affected during the life of the mine including acreage to be added by this amendment. As of August 1982, 1,157.5 acres (1982 Annual Report) have been affected by mining and related activities, while 311.6 acres have been reclaimed. This amendment will add a total of 366.4 acres to the permit area, while 424 additional acres will be affected by mining and related activities as a result of this amendment.

The applicant is required to show compliance with Land Quality Division Rules and Regulations, Chapter IV.2.1.(1) and IV.3.a.(1). Reclamation must begin as soon as possible after mining commences and must continue concurrently until such time that the mining operation is terminated and all affected land is reclaimed. Rough backfilling and grading must commence within 180 days of coal removal.

The applicant has applied for a delay in contemporaneous reclamation, citing contract obligations and economics. The information provided in Addendum RP-3 of the permit application is sufficient to justify the delay.

Upon restoration of the postmining contours, the disturbed areas should be topsoiled and seeded in a time frame that will provide maximum protection to the environment and its resources. The procedures for restoring wildlife habitat are presented in Addendum D of the Reclamation Plan. Seeding will be performed in the spring or fall.

Table RP-11 in the Reclamation Plan summarizes areas and dates for final bond release.

(2) Environmental Consequences

The proposed changes will result in a delay of reclamation of parts of Pit 1. The disturbed areas will be isolated and all runoff routed through sedimentation ponds. Adverse effects outside the Pit 1 area are not expected. The long term impacts of this delay will be insignificant because the area will be mined and reclaimed after 1991.

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DIST. III

k. Revegetation

(1) Evaluation of Compliance

The revegetation plan submitted by the applicant meets all

TFN 6 2/025
RECD JUL 30, 2015

applicable requirements of Wyoming's Land Quality Division Rules and Regulations. The reestablished vegetation must be capable of supporting the postmining land uses (Chapter IV, Section 2.d.(1) and Section 3.d.(1)). Seeding must be done on the contour during the first planting period after final preparation of the land (Chapter IV, Section 2.d.(4)). This same regulation requires the presentation of vegetation species and rates to be used in the revegetation efforts. The baseline vegetation inventory must be sufficient to fulfill the test for determining the success or revegetation (Section 2.d.(6) and Guideline No. 2, Jan. (1981). All reclaimed areas must be protected from livestock for at least two years (Section 2.d.(8)). Mulch or other equivalent procedures must be used to control erosion and enhance soil moisture (Section 3.d.(3)) and control areas must be properly managed (Section 3.d.(4)).

Big Horn Coal Amendment I vegetation study area consists of three different surveys. The first, known as the Pit 3 expansion, was conducted in 1980. The second known as the scoria pit, was conducted in 1981. The third, known as the overburden dump, was conducted in 1982 (Exhibit D8-3 of the permit document). The data for each survey is presented in Appendix D-8 of the permit document.

Vegetation inventories were conducted on the Amendment One area from July to October 1980, 1981, and 1982. Specific sampling dates are given on each transect summary sheet which are contained in Appendix D-8.

The vegetation information collected by the applicant included quantitative data for the major community types. Data included ground surface area cover, frequency distribution, shrub density, and annual forage production based on standing crop clipping. Shrub heights were also recorded.

Inventory methods were approved in Permit 213-T1 with letters dated March 27, May 16 and June 12, 1979. These letters are included in the permit application in Section I of Appendix D-8. The same methods were followed for this amendment; the only exception was for the scoria pit area and the OB dump where the 1981 Guideline No. 2 was followed for shrub density plots and annual production clipping of shrubs was dropped.

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Sample adequacy was determined by using the formulas given in Wyoming Land Quality Division Guideline No. 2 (revised, March, 1979, and January, 1981). Adequacy of both cover and productivity sampling was checked after the first ten randomly chosen transects in each type sampled. When addi-

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 213-T2

DEQ 11-127

tional samples were required, they were taken sequentially from the original random designations.

Control area sampling for the three (1980, 1981, 1982) surveys followed methodologies used for the disturbed area surveys.

Six different native vegetation types were mapped and sampled within the amendment area: big sagebrush-western wheatgrass type, big sagebrush-bluebunch wheatgrass type, western wheatgrass-needle and thread -green needlegrass type, big sage-brush-skunkbush sumac type, weedy type (a result of previous mining activity), deciduous forest type, and ponderosa pine-Rocky Mountain juniper type. A description of each vegetation type is presented in Appendix D-8 of the renewal document. Table D8-2 presents the production, cover, and density values plus sample adequacy calculations for each vegetation type. Exhibits D8-1 through D8-4 contained in Volume 20, Appendix D-8 of the application show the range site and condition, community types, and sampling points for the permit area and the amendment area.

The concerns in reclamation are: vegetative cover (for supporting the land uses), total cover (protection of the soil resource), production (quality and quantity to support the approved postmining land uses), density (of woody plants for forage and shelter), species diversity (for supporting the land uses).

For testing the adequacy of revegetation, the calculations and formulas used will be those given in WDEQ/LQD Guideline No. 2 dated Jan. 1981. These calculations will be performed for vegetative cover, total cover, vegetative production and density. The cover and production parameters will be compared to premining affected area parameters after adjustment has been made for any changes that have occurred in the control areas.

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Species composition will be qualitatively evaluated with respect to the proposed postmining land uses of livestock grazing and wildlife habitat. Both species richness (number) and equitability (the relative apportionment of the individuals among species) will be evaluated.

Big Horn Coal Company would like to propose that the Motyka index of similarity be used to determine species diversity. The following similarity indexes would be calculated:

1. % cover by life form (native perennial grass, introduced perennial grass, annual grass, perennial forbs,

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 211-T2

DEQ 11-128

annual forbs, subshrubs, and shrubs) to be 80% similar. The annual grass and forb component in the similarity index may be dropped if the index does not meet the 80% guideline and recalculated using the other life forms.

2. On the areas reclaimed through 1982 a comparison to a grassland control area would be made.

3. Species richness or number of species would be listed; this will include the number of species established from approved seed mixture plus natural invasion.

4. On post-1982 reclamation an index of similarity for the wildlife habitat special planting areas will be compared to shrubland control areas. The remaining reclamation will be compared to grassland control areas.

The following procedures will be used to prepare a proper seed bed: (1) scarify topsoil; (2) disc; and (3) harrow. These procedures, along with drill seeding, will be performed with the contour of the slope to minimize erosion and conserve moisture. Prior to harrowing, areas will be fertilized at the rate determined from the soil analyses. Drill seeding of prepared areas will be conducted after October 15th and prior to April 15th.

Four seed mixtures will be employed to create a diverse vegetation community and to reestablish the affected land to the premining potential. The upland seed mixture (Table RP-7 in the applicant's Reclamation Plan) will be planted on the majority of the area, while the lowland seed mixture (Table RP-7) will be confined to drainageways. The improved pastureland seed mixture (Table RP-8) will be used to restore dryland pastures in Sections 14 and 15, T57N, R84W. The hayland in Section 15, T57N, R84W will be reclaimed with a mixutre of alfalfa and smooth bromegrass (Exhibits RP-2 and RP-3 in the applicant's reclamation plan).

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LAND QUALITY DIV.
DIST. III

To provide for secondary uses, such as wildlife habitat, shrub seed will be planted with grass seed (Table RP-7; Reclamation Plan). In addition to this general planting, selected sites such as drainageways and the crests of slopes will receive spot plantings of rubber rabbitbrush, common winterfat, skunkbush sumac and western snowberry. These augmented seedings will be at the same rate noted in Table RP-7. Proposed locations for these augmented seedings are denoted on the reclamation plan maps (Exhibits RP-2 and RP-3) with each symbol representing approximately one-eighth of one acre.

TFN 6 2/025
RECD JUL 30,2015

Permit No. 2/3-72

DEQ 11-129

A variety of trees (Table RP-9) will also be planted at sites that are suited to their growth characteristics. Those proposed sites are denoted on the reclamation plan maps (Exhibits RP-2 and RP-3) with each symbol representing one-eighth of one acre. A density of 40 trees/acre for the upland sites will be reestablished to compliment the primary land use of livestock production.

Annual reports filed by existing mines in the Powder River Basin, including the present applicant and elsewhere in Wyoming, contain results of revegetation efforts. These reports indicate that reclamation is possible. The Big Horn Mine is located north of Sheridan and is included in BLM's Final Environmental Impact Statement for the Powder River Basin.

In evaluating the compliance, the following items should be considered: 1) the baseline vegetation inventory must be sufficient to fulfill the test for determining the success of revegetation; 2) a plan is presented to establish a diverse, permanent vegetative cover on all affected lands of the same seasonal variety native to the area or of a species that will support the approved postmining land uses; 3) and that a plan is provided for the management of reclaimed areas and their respective control areas.

The characteristics and values of the various reclamation species discussed under postmining land use below, provide evidence to support the applicant's claim that the postmining land uses will be equal to the premining uses. The pre and postmining land uses are grazing land and wildlife habitat.

Vegetative productivity, cover and composition will be monitored yearly on reclaimed areas and measured according to the Land Quality Division's Guideline No. 2, or other approved methods.

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LAND QUALITY DIV.
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During the course of the baseline study, control areas were established, one for each major vegetative type. These sites, located throughout the permit area, will be used to compare pre and postmining vegetation.

(2) Environmental Consequences

Native vegetation types identified and mapped within the permit and amendment area include: Big sagebrush-Western wheatgrass, big sagebrush-bluebunch wheatgrass, western wheatgrass-needle & thread green needlegrass, big

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 477-T2

DEQ 11-130

sagebrush-skunkbush sumac, deciduous forest, and ponderosa pine-Rocky Mountain juniper. Exhibit D8-2 illustrates the distribution of vegetation types within the permit area and Exhibit D8-4 illustrates the distribution of vegetation types within the Amendment one area. Both of these exhibits are located in Volume 20 of the permit document. The vegetation types are discussed in Appendix D-8 and the data collected on all sites is presented.

The amendment one area consists of three separate areas: Pit 3 expansion, Scoria Pit, and overburden dump. The data was collected on the three areas in 1980, 1981, and 1982 respectively.

Table D8-3 in Appendix D-8 of the application presents the plant cover (%), productivity (g/m2), and shrub density (number/m2) values collected on the three sites for comparison purposes.

The direct vegetation impacts caused by the destruction of 1,950.5 acres of existing vegetation (1,157.5 acres of this has already been disturbed under previous permits according to the applicant's annual report received by LQD August 25, 1983) would not be remedied until reclamation of the area is completed. The applicant plans to reestablish plant communities composed of species with equal palatability to livestock and wildlife as those existing before mining occurred in the area.

Short term impacts associated with vegetation removal during construction and operational phases consist of potentially increased erosion and habitat loss for wildlife and livestock. Long term impacts potentially consist of a degradation of livestock and wildlife forage potential because of continued erosion, invasion of undesirable plant species, and reduction of species diversity. These impacts are insignificant since the vegetation types to be disturbed are common in Wyoming, no critical habitat will be disturbed and no threatened or endangered plant species occur on the proposed mine site.

An indirect impact would result from the dust from haul roads, blasting and mining activities that would be deposited on adjacent vegetation which would make it less palatable to livestock and wildlife. Also, this accumulation of dust on the vegetatation would decrease the growth rates of the vegetation due to decreased photosynthetic activity. The applicant commits to controlling fugitive dust by spraying water on the dirt roads.

TFN 6 2/025
RECD JUL 30,2015

Permit No. 213-T2

DEQ 11-131

The greatest secondary impact would be the loss in diversity of shrubs and forbs for wildlife use. However, artificial seeding as well as natural colonization of shrub and forb species from adjacent undisturbed areas and from seeds present in the reapplied topsoil should increase the diversity over time (as should be expected in any case of secondary succession). It has been shown for example, that big sagebrush will move into an area from seeds present in the reapplied topsoil as fast as if it had been included in a revegetation seed mix (Clarke and DePuit, 1980).

No threatened or endangered species have been observed within the permit area. These observations are supported by the Department of Interior's Final Environmental Statement for the Eastern Powder River coal region (BLM 1979).

l. Roads and Other Transportation Facilities

(1) Evaluation of Compliance

No new roads are planned for development during the renewal term. The haulroads to Pits 4 and 5 will be reclaimed during the renewal term.

(2) Environmental Consequences

Any existing environmental impacts should be decreased with the elimination and reclamation of the haulroads going to Pit No's 4 and 5.

m. Buildings and Facilities

(1) Evaluation of Compliance

The applicant proposes to build a new office, change house, truck washing facility and explosive storage magazine to replace existing structures. The new construction was proposed in the existing approved permit so the renewal has no changes.

(2) Environmental Consequences

Any change in environmental impacts resulting from the construction of these new facilities will be insignificant. The sanitary treatment facilities for the new buildings has been previously approved in the existing permit. All buildings and facilities will be removed and the land reclaimed when mining is finished.

n. Prime Farmland

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 243-T2

DEQ 11-132

(1) Evaluation of Compliance

A prime farmland letter for the amendment one area is included. There is no prime farmland on the amendment area.

o. Postmining Land Use

(1) Evaluation of Compliance

The applicant's reclamation plan is required to establish postmining land uses which will be equal to or greater than the highest previous uses, and this plan must be achievable (Chapter IV, Section 2.a.1.) and if an alternative land use is proposed the applicant must present appropriate plans, commitments and approvals (Chapter II, Section 3.b.(12)(b).

The revegetation plan proposed by the applicant is described above. This plan will have the potential of returning the premining land uses of livestock grazing and wildlife habitat.

The Big Horn Coal Company's reclamation plan is designed to reestablish the premining land uses of livestock grazing and wildlife habitat. It is the applicant's goal to restore the area to a level of production, diversity, cover and erosion stability equal to or better than that which existed prior to mining.

Two permanent water impoundments are also planned as part of final reclamation. Bass Reservoir is located in Sections 15 and 22. Trout Reservoir is located in Sections 13 and 14. Exhibit RP-1 shows the postmining land uses for the mine area and is located in the applicant's reclamation plan.

Since the present land use at the Big Horn Coal Company is industrial, it is necessary to change the land use classification in the area of the two final water impoundments. The change in land use for Bass Reservoir was approved by the Sheridan Area Planning Agency on May 15, 1981. The impoundment was approved by the DEQ on August 27, 1981 with the approval of Permit No. 213-T1. The State Engineer's office approved the impoundment on July 12, 1978 and issued Permit No. 7901R. The Wyoming Game and Fish Department gave a favorable response on December 18, 1980. The surface is owned by the Big Horn Coal Company, therefore, surface owner consent for the land use change was not required.

Trout Reservoir is planned as part of the final reclamation plan in the Amendment One area. The primary land use classification for this impoundment is recreation which includes

TFN 6 2/025
RECD JUL 30,2015

Permit No. 213-T1

DEQ 11-133

fishing, picnicing and camping.

The change in land use was approved by the Sheridan Area Planning Agency and endorsed by the Wyoming Recreation Commission in December, 1982. The design drawings have been submitted to the State Engineer's office and are pending approval. The Wyoming Game and Fish Department has commented on the plans.

The surface containing Trout Reservoir is owned by Peter Kiewit Sons' Company which in turn owns and operates the Big Horn Coal Mine. Surface owner consent for the land use change is contained in Addendum RP-1.

In the event the impoundments fail, even after exhausting all available and reasonable technology, the alternative will be to backfill the failing impoundments. Bass Reservoir would be backfilled using material from Pit 1. Approximately 2,370,000 cubic yards of material will be required to backfill Bass Reservoir. Trout Reservoir would be backfilled using material from the Pit 3 and Amendment One areas. Approximately 19,340,000 cubic yards of material will be required to backfill Trout Reservoir. Exhibits RP-4 and RP-5 show the alternate reclamation plan as if both impoundments were backfilled.

Wildlife habitat will be reestablished on disturbed areas with the shrub and seed mixtures listed in Tables RP-7 and RP-8 in the Reclamation Plan which include species of documented forage value to wildlife (Blauer et al. 1977, McArthur et al. 1979). The general planting of these seed mixtures will also be complimented by spot plantings of additional shrubs, forbs and trees as discussed in the Species to be Seeded narrative of the applicant's reclamation plan. Approximately 2% of the affected area will be selected to receive spot planting of shrubs and a density of one shrub per square meter will be established.

Revegetated areas are protected by the applicant from uncontrolled grazing until final bond release is received. As mining progresses and a revegetated area can be grazed without disruption to the operations, grazing by livestock may be employed as a management tool. Measures such as mowing, weed spraying, fertilizing, and burning will be conducted for a period of at least five years to control weeds and pests. These activities will be coordinated with the Sheridan Weed and Pest Control Agency, the Soil Conservation Service and the Wyoming Department of Environmental Quality.

Normal and reasonable husbandry practice will also be fol-

TFN 6 2/025
RECD JUL 30,2015

Permit No. 477-T1

DEQ 11-134

lowed to ensure that revegetation will be completed and the postmining land uses are achieved.

(2) Environmental Consequences

As of August 1983, 1,157.5 acres have been disturbed by the applicant at the present location. An additional 793 acres are scheduled to be disturbed under the current application. Reclaimed land will not be used for grazing purposes for at least 2 years after reseeding in order to give the vegetation time to become established.

The major adverse environmental consequences of the proposed action on land use would be the reduction of livestock grazing and loss of wildlife habitat on the mine plan area during the period of mining and reclamation. This would result in short-term adverse impacts on livestock production and wildlife habitat. Planned reclamation is expected to return the cover and productivity of the disturbed lands to similar or higher levels and quality relative to that supporting premining land uses within ten years of reseeding.

The greatest secondary impact would be the loss in diversity of shrubs and forbs for wildlife use. However, seeding as well as natural invasion of shrub and forb species from adjacent areas should increase the diversity over time (as should be expected in any case of secondary succession).

p. Cultural Resources

(1) Evaluation of Compliance

Cultural resource work at Big Horn began in 1974 when Michael Metcalf was retained to salvage a site near Acme (48SH231). Metcalf partially excavated this site and determined that its probable function was a hunter's overlook along Goose Creek (Addendum D3-A). Based upon cultural material, Metcalf put the site within the Early and Late Middle Prehistoric Periods (5000 BC - 0 AD) and the Late Prehistoric Period (200 AD - 1000 AD).

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LAND QUALITY DIV.
DIST. III

In 1976, Michael L. Gregg, Mineral Research Center, surveyed 750 acres that were planned to be mined. Two archeological sites (48SH336 and 48SH337) and six isolated finds were recorded. Neither site was felt to be eligible for the National Register (Addendum D3-B).

Marvin Hoyt in 1977 conducted a survey of about 285 acres scattered around Big Horn Mine (Addendum D3-C). These areas were short-term lease parcels and were later resurveyed by

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 2/3-72

Michael Metcalf in 1980. Hoyt located only one site and recommended that if any disturbance was planned, the site be more thoroughly studied. Metcalf's work satisfied this recommendation. Also in 1977, Bob Murray conducted a historical overview of the mine area (Appendix D2).

Michael Gregg resumed his work in 1978 with a 160-acre survey and the trenching of one site to determine the presence of subsurface deposits (Addendum D3-D). During the survey, two sites 48SH250 and 48SH251, were located. Although 48SH251, the Hidden Water Shelter, was tested with a backhoe with negative results, Gregg felt that the potential for material still exists so before any disturbance is planned, the site should be more systematically examined. Presently, the site is outside of planned disturbance areas and no further work is necessary. To ensure that unauthorized disturbance does not take place, general protective measures have been established for the mine. These are discussed below.

In 1979, Mineral Research Center was contracted to survey the Jensik Hill-Southeast Extension areas (Addendum D3-E). This work was carried out by Bonnie Hogan and Paul Anderson under the supervision of Mike Gregg. This survey covered 5,220 acres of both historical and archeological remains. Results include the location of ten prehistoric sites and ten historic sites. Clearance for this report was obtained on 6/03/80 from the Wyoming State Historic Preservation Office. A copy of this letter can be found at the end of Addendum D3-E.

Work continued at Big Horn during 1980 when Metcalf-Zier Archaeologists, Inc. surveyed 1,000 acres and tested two sites along the relocation route of State Highway 338. During the survey, 23 sites were recorded, 17 of which were felt to require additional work before a National Register evaluation could be made. The two sites tested were part of the 23 located.

FEB 1985
RECEIVED
LAND QUALITY DIV.
DIST. III

Three reports concerning this work were issued. This is because two projects were involved: the relocation of State Highway 338 and the permitting of the expansion of Big Horn mine into Pit 5. Addendum D3-F contains the overall report for MZAI's 1980 work. Addendum D3-G contains two reports focusing upon the highway relocation work by MZAI. These two reports are Bradley 1981 and Harrell and McKern 1980. Clearance for the relocation of Highway 338 was granted in 1981 by the Wyoming State Highway Department and the State Historic Preservation Office. While obtaining clearance, Kiewit Mining & Engineering Co. agreed to resurvey the actual highway route. This was done during early summer

TFN 6 2/025
RECD JUL 30,2015

Permit No. 2/3-T2

DEQ 11-136

1981 by Hassler. One additional site (48SH230) was recorded, as well as the relocation of the previously identified sites by Hogan. None of these sites require additional work. Since the report by Hassler covering the relocation of the highway does not directly pertain to this submittal, it is not reproduced in this document. Instead, copies of the report can be obtained through the Wyoming State Historic Preservation Office.

With the expansion of Big Horn Mine into Pit 5, one site (48SH447) discovered by Metcalf was tested and evaluated by Carmen Sheldon, University of North Dakota (Addendum D3-H). This site proved to lack any potential for the National Register. This work was also carried out during the summer of 1981 and a clearance letter from the Wyoming State Historical Office can be found at the end of Addendum D3-H.

During August 1982, several archeological sites located by MZAI in the Pit 3 area were revisited. Metcalf originally recommended that seven sites be tested for subsurface deposits. Following the examination by Hassler, it was decided that these sites did not meet the criteria for the National Register and were not tested. The report detailing this evaluation is contained in Addendum D3-I.

On May 3, 1983, a field check of the Amendment One area was carried out by the Wyoming State Historic Preservation Office, the Wyoming Department of Environmental Quality and the Office of Surface Mining, United States Department of the Interior. At this time, it was decided that no further work needs to be done at 48SH438, 48SH439, 48SH441, 48SH442, 48SH444 and 48SH445. In addition, cultural sites 48SH251, 48SH350, 48SH354, 48SH436, 48SH446, 48SH453 and 48SH455 are outside of Big Horn disturbance area and will be preserved and protected according to the general measures outlined below.

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LAND QUALITY DIV.
DIST. III

At this meeting, it was agreed that the only work remaining in the Amendment One area involves the Schreibeis homestead (48SH437). Big Horn Coal Company will record the physical manifestations of the homestead prior to disturbance. This will involve photographs and scaled drawings at the site. This data will be placed in a report and sent to the Wyoming SHPO and DEQ as fulfillment of this commitment within 90 days of field work completion.

In 1981, Jason Lillegraven conducted a paleontological survey for the Big Horn Mine. He concluded that there were no significant paleontological deposits at Big Horn. His report is reproduced as Addendum D3-J.

TFN 6 2/025
RECD JUL 30,2015

Permit No. 243-T2

DEQ 11-137

Recently Danny Walker, University of Wyoming-Laramie, received Pleistocene fauna remains recovered from Pit 3 at Big Horn a few years back. These remains came from Pleistocene gravel deposits in Section 14, T57N, R84W. The geology and soils data for the Amendment One area are discussed in Appendix D5. These data are available to paleontologists who are interested in the potential for additional Pleistocene vertebrate fossils. Nevertheless, Big Horn Coal Company, in order to protect significant deposits will notify the Wyoming DEQ of any paleontological remains discovered during mining activities so that qualified personnel can evaluate and salvage such material. In addition, all fossil material uncovered during mining operations will be collected and sent to the University of Wyoming for their analysis.

Cultural resource work at the Big Horn Mine began in 1974, and 10 reports have been submitted by the applicant since that time. Only those written after 1979 meet current performance standards. Prior to 1980, survey methodology was conducted more intuitively. Systematic sampling designs were virtually unknown, or at least not utilized. Survey coverage was biased toward "likely" site locations, resulting in a skewed representation of prehistoric settlement patterns. Rigorously defined inventory methods are required today to insure that a representative sample of all site types are found. Prior to 1980 site definitions varied considerably. Today, a site is considered when two or more artifacts are found at a specific locus; isolated finds are single objects. The use of "prominant" and "indistinct" to describe cultural material by Hogan (1979:34), with a real artifact density criteria for each, is not considered acceptable methodology today.

Forty-nine cultural resource sites have been located at Big Horn (Table D3-1). Nine of these sites require additional work before field evaluations can be made, however, since these sites are outside of proposed disturbance areas, no further work is planned. Table D3-1 depicts the 49 cultural resource sites at Big Horn.

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LAND QUALITY DIV.
DIST. III

Fortunately, all of the area inventoried prior to 1980 that will be disturbed by mining has been disturbed. All new areas of disturbance have been surveyed by current performance standards. Should new surface disturbance be planned within any of the areas surveyed prior to 1980, only the fieldwork and analysis need be required; the previous studies are a useful framework for further work. Some areas within the permit boundaries have never been surveyed, e.g. Section 16, T57N, R84W. These areas, however, have either

TFN 6 2/025
RECD JUL 30,2015

Permit No. 212-T2

DEQ 11-138

been disturbed under the previous permit, or will never be disturbed.

The paleontology report meets current performance standards. In a letter to WDEQ/LQD dated February 15, 1983 the Wyoming Geological Survey described the report as an "adequate" effort. The letter further requested information regarding the extent of Pleistocene gravels within the permit area after receiving information from an amateur collector that caribou fossils had been recovered from Pit 3. The area in question has been thoroughly mined and no further disturbance of Pleistocene geologic strata is planned. The applicant has promised on pages MP-148 and 149, however, that any paleontological remains uncovered by mining will be reported to WDEQ/LQD. The same commitment has also been made for cultural resources, D3-6 (Vol. 4), along with other general protective measures including restriction of employee access to significant sites and the monitoring of all significant sites over the life of the mine. Specific commitments to preserve archeological sites 48SH251, 350, 354, 436, 446, 453, and 455 are made by the applicant on pp. MP-148 and 149.

(2) Environmental Consequences

Although a number of archeological sites will be destroyed by the proposed mining operation the information contained in these sites has been recorded for posterity. Archeological sites are irretrievable resources in the sense that once the artifacts are removed from their context (the sites) valuable environmental and locational data cannot be recovered by future, more refined scientific techniques. This loss is mitigated to a degree by the use of state-of-the-art techniques present as much as possible. The maximum practical amount of information that the resource contains has been recovered for future laboratory study.

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LAND QUALITY DIV.
DIST. III

One final environmental consequence of surface mining must be mentioned. The oldest, most deeply buried, and most important archeological sites usually show no traces during a surface inventory. They exist at the interface of Pleistocene and Holocene stratigraphic levels. It is highly probable that surface mining for coal in Wyoming will uncover some of these sites. Company personnel should be made aware that there is the possibility that the oldest archeological sites in this country may be discovered by surface mining operations.

q. Alluvial Valley Floors

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 477-T2

(1) Evaluation of Compliance

Determination

The State Decision Document for Big Horn Coal, Permit No. 213-T1, dated August 21, 1981 identifies the Tongue River as an Alluvial Valley Floor. The Tongue River flows through the amendment one area and is also an AVF on the amendment area. This is based on a dependable supply of adequate quality water for irrigation; topographically suitable areas of practically manageable size with soils amendable to irrigation; historical water development and potential subirrigation. The extent is shown on Map D11-6 of the permit application as the terrace limits. These are not to be mined but will be disturbed and affected and agriculture will be interrupted. No other drainages are of significant size or lack the stream laid deposits necessary to be an Alluvial Valley Floor within the renewal and/or amendment areas.

Significance to Farming

There are 4 farm/ranch units that have developed agriculture on some portion of the Alluvial Valley Floor. There are the Terry, Shreibeis, Sanford and DeLapp operations. The most directly affected will be the Sanford unit which will be used for spoil and topsoil storage, and which will lie between the permanent impoundment and the river.

Addendum D-11-A of the permit application contains the information necessary to make significance to farming determinations, and it was possible to determine the proper values from the information provided.

Terry Unit

A total of 243 acres of land under varying management schemes could support a total of 30.03 animal units. Using the formula P=3+(.0014 (animal units over 100)) from Chapter III of the LQD Rules and Regulations, the farm can tolerate up to a 3% loss. Disturbance within the permit boundary of 11.6 acres would not be a significant loss. However, no disturbance or mining or interruption of farming activities is expected.

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LAND QUALITY DIV.

Schreibeis Unit

The 600 acres of the Schreibeis unit could support 35.48 animal units. Using the formula for significance, the farm unit could tolerate up to a 3% loss. Total potential loss

TFN 6 2/025
RECD JUL 30,2015
Permit No. 213-T2

to the farm is much less than 1%. As with the Terry unit, no disturbance is expected.

Sanford Unit

The Sanford unit is the critical area on the AVF since it contains a large irrigated terrace that will be disturbed and falls almost entirely within the amendment area. Pages D-11m and D-11n of the permit application show that the applicant has proposed disturbance on 3.3 acres of the AVF. This is an insignificant disturbance as far as total farm production is concerned and is allowed by law. The remaining 18 acres of disturbance is on an area of the farm that is not AVF.

DeLapp Unit

A total of 138.28 animal units were raised on 850.0 acres of land. An allowable loss of 3.05% was obtained from the significance formula. Potential disturbance will affect much less than 1%. However, no disturbance is expected.

The proposed disturbance to the AVF is not significant to any of the farming operations. All disturbed AVF will either have its functions restored or replaced immediately adjacent to the area. The application is in compliance with all applicable rules and regulations on Alluvial Valley Floors.

(2) Environmental Consequences

The proposed mining operation should have little or no effect on the adjacent AVF. Mining of alluvium is planned and the terrace of the Sanford farm will be used for topsoil storage and a dike for the permanent impoundment. The volume of water in the stream and alluvium should mask any short term drawdown effects of mining in the adjacent upland. All disturbed AVF will either be reconstructed on site or replaced on an adjacent area immediately to the west. The productivity of the land and use will be reestablished.

r. Air Quality

(1) Evaluation of Compliance

The Big Horn Coal Company obtained permit no. CT-209A from the Wyoming Department of Environmental Quality, Air Quality Division, in November, 1981. This permit allows the mining of up to 4.61 million tons of coal per year at the Big Horn

TFN 6 2/025
RECD JUL 30,2015

Docket No. 21-72

DEQ 11-141

mine and identifies the areas in which mining is to occur. The permit addresses air quality aspects of coal mining, haulage from mine pits to processing-loading facilities and of the facilities themselves. The applicant applied for an amendment to existing permit no. CT-209A to include the additional areas addressed in this State Program Permit renewal application on December 20, 1983. Approval of this permit amendment is expected in mid-fall, 1984. Big Horn Coal Company is authorized under existing permit CT-209A to continue operation until approval of the amended permit.

The applicant has demonstrated compliance with applicable Air Quality Division requirements.

(2) Environmental Consequences

Preliminary review of dispersion modeling performed in conjunction with the amendment application to Permit CT-209A indicates that all applicable air quality requirements shall be met and that total suspended particulate concentration limitations shall not be exceeded.

s. Bonding

(1) Evaluation of Compliance

Reclamation costs for the term of permit and a detailed estimate for reclamation cost after the first year of permitting are shown in the permit application, page RP-185. The applicant is estimating the total disturbed acreage at the end of the first year of the permit term to be 1348.4 acres. This includes 36 acres to be reclaimed if the proposed permanent impoundment should fail. The bond estimated by the applicant to reclaim this disturbance is $20,415,063.00 or $15,140.21 per acre. The calculations for the first year of the permit term include detailed, itemized cost estimates for facilities demolition and removal, overburden redistribution, topsoil redistribution, revegetation and miscellaneous costs. These estimates are based on unit costs of $3.55 per cubic yard for overburden haulage and $0.86 per cubic yard for topsoil haulage. Revegetation costs include seedbed preparation, seeding and mulching for a total of $837 per acre. The reclamation estimate includes the extra cost of the alternate reclamation plan in the event the proposed permanent impoundment would require backfilling and revegetation. Facilities demolition and removal costs were based on a detailed estimate prepared by the applicant's district office. The demolition costs in the 1982 annual report was increased by 7.16% to adjust for the last year's inflation rate.

R 10/12/87 REFER TO ADDENDUM 1 FOR THE PIT 5 REVISION PROCEDURES FOR BONDING.

Permit No. 213-T2

TFN 6 2/025
RECD JUL 30,2015

DEQ 11-142

The applicant is required to comply with W.S. 35-11-406(b)(vi) and Land Quality Division Regulations, Chapter XIII, 2.a.(1) and (2), and Chapter XIII,2.b. The applicant is required to provide two types of bond calculations; an "Area Bond" and an "Incremental Bond." The area bond consists of an estimate of the cost to complete rough backfilling as defined in Chapter I.2.(74). The incremental bond is an estimate of the cost of performing the remaining required reclamation work after rough backfilling is completed.

The applicant has provided a bond in the required amount of $20,415,063. This bond is divided into an incremental and area bond portion.

IV. Findings:

On the basis of the information set forth in the renewal application or from information otherwise available, which has been made available to the applicant, I, Lyle D. Randen, Administrator, Land Quality Division, find that the applicant has satisfied the requirements of W.S. 35-11-405(e) in that:

No. 1. The renewal application is accurate and complete. The applicant has provided Land Quality Division with a sworn statement stating that all information contained in the application is true and correct to the best of his knowledge. In addition, to the extent necessary and appropriate, independent agency verification supports the accuracy of the application. All information required by the Act and regulations for a renewal is contained in the application, including:

Identification of interests	Mining operation plan
Compliance information	Reclamation plan
Resource information	License information
Land use information	Insurance information
Maps and plans	Proof of publication
Permit fee	Required verification

Other agency approvals

No. 2. Supplemented and updated information has been submitted for the term of the renewal permit as required by LQD regulations, Chapter II, Section 3.b.(1)(b), Section 3.b.(2), Section 3.b.(3), Section 3.b.(8), and Section 3.b.(17) and Chapter XIII, Section 1.(b)1.

No. 3. Supplemental and updated information has been submitted for previous terms of the renewal permit.

TFN 6 2/025
RECD JUL 30,2015
213-T2

DEQ 11-143

No. 4. Operations to be conducted in areas covered during previous terms of the renewal permit plus those to be conducted in this term are in compliance with applicable laws and regulations, and the renewal will not jeopardize the operator's responsibility on existing affected land.

No. 5. With respect to areas proposed to be affected during the term of the renewal permit the findings of previous decision document(s) remain fully in effect except to the extent that they are modified or superseded by this finding.

No. 6. Public notice has been given and comments or objections received were handled in the following manner.

Public notice had been given and a letter of objection was received in a timely fashion from the Powder River Basin Resource Council (PRBRC). PRBRC raised the following issues in their objection: Blasting, Alluvial Valley Floors, Groundwater, and Toxic Disposal. An informal conference was held on May 9, 1984, before the Administrator of the Land Quality Division to discuss these issues. The Administrator reviewed all information and determined by letter to all parties concerned on July 3, 1984, that the issues expressed by PRBRC had been adequately addressed by the applicant and that the permit renewal application would be approved without further modification.

No other comments were received by the Land Quality Division pursuant to this permit renewal application.

No. 7. Permit conditions for purposes of the renewal include:

1. The applicant shall commit to following these additional blasting procedures immediately:

   Access to charged holes shall be controlled and clearly marked by the use of signs and highway cones.

   Prior to detonation, the blasting area shall be cleared of all personnel and equipment.

2. The applicant shall place warning signs near the exposed pit 1 highwall located in the northeast corner of the pit. The signs shall give warning of the exposed highwall and shall state:

   Warning
   Danger
   Exposed Highwall
   Keep Out

TFN 6 2/025
RECD JUL 30, 2015
Permit No. 243-T2

DEQ 11-144

The signs shall be posted within thirty (30) days of permit approval and shall remain in place until mining activities resume.

3. The operator shall submit an approved instrument granting public access for the proposed Bass and Trout Reservoirs within six months after this permit renewal approval. The proposed reservoir sites shall be backfilled and reclaimed according to the operator's reclamation plan in the event that acceptable public access is not provided.

4. Mining or mining related disturbances shall not take place outside of the approved term of permit area.

5. The permit shall be renewed prior to the expiration of the 5 year term of permit. Application for renewal must be made not less than 120 days prior to expiration.

6. The operator shall conduct all operations in accordance with his approved mining and reclamation plan and any conditions of the permit or license.

7. The operator shall provide the rights of entry as described by the Act and any regulations promulgated pursuant thereto.

8. The operator shall conduct his operation in a manner which prevents violation of any other applicable State or Federal law; and

9. The operator shall take all possible steps to minimize any adverse impact to the environment or public health and safety resulting from noncompliance with his approved mining and reclamation plan and other terms and conditions of any permit or license, including monitoring to define the nature of the noncompliance and warning of any potentially dangerous condition.

10. The operator must first obtain approval from the Secretary, U.S. Department of the Interior, prior to mining any coal owned by the United States of America.

RP 10/12/87
No. 8 REFER TO THE ADDENDUM FOR THE DATES OF PUBLIC NOTICE, OBJECTIONS, INFORMAL CONFERENCE, AND RESOLUTIONS.

Signed this 1 day of August, 1984.

L. D. Randen

Lyle Randen, Administrator

TFN 6 2/025
RECD JUL 30, 2015

Permit No. 211-T2

DEQ 11-145

ADDENDUM D11-3

ADDENDUM D11-3

Borehole and Monitor Well Logs

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-147

Test Hole Log
WESTERN WATER CONSULTANTS

Hole/Well No.: 578418-AL-1	Drilling Company: A-3 Services Driller: Shawn Ankney	Well Seals: Depth: 5′ to 1.0 Type: 3/8" chips
ompany: RAMACO	Drilling Method: Mud Rotary Sample Method: Grab @ 5' intervals	Depth: 1.0 to +0.5 Type: Cement Depth: to Type:
Project: Brook Mine Monitor Network	Drilling Fluids: Gel	Formation Packer: None Location: N/A
County: Sheridan	Hole Depth: 27' Diameter: 9⅞" Well Depth: 25' Diameter: 5"	Protective Casing: Dia: 8" Type: Locking Steel Depth: 2'
Township: 57N Range: 84W	Casing Type: Certa-lok PVC Diameter: 5" ID Length: Gage: SDR-17	Samples: Material Samples Y(N) E-Log Y(N) Water Samples Y(N)
Location: Section: 18	Perforation Interval: 25' To 5' Type: 5" PVC Slot Size: 0.02"	Water Level: Date:
Date Started: 9-30-13 Date Finished: 9-30-13	Filter Pack 27′ To 5′ Type: 10/20 Silica Quantity (ft^2):	Ground Elevation: (msl) Measuring Point Elevation: (msl)
Recorded By: Swayne Redinger	Centralizer(s): (Y) N Type: Locations: None	MP Height (ft)

Remarks:

From	To	DRILLING LOG: (Geology, drilling and water conditions, and sampling)	Time
0	1	Topsoil, loose, weathered, brown with scoria chips	
1	14	Scoria chips in loose silty claystone, light brown, colluvial	
14	21	Alluvium, scoria in silty clay matrix, sub round. Rig chatter, less matrix in lower portion (more scoria)	
21	22	Claystone, soft, light brown	
22	25	Scoria, sub round in brown matrix, (claystone)	
25	27	Claystone, grey, firm, Bedrock	
		Total depth = 27′	

TFN 6 2/025
RECD NOV 14, 2014

Test Hole Log
WESTERN WATER CONSULTANTS

Hole/Well No.:578512-AL-1	Drilling Company: A-3 Services Driller: Shawn Ankney	Well Seals: Depth: 5′ to 1.0 Type: 3/8" chips
ompany: RAMACO	Drilling Method: Mud Rotary Sample Method: Grab @ 5' intervals	Depth: 1.0 to +0.5 Type: Cement Depth: to Type:
Project: Brook Mine Monitor Network	Drilling Fluids: Gel	Formation Packer: None Location: N/A
County: Sheridan	Hole Depth: 22' Diameter: 9⅞" Well Depth: 20' Diameter: 5"	Protective Casing: Dia: 8" Type: Locking Steel Depth: 2′
Township: 57N Range: 85W	Casing Type: 5" PVC Diameter: 5" ID Length: Gage: SDR-17	Samples: Material Samples Y(N) E-Log Y(N) Water Samples Y(N)
Location: Section: 13	Perforation Interval: 20' To 5' Type: 5" PVC Slot Size: 0.02"	Water Level: Date:
Date Started: 9-25-13 Date Finished: 9-25-13	Filter Pack Location: To Type:10/20 Silica Quantity (ft^2):	Ground Elevation: (msl) Measuring Point Elevation: (msl)
Recorded By: Swayne Redinger	Centralizer(s): Y(N) Type: Plastic Locations:	MP Height (ft)

Remarks:

From	To	DRILLING LOG: (Geology, drilling and water conditions, and sampling)	Time
0	1	Topsoil	
1	17	Coal and scoria chips in a brown silt to sandy clay matrix, more scoria at bottom sub-round	
17	19.5	Scoria chips, sub-round, larger, rig chatter	
19.5	22	Claystone, brown, soft	
		Total depth 22'	

TFN 6 2/025
RECD NOV 14, 2014

Test Hole Log
WESTERN WATER CONSULTANTS

Hole/Well No.: 578513-AL-1	Drilling Company: A-3 Services Driller: Shawn Ankney	Well Seals: Depth: 5′ to 1.0 Type: 3/8" chips
Company: RAMACO	Drilling Method: Mud Rotary Sample Method: Grab @ 5' intervals	Depth: 1.0 to +0.5 Type: Cement Depth: to Type:
Project: Brook Mine Monitor Network	Drilling Fluids: Gel	Formation Packer: None Location: N/A
County: Sheridan	Hole Depth: 22' Diameter: 9⅞" Well Depth: 20' Diameter: 5"	Protective Casing: Dia: 8" Type: Locking Steel Depth: 2'
Township: 57N Range: 85W	Casing Type: Certa-lok PVC Diameter: 5" ID Length: Gage: SDR-17	Samples: Material Samples Y(N) E-Log Y(N) Water Samples Y(N)
Location: Section: 13	Perforation Interval: 20' To 5' Type: 5" PVC Slot Size: 0.02"	Water Level: Date:
Date Started: 9-30-13 Date Finished: 9-30-13	Filter Pack 20′ To 5′ Type: 10/20 Silica Quantity (ft^2):	Ground Elevation: (msl) Measuring Point Elevation: (msl)
Recorded By: Swayne Redinger	Centralizer(s): (Y) N Type: Locations: None	MP Height (ft)

Remarks: Driller notes Masters feels wet.

From	To	DRILLING LOG: (Geology, drilling and water conditions, and sampling)	Time
0	1	Weathered, soil, brown	
1	12	Colluvial fill, scoria chips and weathered claystone	
12	20	Scoria chips in clay matrix, rounded, alluvial. Rig chatter, pea gravel sized pieces	
20	22	Claystone, brown to grey, soft, Bedrock	
		Total depth 22'	

TFN 6 2/025
RECD NOV 14, 2014

LOG OF BOREHOLE	BOREHOLE # 12-BH-1	Page 1 of 1
PROJECT: RAMACO AVF TRANSECTS	**DRILLER:** Yon Malkuch	**DATE:** 5/5/14
CLIENT/LOCATION: Brook Mine	**RIG:** Direct Push Power Pro	**START:** 9:35 am
FACILITY:	**BIT(S):** Direct Push Drive Point	**FINISH:** 10:15 am
GROUND ELEVATION:		
COORDINATES:	**FLUID:** None	**TOTAL DEPTH:** 27′
N: **E:**		
SURVEYED: Handheld	**LOG BY:** Swayne Redinger	**HOLE DIAMETER:** 2⅛″

DEPTH From	DEPTH To	DESCRIPTION OF MATERIALS (ASTM D2488)	ASTM D2487 SYMBOL	TEST, SAMPLES, OR NOTES
0	3	Weathered topsoil brown to grey		1.5″ POLYACETATE TUBES
3	6	Colluvial pebbles of scoria in a silty clay matrix, angular, dry, brown		1.5″ POLYACETATE TUBES
6	12	Clay with silt, dark brown, soft, wet		1.5″ POLYACETATE TUBES
12	16	Angular scoria in clay/silt matrix, brown & wet		1.5″ POLYACETATE TUBES
16	18	Sub-round scoria in silty matrix, wet, brown. Very soft at 18′. Alluvium		1.5″ POLYACETATE TUBES
'8	22	Silt & clay, dark brown, colluvial		1.5″ POLYACETATE TUBES
22	26	Scoria gravels in silt/clay matrix, brown, wet, sub-round, alluvium		1.5″ POLYACETATE TUBES
26	27	Coal, bedrock at 27′, soft zone 26-27′		1.5″ POLYACETATE TUBES
		TD at 27′		

TFN 6 2/025
RECD NOV 14, 2014

LOG OF BOREHOLE	BOREHOLE # 12-BH-2	Page 1 of 1
PROJECT: RAMACO AVF TRANSECTS	**DRILLER:** Yon Malkuch	**DATE:** 5/5/14
CLIENT/LOCATION: Brook Mine	**RIG:** Direct Push Power Pro	**START:** 10:45 am
FACILITY:	**BIT(S):** Direct Push Drive Point	**FINISH:** 11:15 am
GROUND ELEVATION:		
COORDINATES:	**FLUID:** None	**TOTAL DEPTH:** 28′
N: **E:**		
SURVEYED: Handheld	**LOG BY:** Swayne Redinger	**HOLE DIAMETER:** 2⅛″

DEPTH From	DEPTH To	DESCRIPTION OF MATERIALS (ASTM D2488)	ASTM D2487 SYMBOL	TEST, SAMPLES, OR NOTES
0	2	Weathered topsoil, brown-grey		1.5″ POLYACETATE TUBES
2	17	Clay fill, brown-grey with some scoria chips. Damp at 7′ Tan/brown at 7′ & less scoria, all colluvium		1.5″ POLYACETATE TUBES
17	25	Scoria chips/pieces angular (colluvium) in clay matrix, brown with reds, fatty clays, wet		1.5″ POLYACETATE TUBES
25	28	Claystone, grey, firm, damp		1.5″ POLYACETATE TUBES
		Bedrock at 28′		

TFN 6 2/025
RECD NOV 14, 2014

LOG OF BOREHOLE	BOREHOLE # 13-BH-1	Page 1 of 1
PROJECT: RAMACO AVF TRANSECTS	**DRILLER:** Yon Malkuch	**DATE:** 5/5/14
CLIENT/LOCATION: Brook Mine	**RIG:** Direct Push Power Pro	**START:** 11:45 am
FACILITY:	**BIT(S):** Direct Push Drive Point	**FINISH:** 12:05 pm
GROUND ELEVATION:		
COORDINATES:	**FLUID:** None	**TOTAL DEPTH:** 23′
N: **E:**		
SURVEYED: Handheld	**LOG BY:** Swayne Redinger	**HOLE DIAMETER:** 2⅛″

DEPTH From	DEPTH To	DESCRIPTION OF MATERIALS (ASTM D2488)	ASTM D2487 SYMBOL	TEST, SAMPLES, OR NOTES
0	2	Topsoil, weathered, brown/grey		1.5″ POLYACETATE TUBES
2	5	Clay, colluvium, dry		1.5″ POLYACETATE TUBES
5	17	Clay, damp, brown, isolated scoria chips, colluvium		1.5″ POLYACETATE TUBES
17	21	Clays with sandstone & scoria derivatives, reds & browns, damp, some organics		1.5″ POLYACETATE TUBES
21	23	Reddish brown silt with sandstone & scoria chips		1.5″ POLYACETATE TUBES
		Refusal at 23′. Hard, fine grained sandstone in bit, dry. Assume sandstone bedrock		

TFN 6 2/025
REGD NOV 14, 2014

LOG OF BOREHOLE	BOREHOLE # 13-BH-2	Page 1 of 1
PROJECT: RAMACO AVF TRANSECTS	**DRILLER:** Yon Malkuch	**DATE:** 5/5/14
CLIENT/LOCATION: Brook Mine	**RIG:** Direct Push Power Pro	**START:** 12:15 pm
FACILITY:	**BIT(S):** Direct Push Drive Point	**FINISH:** 12:40 pm
GROUND ELEVATION:		
COORDINATES:	**FLUID:** None	**TOTAL DEPTH:** 17′
N: **E:**		
SURVEYED: Handheld	**LOG BY:** Swayne Redinger	**HOLE DIAMETER:** 2⅛″

DEPTH From	DEPTH To	DESCRIPTION OF MATERIALS (ASTM D2488)	ASTM D2487 SYMBOL	TEST, SAMPLES, OR NOTES
0	2	Weathered topsoil		1.5″ POLYACETATE TUBES
2	4	Silty clays, dark brown/dry		1.5″ POLYACETATE TUBES
4	9	Silty clays with scoria chips, dark brown, damp		1.5″ POLYACETATE TUBES
9	12.5	Clays, reds & greys with substantial scoria (angular) chips, very hard to push		1.5″ POLYACETATE TUBES
12.5	13.5	Clay, dry, very dark brown/grey		1.5″ POLYACETATE TUBES
'2.5	16	Silty sand with clay, dry, tan/brown		1.5″ POLYACETATE TUBES
16	17	Claystone, silty grey with tans, firm		1.5″ POLYACETATE TUBES
		Bedrock at 17′		

TFN 6 2/025
RECD NOV 14, 2014

LOG OF BOREHOLE	BOREHOLE # 18-BH-1	Page 1 of 1
PROJECT: RAMACO AVF TRANSECTS	**DRILLER:** Yon Malkuch	**DATE:** 5/5/14
CLIENT/LOCATION: Brook Mine	**RIG:** Direct Push Power Pro	**START:** 12:50 pm
FACILITY:	**BIT(S):** Direct Push Drive Point	**FINISH:** 1:15 pm
GROUND ELEVATION:		
COORDINATES:	**FLUID:** None	**TOTAL DEPTH:** 26′
N: **E:**		
SURVEYED: Handheld	**LOG BY:** Swayne Redinger	**HOLE DIAMETER:** 2⅛″

DEPTH From	DEPTH To	DESCRIPTION OF MATERIALS (ASTM D2488)	ASTM D2487 SYMBOL	TEST, SAMPLES, OR NOTES
0	3	Weathered soil, brown		1.5″ POLYACETATE TUBES
3	9	Firm, organic clays with silts and few scoria chips, dark brown		1.5″ POLYACETATE TUBES
9	10.5	Coaly, shale (organic), black, dry		1.5″ POLYACETATE TUBES
10.5	11	Scoria pieces, angular, red, dry		1.5″ POLYACETATE TUBES
11	18.5	Scoria pieces, in clay matrix, damp, brown, sub-round (alluvial)		1.5″ POLYACETATE TUBES
18.5	20	Scoria gravel in clay, reddish brown, sub-angular, damp		1.5″ POLYACETATE TUBES
20	25.5	Sandy fill with scoria, reds & browns, damp, some clays, dry 20-20.5′, sub-angular		1.5″ POLYACETATE TUBES
25.5	26	Coal, black, hard		1.5″ POLYACETATE TUBES
		Bedrock at 26′ (refusal)		

TFN 6 2/025
RECD NOV 14, 2014

LOG OF BOREHOLE	BOREHOLE # 18-BH-2	Page 1 of 1
PROJECT: RAMACO AVF TRANSECTS	**DRILLER:** Yon Malkuch	**DATE:** 5/5/14
CLIENT/LOCATION: Brook Mine	**RIG:** Direct Push Power Pro	**START:** 1:20 pm
FACILITY:	**BIT(S):** Direct Push Drive Point	**FINISH:** 1:45 pm
GROUND ELEVATION:		
COORDINATES:	**FLUID:** None	**TOTAL DEPTH:** 21′
N: **E:**		
SURVEYED: Handheld	**LOG BY:** Swayne Redinger	**HOLE DIAMETER:** 2⅛″

DEPTH From	DEPTH To	DESCRIPTION OF MATERIALS (ASTM D2488)	ASTM D2487 SYMBOL	TEST, SAMPLES, OR NOTES
0	1	Weathered soil, brown		1.5″ POLYACETATE TUBES
1	5	Scoria chips on clay & silt matrix, dry & brown		1.5″ POLYACETATE TUBES
5	7	Dark brown, clayey silt, dry		1.5″ POLYACETATE TUBES
7	10	Clay, moist, soft		1.5″ POLYACETATE TUBES
10	10.5	Carbonaceous clay, damp, grey		1.5″ POLYACETATE TUBES
10.5	21	Scoria-sub-angular, sand to pebbles in clayey matrix, red to brown, damp (alluvial/colluvial)		1.5″ POLYACETATE TUBES
21		Coal, black, hard		1.5″ POLYACETATE TUBES
		Bedrock at 21′		

TFN 6 2/025
RECD NOV 14, 2014

LOG OF BOREHOLE	BOREHOLE # HW-BH-1, 2 and 3	Page 1 of 1
PROJECT: RAMACO HIDDEN WATER AVF	**DRILLER:** Swayne Redinger	**DATE:** 5/5/14
CLIENT/LOCATION: Brook Mine	**RIG:** Hand Auger	**START:** 3:15 pm
FACILITY:	**BIT(S):** Hand Auger	**FINISH:** 3:45 pm
GROUND ELEVATION:		
COORDINATES:	**FLUID:** None	**TOTAL DEPTH:** 3 - 5′
N: **E:**		
SURVEYED: Handheld	**LOG BY:** Swayne Redinger	**HOLE DIAMETER:** 3″

DEPTH From	DEPTH To	DESCRIPTION OF MATERIALS (ASTM D2488)	ASTM D2487 SYMBOL	TEST, SAMPLES, OR NOTES
		HW-BH-1		
0	1	Topsoil, dark brown with scoria chips		
1	3	Scoria chips in silty clay matrix, brown, wet, angular to sub-angular, refusal on large rock at 3.0 ft, colluvial		GRAB
		Refusal at 3.0′		
		HW-BH-2 Start 3:55 pm Finish 4:20 pm		
0	1	Topsoil, dark brown with scoria		
1	3	Scoria in silty matrix, gravel to silt in size, sandstone pieces as well, dry, angular, colluvial		GRAB
		Refusal at 3′		
		HW-BH-3 Start 4:30 pm Finish 4:50 pm		
0	1.5	Topsoil, organics, soft, dark brown		
1.5	2.0	Scoria chips in silty matrix, dark brown		
2.0	4.0	Soft again, fine grained sand, brown, damp, carbonaceous clayey material at 3.5′		
4.0	5.0	Scoria at 4.0 ft, carbonaceous material, silts and sands 4.5-5′, damp, refusal at 5.0′ on large rock. All colluvial.		GRAB
		Refusal at 5.0′		

TFN 6 2/025
RECD NOV 14, 2014

ADDENDUM D11-4

ADDENDUM D11-4

SEO Water Rights

TFN 6 2/025
RECD NOV 14, 2014

ADDLEMAN SPRINKLER 30385D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-160

RAMACO
Form S.W. 1
Rev. 12/22/2008

Brook Mine

NOTE: **Do not fold this form. Use typewriter or print neatly with black ink.**

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING
STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the _____ day of _____, 20_____, at _____ o'clock _____ M.

_____

Recorded in Book _____ of Ditch Permits, on Page_____

Fee Paid $ _____ Map Filed _____

WATER DIVISION NO. _____ DISTRICT NO. _____ TEMPORARY FILING NO. _____

PERMIT NO. **P30385.0D**

NAME OF FACILITY Addleman Sprinkler

1. Name(s), mailing address and phone no. of applicant(s) is/are , PO Box 68, Ranchester, Wyoming, 82839

E-mail address: _____
(if more than one applicant, designate one to act as Agent for the others)

2. Name & address of agent to receive correspondence and notices , PO Box 6498, Sheridan, Wyoming, 82801

E-mail address: _____

3. (a) The use to which the water is to be applied is Irrigation-- Surface water

(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown in item 10 of the application and the details of the facilities used to divert and convey the appropriation must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

4. The source of the proposed appropriation is Tongue River, tributary of Yellowstone River, tributary of Missouri River

5. The point of diversion of the proposed works is located _____ feet distant from the _____ corner of Section 19 T. N ., R. W ., and is in the SW1/4NW1/4 of Section 19 T. 057N ., R. 084W .
Lot _____ Block _____ Subdivision Name _____
Latitude (Decimal Degrees) _____ Longitude (Decimal Degrees) _____

6. Are any of the lands crossed by the proposed facility owned by the State or Federal government? If so, describe lands and indicate whether State or Federally owned.

7. The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is 1.1 cubic feet per second (c.f.s.)

8. The accompanying map is prepared in accordance with the State Engineer's Rules and Regulations for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the completion of construction is Two Years, and to complete the application of water to the beneficial uses stated in this application is Two Years.

TFN 6 2/025
RECD NOV 14, 2014

10. The land to be irrigated under this permit is described in the following tabulation. (Give irrigable acreage in each 40-acre subdivision. Designate ownership of land, Federal, State or private. If private, list names of owners and land owned separately.) If application is for stock, domestic, or for purposes other than irrigation, indicate point of use by 40-acre subdivision and owner.

Town-	Range	Sec.	NE¼				NW¼				SW¼				SE¼				
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
			Original Supply Irrigation for the following lands. Land Owner: , Status: ADJUDICATED.																
057N	084W	19							A 7 13.00										13.00
			Original Supply Irrigation for the following lands. Land Owner: , Status: ADJUDICATED.																
057N	085W	24				4.00													4.00

Number of acres to receive original supply	17.00
Number of acres to receive supplemental supply	0.00
Total number of acres to be irrigated	17.00

REMARKS

I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

W.J. Pilch
Printed Name and Signature of Applicant or Agent

Date

TFN 6 2/025
RECD NOV 14, 2014

THE STATE OF WYOMING } ss.
STATE ENGINEER'S OFFICE }

TEMPORARY FILING NO. _____

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use the water available in the stream after all prior rights are satisfied.

The time for completing the construction work shall terminate on May 2, 1990

The time for completing the application of water to beneficial use shall terminate on December 31, 1991, and final proof of appropriation shall be made within 5 years thereafter.

Witness my hand this 10th day of March, A.D. 1990

TFN 6 2/025
RECD NOV 14, 2014

_____

Permit No. P30385.0D

Page No. 130/65

PERMIT NO. P30385.0D

PERMIT STAT□S

Priority Date August 2□, 1989 Approval Date March 10, 1990

TFN 6 2/025
RECD NOV 14, 2014

NOTICE

This permit does not constitute a complete water right. It is your authority to begin construction work.

All appropriations for irrigation are limited to 1 cubic foot per second of time for each □0 acres of land irrigated, except as provided in Section □1□□320, Wyoming Statutes, 19□□ Appropriations for other uses are limited to the amount of water beneficially used in accordance with the terms of the permit.

Notice of completion of work and of application of the water to the beneficial uses described in the permit, must be filed in the State Engineer's Office before the expiration of the time allowed in the permit.

If extensions of time beyond the time limits set forth in the permit are re□uired, re□uests for same must be in writing, stating why the additional time is re□uired, and must be received in the State Engineer's Office before the expiration of the time allowed in the permit.

To perfect your water right, your Water Division Superintendent, or his authori□ed representative, will contact you after you have submitted notice to the State Engineer stating that you have applied the water to the beneficial uses described in your permit. After execution of the proof, it will be considered by the State □oard of Control, and, if found to be satisfactory, the □oard will issue to you a Certificate of Appropriation which will constitute a completed water right.

The granting of a permit does not constitute the granting of right□f□way. If any right□f□way is necessary in connection with the application it should be understood that this responsibility is the applicant's.

TWN	RGE	SEC	NE1/4				NW1/4				SW1/4				SE1/4				TOTAL
			NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	
			Original Supply Irrigation for the following lands. Land Owner: , Status: ADJUDICATED.																
057N	084W	19							A 7 13.00										13.00
			Original Supply Irrigation for the following lands. Land Owner: , Status: ADJUDICATED.																
057N	085W	24				4.00													4.00

TFN 6 2/025
RECD NOV 14, 2014

B134035 WATERHAUL 34862D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-166

SW1-1235
Form S.W. 1
Rev. 12/22/2008

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

J. Felman

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING
STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the 4th day of January, 20 13, at 2:37 o'clock P M.

State Engineer

Recorded in Book 160 of Ditch Permits, on Page 41

Fee Paid $ 50.00 Map Filed SA-33, 34862D

WATER DIVISION NO. 2 DISTRICT NO. 4 TEMPORARY FILING NO. 35 4/289 JMF

PERMIT NO. 34862

NAME OF FACILITY B134035 & B134036 CB WATER HAUL

1. Name(s), mailing address and phone no. of applicant(s) is/are WYDOT, 5300 BISHOP BLVD., CHEYENNE, Wyoming, 82009, PH: 307-777-4748

E-mail address:
(if more than one applicant, designate one to act as Agent for the others)

2. Name & address of agent to receive correspondence and notices MATT SIMPSON, 5300 BISHOP BLVD., CHEYENNE, Wyoming, 82009, PH: 307-777-4748

E-mail address: matt.simpson@wyo.gov

3. (a) The use to which the water is to be applied is Temporary (Road Construction) INDUSTRIAL JMF
(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown in item 10 of the application and the details of the facilities used to divert and convey the appropriation must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

4. The source of the proposed appropriation is Big Goose Creek, tributary of Tongue River, tributary of Yellowstone River, tributary of Missouri River

5. The point of diversion of the proposed works is located _____ feet distant from the _____ corner of Section _____ T. _____ ., R. _____ ., and is in the NW1/4SW1/4 of Section 27 T. 057N ., R. 084W . 6.S.
Lot _____ Block _____ Subdivision Name _____
Latitude (Decimal Degrees) 44 42.88278 Longitude (Decimal Degrees) -106.98750

6. Are any of the lands crossed by the proposed facility owned by the State or Federal government? If so, describe lands and indicate whether State or Federally owned.

7. The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is 1 cubic feet per second (c.f.s.)

8. The accompanying map is prepared in accordance with the State Engineer's Rules and Regulations for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the completion of construction is Two Years, and to complete the application of water to the beneficial uses stated in this application is Two Years

TEN 6 2/025
RECD NOV 14, 2014

Permit No. 34862 Page No. 41
(Leave Blank)

10. The land to be irrigated under this permit is described in the following tabulation. (Give irrigable acreage in each 40-acre subdivision. Designate ownership of land, Federal, State or private. If private, list names of owners and land owned separately.) If application is for stock, domestic, or for purposes other than irrigation, indicate point of use by 40-acre subdivision and owner.

Town-	Range	Sec.	NE¼				NW¼				SW¼				SE¼				
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
UNKNOWN SURVEY			Temporary (Road Construction) at a rate not to exceed - c.f.s. Land Owner: State, Office of State Lands & Investments - ,																
057N	084W	27	---------- A ALL ----------																
57	84	28								ALL									SWF

Number of acres to receive original supply 0.00
Number of acres to receive supplemental supply 0.00
Total number of acres to be irrigated 0.00

REMARKS

NONE

THE AMOUNT OF APPROPRIATION SHALL BE LIMITED TO THE AMOUNT OF WATER USED FOR TEMPORARY INDUSTRIAL HIGHWAY CONSTRUCTION PURPOSES ONLY, NOT TO EXCEED THE DIVERSION RATE FROM THE BIG GOOSE CREEK OF 450 GPM OR 1.0 CFS OR 300,000 GALLONS PER DAY OR A TOTAL OF ~~1,000,000~~ 3,000,000 GALLONS IN TWO YEARS. THE WATER WILL BE PIPED AND/OR TRUCK HAULED TO THE POINTS OF USE FOR HIGHWAY CONSTRUCTION PURPOSES. PROJECT B134035 & B134036 CB. JWF

I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

MATT SIMPSON
Printed Name and Signature of Applicant or Agent

January 4, 2013
Date

TFN 6 2/025
RECD NOV 14, 2014

THE STATE OF WYOMING }
STATE ENGINEER'S OFFICE } ss.

TEMPORARY FILING NO. 35 6/267

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use the water available in the stream after all prior rights are satisfied.

The amount of appropriation shall be limited to the amount used for temporary industrial (Road construction) purposes only, not to exceed 1.0 cubic feet of water per second of time, 30,000 gallons per day, or a total of 3,000,000 gallons over a two year period.

The appropriation granted under this permit shall extend for only the period of time required to complete the road construction proposed under ~~Big Piney Airport~~ This Water Haul and in no case will extend beyond January 10, 2015, or upon completion of the B134035 & B134036 Water Haul, whichever comes first.

The notices of completion and beneficial use are waived and will not be required because of the temporary nature of this appropriation.

This permit is granted with the condition that the permittee must notify the District Water Commissioner prior to diverting water.

This permit is conditioned on the holder of this permit securing and/or providing free and unencumbered access to this facility site to allow State Engineer personnel to perform their duties as prescribed by Law. These duties include, but are not limited to, construction inspections and water administration.

NO WATER SHALL BE DIVERTED UNDER THIS PERMIT UNLESS THERE IS SURPLUS WATER IN THIS DRAINAGE SYSTEM. WATER MAY NOT BE AVAILABLE UNDER THIS PERMIT DURING THE SUMMER MONTHS AND IN SOME DRAINAGE SYSTEMS WATER MAY NOT BE AVAILABLE DURING THE FALL, WINTER AND EARLY SPRING DUE TO FILLING OF RESERVOIRS. DURING THESE TIME PERIODS IT MAY BE NECESSARY FOR YOU TO OBTAIN WATER FROM EXISTING APPROPRIATIONS BY WATER AGREEMENT FILED WITH AND APPROVED BY THE STATE ENGINEER.

This permit will be automatically cancelled on January 10, 2015.

No final proof of appropriation to be accepted under this permit.

~~The time for completing the construction work shall terminate on December 31, 20_____.~~

~~The time for completing the application of water to beneficial use shall terminate on December 31, 20_____, and final proof of appropriation shall be made within 5 years thereafter.~~

Witness my hand this 14th day of January, A.D. 2013.

PATRICK T. TYRRELL, State Engineer

Permit No. 34862

Page No. 41 (Leave Blank)

TFN 6 2/025
RECD NOV 14, 2014

PERMIT NO. 34862

PERMIT STATUS

Priority Date January 4, 2013 Approval Date January 14, 2013

NOTICE

This permit, does not constitute a complete water right. It is your authority to begin construction work, which must be commenced within the time allowed in the permit.

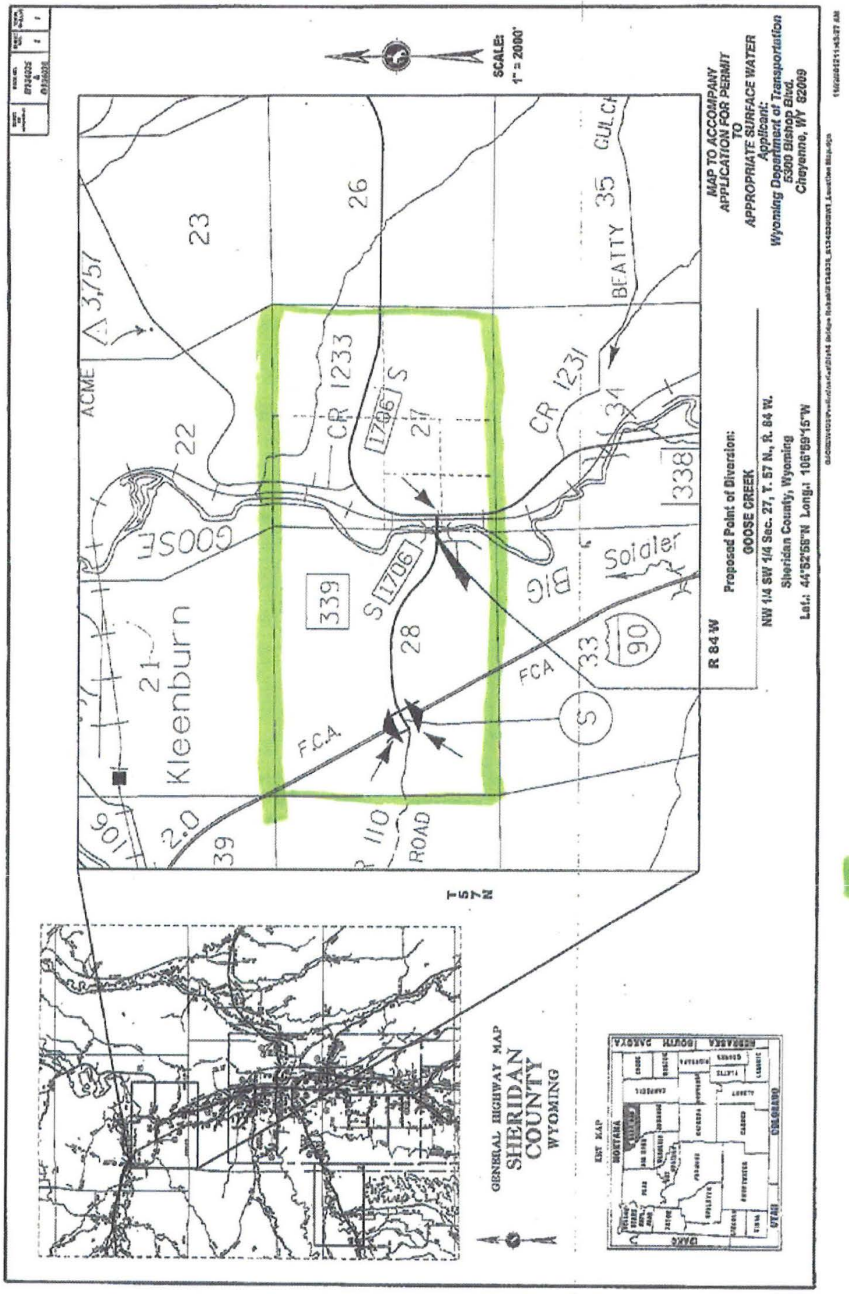
Notice of completion of the work described in the permit, must be filed in the State Engineer's Office before the expiration of the time allowed in the permit.

If extensions of time beyond the time limits set forth in the permit are required, requests for same must be in writing, stating why the additional time is required, and must be received in the State Engineer's Office before the expiration of the time allowed in the permit.

Once the Notice of Completion has been filed, Proof of Appropriation will be prepared and sent to your Water Division Superintendent. The Superintendent will arrange with you for an inspection of the facility. Should you desire adjudication, the Proof will be considered by the Board of Control, and, if found to be satisfactory, the Board will issue to you a Certificate of Construction which will constitute a completed water right.

The granting of a permit does not constitute the granting of right-of-way. If any right-of-way is necessary in connection with the application it should be understood that this responsibility is the applicant's.

TEN 6 2/025
RECD NOV 14, 2014



Area of use

THE AMOUNT OF APPROPRIATION SHALL BE LIMITED TO THE AMOUNT OF WATER USED FOR TEMPORARY INDUSTRIAL HIGHWAY CONSTRUCTION PURPOSES ONLY, NOT TO EXCEED THE DIVERSION RATE FROM THE BIG GOOSE CREEK OF 450 GPM OR 1 CFS OR 300,000 GALLONS PER DAY OR A TOTAL OF 3,000,000 GALLONS IN TWO YEARS. THE WATER WILL BE PIPED AND/OR TRUCK HAULED TO THE POINTS OF USE FOR CONSTRUCTION PURPOSES.

APPROVED: January 14, 2013

Patrick T. Tyrrell
STATE ENGINEER

MAP TO ACCOMPANY APPLICATION FOR
B134035 & B134036 CB WATER HAUL

APPLICANT: WYOMING DEPARTMENT OF TRANSPORTATION
5300 BISHOP BLVD.
CHEYENNE, WY 82009

TFN 6 2/025
RECD NOV 14, 2014

25 4/289 34862

BAXTER DITCH 12537D

TFN 6 2/025
RECD NOV 14, 2014

October 2014 Addendum D11-4-14

RAMACO

Brook Mine

Application for a Permit to Divert and

Cert. Record 58 P. 74 Ac. 20.

THE S. A. BRISTOL CO., PRINTERS AND BINDERS, CHEYENNE, WYO.

Proof submitted. NOV 15 1916

WATER DIVISION NO. 2 DISTRICT NO.

I, Arnold Ischuga, of Sheridan, County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant Jane Baxter
2. The postoffice address of the applicant Ranchester, Wyo
3. The use to which the water is to be applied is irrigation
4. The name of the ditch or canal is Baxter Ditch
5. The source of the proposed appropriation is gulch, tributary to Six mile creek, flowing into Tongue River
6. The headgate of the proposed ditch or canal is located N. 22° W. 805 ft. & N. 10 30' W. 285 ft. from the South ¼ corner of Section 8, Township 57 N. Range 85 W.
7. The said ditch or canal is to be 0.35 miles long and to pass through the following lands (give route by courses and distances, or by naming legal subdivisions crossed): SE¼ SW¼ Sec. 8, T. 57 N. R. 85 W.
8. The dimensions of said works are: (a) [At headgate] Width on top (at water-line) 3 feet; width on bottom 2 feet; depth of water 0.5 feet; grade 10.5 feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate:

[At ....] Width on top (at water-line) .... feet; width on bottom .... feet; depth of water .... feet; grade .... feet per mile.

[At ....] Width on top (at water-line) .... feet; width on bottom .... feet; depth of water .... feet; grade .... feet per mile.

[At ....] Width on top (at water-line) .... feet; width on bottom .... feet; depth of water .... feet; grade .... feet per mile.

9. Describe the character of proposed works, stating: 1st. The nature of the material to be moved. 2nd. Number and length of tunnels, if any. 3rd. Amount of fluming, if any.

1. Earth 2 none 3. none 4. Headworks to consist of a dam across gulch 101 ft long with maximum depth of 9.8 ft. forming a reservoir of 18/100 acres area with average depth of 3.5 ft of water

10. The estimated cost of said ditch & headworks is 350 Dollars.
11. The land to be irrigated has a total area of twenty acres, described as follows:

(Give estimated acreage in fractions of subdivisions)

SE¼ SW¼ Sec. 8, T. 57 N. R. 85 W. 20 acres

TFN 6 2/025
RECD NOV 14, 2014

12. Construction will begin on proposed works on or before Dec 31, 1914
13. The time required for the completion of ditches and other distributing works is one year from Dec 31, 1914
14. The time required to complete the application of water to the beneficial use stated in this application is one year from Dec 31, 1914
15. A map of the proposed ditch or canal, prepared in accordance with Chapter 14, R. S. 1899, accompanies this application.

Signed: Arnold Ischuga

RAMACO

Appropriate the Water of the State of Wyoming

Brook Mine

THE STATE OF WYOMING, }
County of Sheridan } ss.

I hereby certify that the foregoing application was signed in my presence and sworn to before me by Arnold Tschurgi this 9th day of July, 1914.

H. A. Floyd County Clerk
By W. S. Doane, Deputy

Seal

Notice of expiration mailed OCT 2 1915

Notice of completion received NOV 4 1915

THE STATE OF WYOMING, }
State Engineer's Office, } ss.

This is to certify that I have examined the foregoing application and have returned the same without my approval for the following reasons:

Witness my hand this ..... day of ....., A. D. 191....

State Engineer.

THE STATE OF WYOMING, }
State Engineer's Office, } ss.

This is to certify that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

Tongue R. & Trib

Construction of proposed works shall begin within one year from date of approval.

The time for completing the work shall terminate on December 31, 1915.

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1917

The amount of the appropriation shall be limited to one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 1917, ~~and the additional volume used for ..... purposes on or before said date.~~

TFN 6 2/025
RECD NOV 14, 2014

Witness my hand this 30th day of July, A. D. 1914.

A. J. Parshall
State Engineer.

THE STATE OF WYOMING, }
State Engineer's Office, } ss.

This instrument was received and filed for record on the 11th day of July, A. D. 1914, at 9 o'clock a. M., and duly recorded in Book 41 of Applications, on Page 20.

A. J. Parshall

October 2014

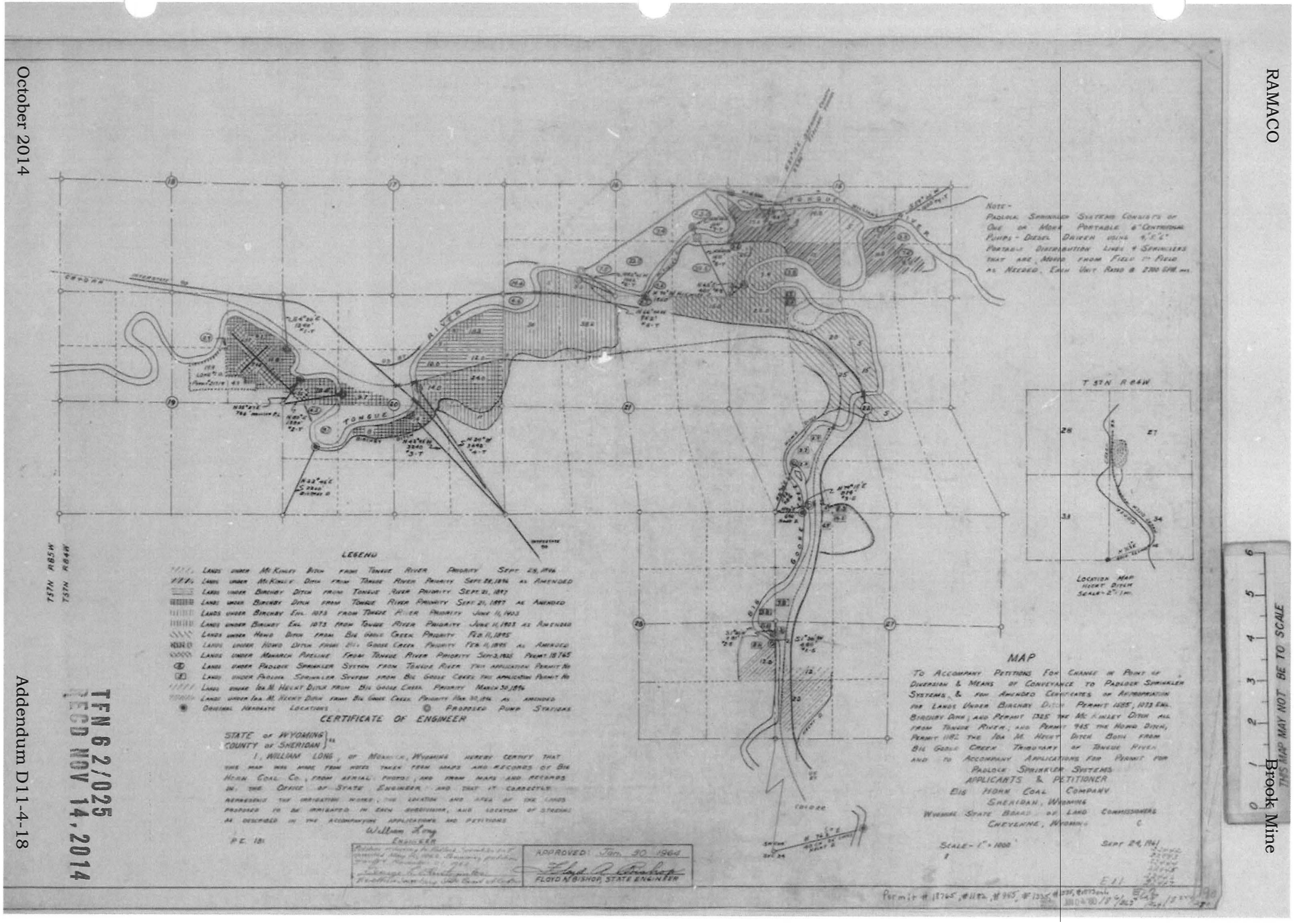
Addendum D11-4-16

DEQ 11-174

BIRCHBY DITCH 1585D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-175



RAMACO

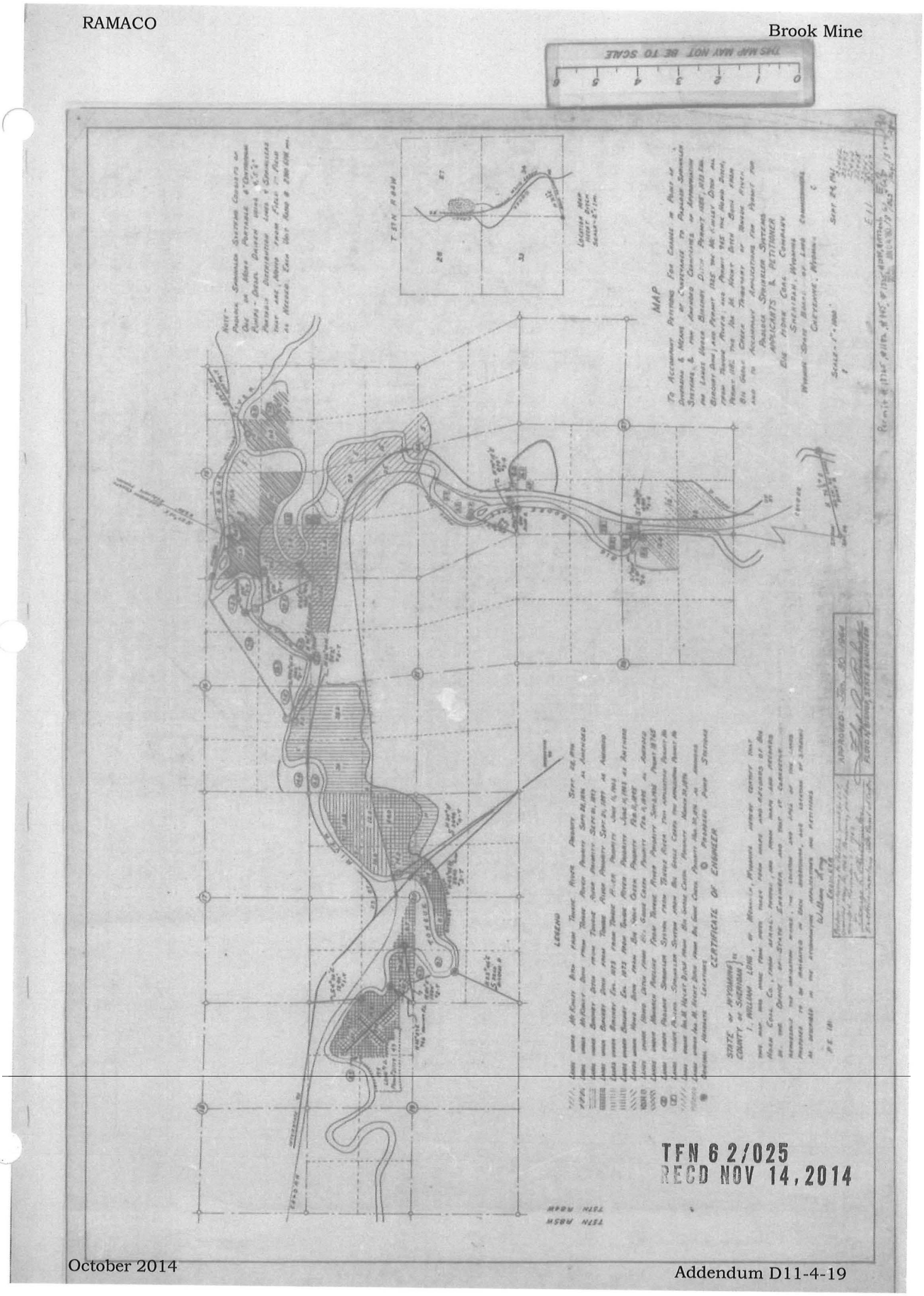
Brook Mine

October 2014

Addendum D11-4-18

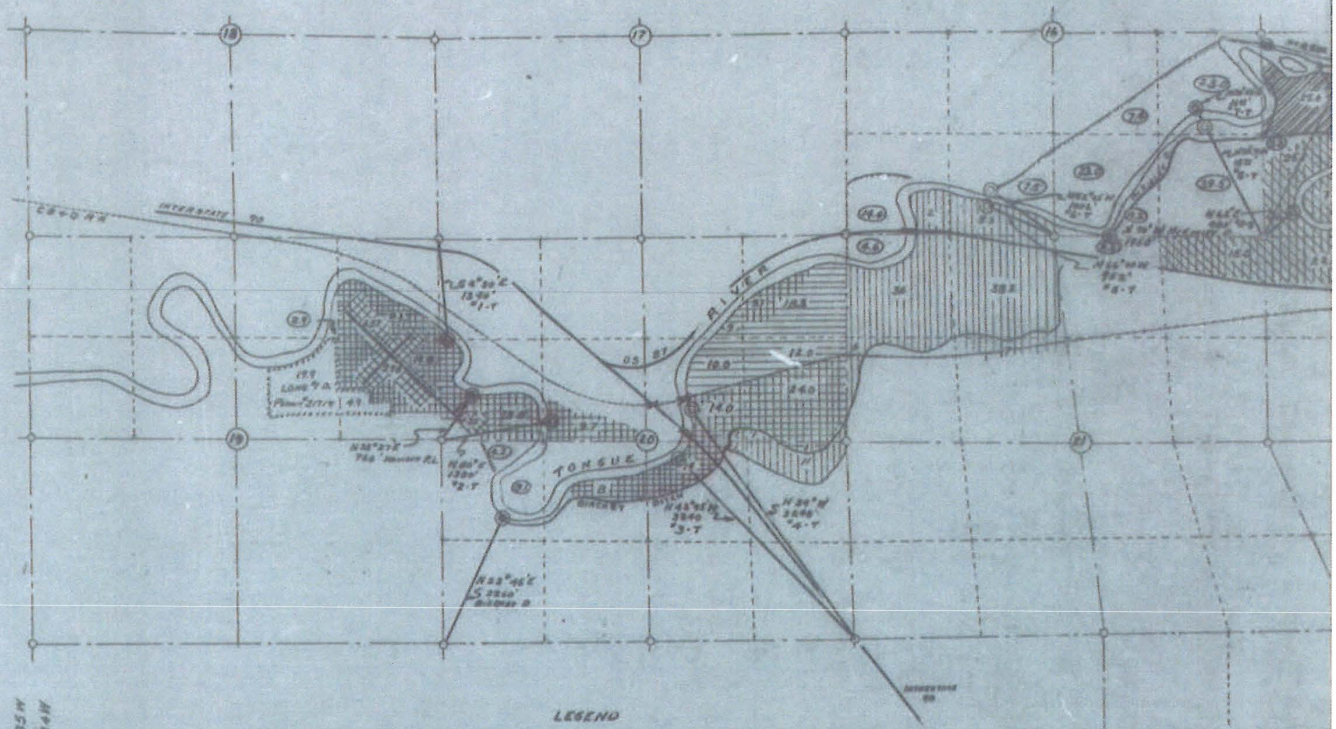
TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-176



TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-177



LEGEND

- Lands under Mc Kinley Ditch from Tongue River Priority Sept 28, 1896
- Lands under Mc Kinley Ditch from Tongue River Priority Sept 28, 1896 as Amended
- Lands under Burchby Ditch from Tongue River Priority Sept 21, 1897
- Lands under Burchby Ditch from Tongue River Priority Sept 21, 1897 as Amended
- Lands under Burchby Enl. 1073 from Tongue River Priority June 11, 1903
- Lands under Burchby Enl. 1073 from Tongue River Priority June 11, 1903 as Amended
- Lands under Howd Ditch from Big Goose Creek Priority Feb 11, 1895
- Lands under Howd Ditch from Big Goose Creek Priority Feb 11, 1895 as Amended
- Lands under Monarch Pipeline from Tongue River Priority Sept 3, 1935 Permit 18765
- Lands under Paddock Sprinkler System from Tongue River This Application Permit No
- Lands under Paddock Sprinkler System from Big Goose Creek This Application Permit No
- Lands under Jos. M. Hecht Ditch from Big Goose Creek Priority March 30, 1896
- Lands under Jos. M. Hecht Ditch from Big Goose Creek Priority Mar 30, 1896 as Amended
- Original Headgate Locations
- Proposed Pump Stations

CERTIFICATE OF ENGINEER

STATE OF WYOMING } ss
COUNTY OF SHERIDAN }

I, WILLIAM LONG, of Monarch, Wyoming hereby certify that this map was made from notes taken from maps and records of Big Horn Coal Co., from aerial photos, and from maps and records in the Office of State Engineer and that it correctly represents the irrigation works, the location and area of the lands proposed to be irrigated in each subdivision, and location of streams as described in the accompanying applications and petitions

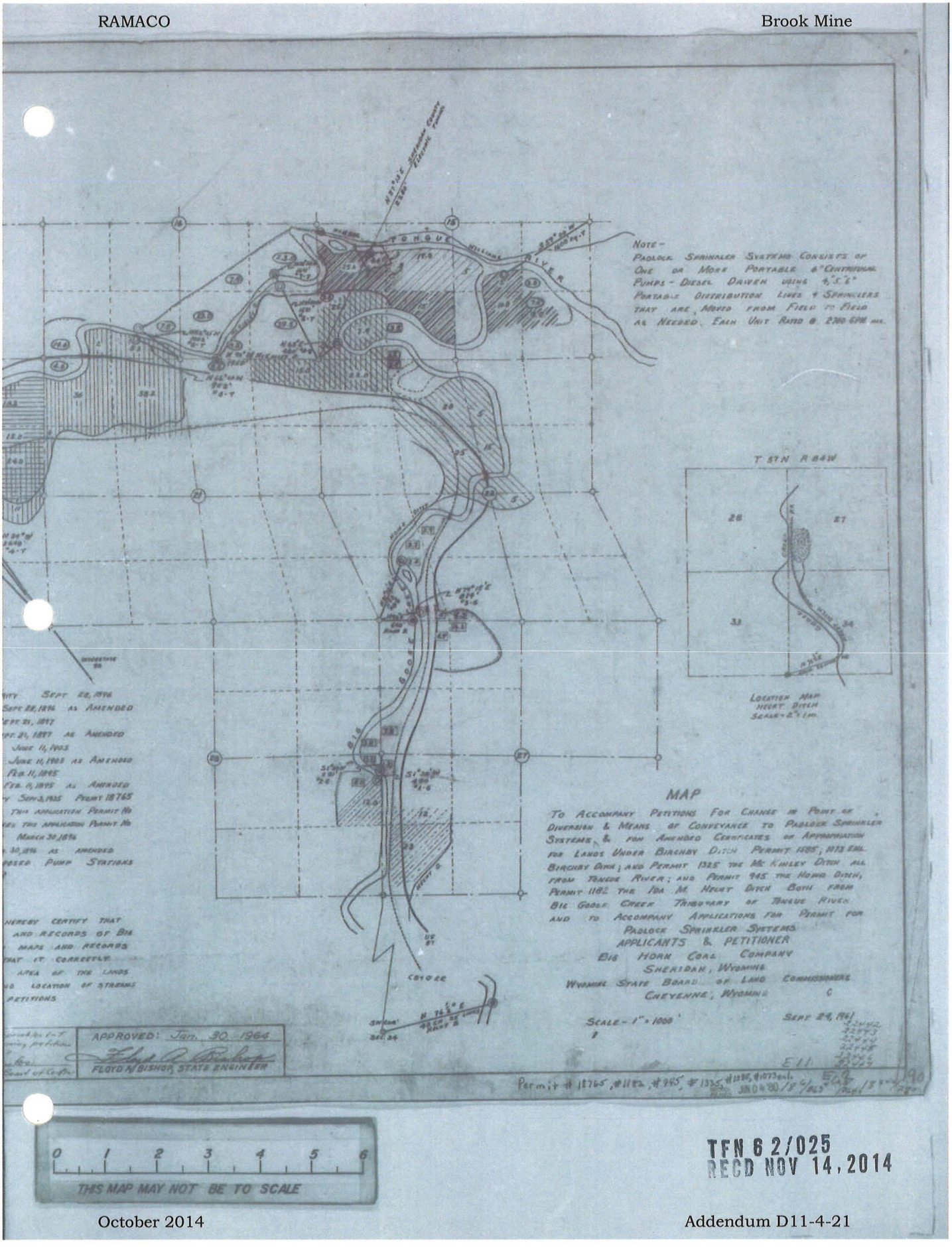
William Long
ENGINEER

P.E. 181

Petition requesting the Political Subdivision of T. granted May 20, 1968 Remaining Petition granted November 21, 1968.
George L. Christopulos
Ex-officio Secretary State Board of Control

APPROVED: Jan. 30 1964
Floyd N. Bishop
FLOYD N. BISHOP, STATE ENGINEER

TFN 6 2/025
RECD NOV 14, 2014



TFN 6 2/025
RECD NOV 14, 2014

BIRCHBY ENL 1073E

TFN 6 2/025
RECD NOV 14, 2014

October 2014

Addendum D11-4-22

PERMIT NO. 10736

Proof of Appropriation of Water.

(In accordance with the provisions of Section 928, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming, and the regulations of the Board of Control thereunder.)

From Tongue River Division No. 2 District No. 5

1 Q. State your name.
A. John E. & James Buckley

2 Q. Postoffice address.
A. Dietz Wyo.

3 Q. Are you the original applicant for Permit No. 10736?
A. Yes

4 Q. If not, state the date of your securing an interest therein and the nature of your interest in the works constructed under such permit.
A.

5 Q. When did the construction of the Buckley Extension ditch (or other distributing works described in said permit) begin?
A. Spring 1903

6 Q. When was it completed?
A. Spring 1903

7 Q. What are the dimensions of the ditch (or other distributing works) built under said permit?
A. Top W Bottom 3½ Depth 2 Grade 1 ft

8 Q. Give the legal subdivisions of land owned or controlled by you on which water has been used, and if an appropriation of water for irrigation is claimed, give the acreage which has been irrigated in each legal subdivision.

A. NW NE	Sec 20	T 57	R 84	1 Acre
NW SE	"	"	"	1 "
SE NE	"	"	"	11 "
NW NW	Sec 21	"	"	6 "
SE NW	"	"	"	7 "
NW SW	"	"	"	36 "
NE SW	"	"	"	38½ "
SW NW	Sec 16	"	"	2 "
				110.5 Acres

9 Q. Give the date when, under the terms of this permit, water was first beneficially used.
A. Spring 1903

Wherefore I recommend that said appropriation be — allowed and that a certificate of appropriation be issued in accordance with said proof and the tabulation thereof filed herewith.

Dated Sheridan Wyo 10/19, 1903

Frank N. Stutt
Superintendent of Water Division No. 2

PROOF OF APPROPRIATION
UNDER
PERMIT NO. 10736

Division No. 2 District No. 5

Date of Appropriation June 11 1903

GENERAL PRIORITIES. STREAM.

NAME OF STREAM.
Tongue River
TRIBUTARY OF

NAME OF CLAIMANT
John E. & James O. Buckley

Filed with me this 7 day of Nov 1903
Superintendent.

Filed in this office this day of , 190
Secretary Board of Control.

The S. A. Bristol Co., Printers and Book Binders, Cheyenne

In Re 7,125

Sec. 10736 Ext.

1903

TFN 6 2/025
RECD NOV 14, 2014

October 2014

RAMACO

Cert 4863

3-399

THE STATE OF WYOMING.

CERTIFICATE OF APPROPRIATION OF WATER.

WHEREAS, John & James Birchley has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Tongue River through the Birchley Ex Ditch under Permit No. 1073 Ex for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming, and for Irrigation

NOW KNOW YE, That the Board of Control, under the provisions of Division I, Title 9, Chapters 10 and 14 of the Revised Statutes of Wyoming, 1899, has, by an order duly made and entered on the 18th day of January, A. D. 1904, in Order Record No. 3, Page 164, determined and established the priority and amount of such appropriation as follows:

Name of Appropriator, John & James Birchley : Post-office Address, Dietz Wyoming.

General Priority Number on main stream and tributaries ; Priority Number on Tongue River No 445

Amount of Appropriation, 1.60 cu. ft. per. sec.; Date of Appropriation January 1. 1903; Description of land to be irrigated, and for which this apppropriation is determined and established 1111/2

Being One (1) acre SW¼ NE¼. One (1) acre NW¼ SE¼. One (1) acre SE¼ NE¼. Eleven (11) acres NE¼ SE¼. Section 20. & Six (6) acres SW¼ NW¼. Seven (7) acres SE¼ NW¼. Thirty-six (36) acres NW¼ NW¼. Thirty-Eight & 1/5 (38.2) acres NE¼ NW¼. Section 21. & Two (2) acres SW¼ SW¼. Eight & 3/10 (8.3) acres SE¼ SW¼ Section 16 T. 57 N. R 84 W

Change in point of diversion and means of conveyance for part, O.R. 15, P. 424

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I, Clarence T. Johnston, President of the State Board of Control, have hereunto set my hand this 15th day of June, A. D. 1904, and caused the seal of said Board to be hereunto affixed.

ATTEST: Fanny L. Babcock Secretary. President.

3 165

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-24

Brook Mine

DEQ 11-182

10 Q. If for irrigation, give the location and acreage irrigated the first year and the location and acreage irrigated each subsequent year to the present.

A. The land described as Section 8 has been irrigated each subsequent year.

11 Q. What crops were grown on this land in 1903? Give estimated acreage of each crop.

A. Alfalfa 815 Grain 15A Gardens 10A Hay 5A.

12 Q. During what months is water beneficially used?

A. April to October

13 Q. Give amount of your investment in the construction of ditch and laterals.

A. $350.00

14 Q. Give estimated cost per acre of preparing land for irrigation.

A. 7.00

15 Q. Does the map which accompanies this proof show correctly the location of diverting works and area of land where water is used?

A. Yes

THE STATE OF WYOMING,
COUNTY OF Sheridan } ss.

I, John W. & James Buckley, being first duly sworn, do depose and say that I have read the above and foregoing proof of appropriation of water; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 7 day of Sept A. D. 1903

John Buckley. James Buckley

Sheridan, WYO., Sept 7, 1903

I HEREBY CERTIFY that the foregoing affidavit was read to the affiant in my presence before he signed his name thereto; that said affiant is to me personally known (or has been satisfactorily identified before me by), and that I verily believe him to be a credible person and the person he represents himself to be; and that this affidavit was subscribed and sworn to before me at Sheridan Wyo on this 7 day of Sept, 1903

Frank H. Clarke
Superintendent, Water Division No. 2

Note.—This proof is intended to be used only by parties making appropriations under permits issued in accordance with Section 916, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming.

The map referred to in Paragraph 15 must show the entire work, in the case of individual ditches. In the case of larger works only one map of the entire canal need be filed. Individual proof must, however, show ditch from point of diversion from main canal, and all laterals on land reclaimed. Where the duplicate map filed in the office of the State Engineer and returned to the applicant gives the necessary details and shows accurately the location of completed work, it may be filed.

The map which accompanies this proof must be on tracing linen, be accurately drawn on a scale of not less than two inches to the mile, and verified by the party making the measurements.

REPORT OF OFFICIAL EXAMINATION BY SUPERINTENDENT.

I HEREBY CERTIFY AND REPORT that pursuant to the notice of completion of appropriation, filed with the State Engineer, and in accordance with the rules and practice of the Board of Control, I appeared at Sheridan Wyo on the 7 day of Sept, 1903, and took and received the foregoing sworn proof of appropriation of water through the Buckley Extension Ditch from Tongue River under Permit No. 1935 by John W. & James Buckley, the owner thereof; that I made a personal examination of said ditch, and of the land irrigated thereunder and described in said permit; that I found said ditch had an average width of 5 feet, a depth of 2 and a grade of about 4 feet per mile. I found a sufficient number of laterals of a capacity to fully irrigate the land described herein, and found that of the land described in said permit the following acreage has been irrigated and reclaimed in each 40-acre tract, to-wit:

Same as described in Section 8

On this land the following crops were grown in 1903

Same as described in Section 8

I also certify that after due publication of notice of the time and place, said proof was opened for public inspection on the 17 day of October, 1903, at Sheridan Wyo in accordance with the provisions of said notice and the regulations of the Board of Control; that at said time

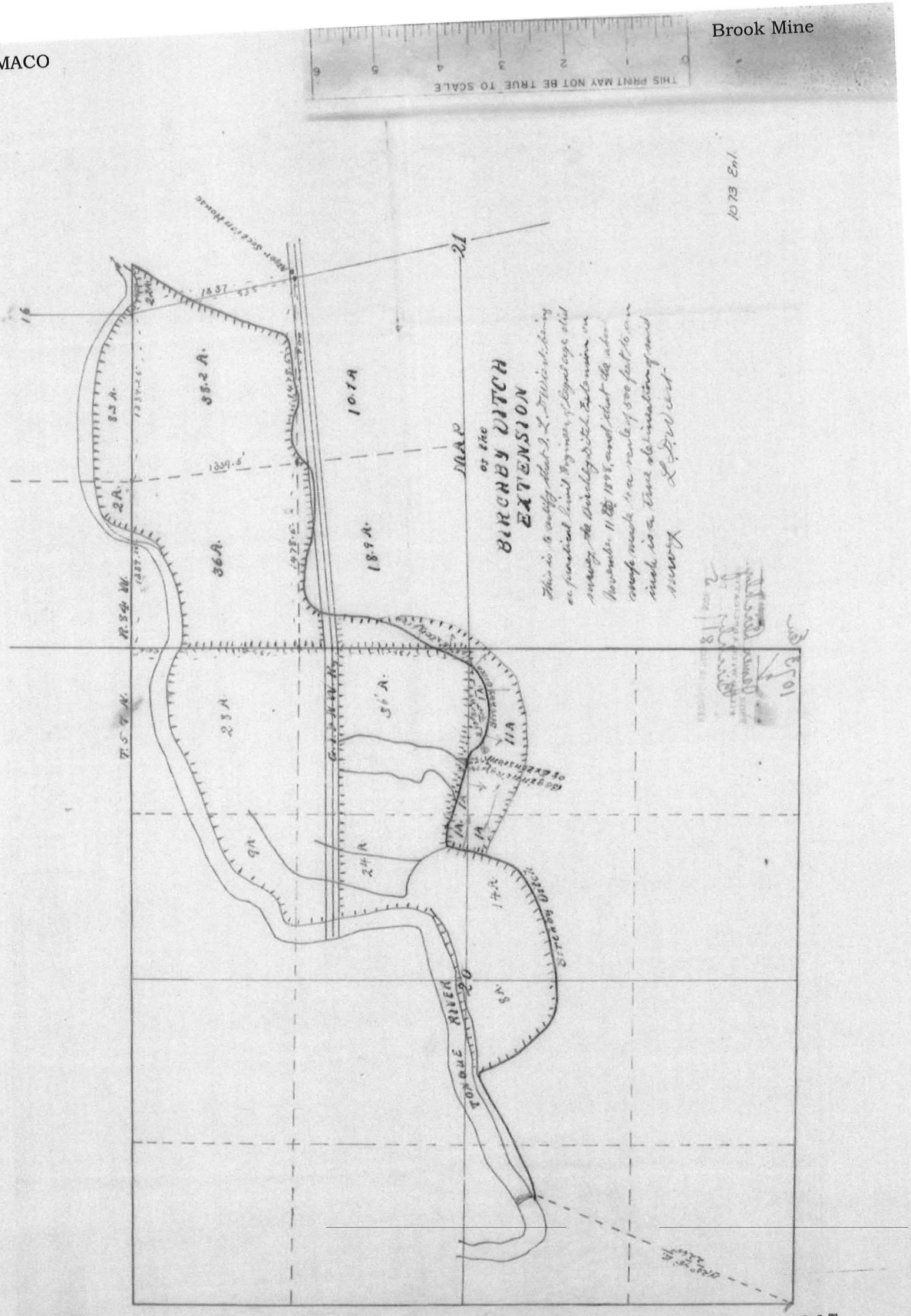
No person

appeared filed contest or objection to said proof.

TFN 6 2/025
RECD NOV 14, 2014

RAMACO

Brook Mine

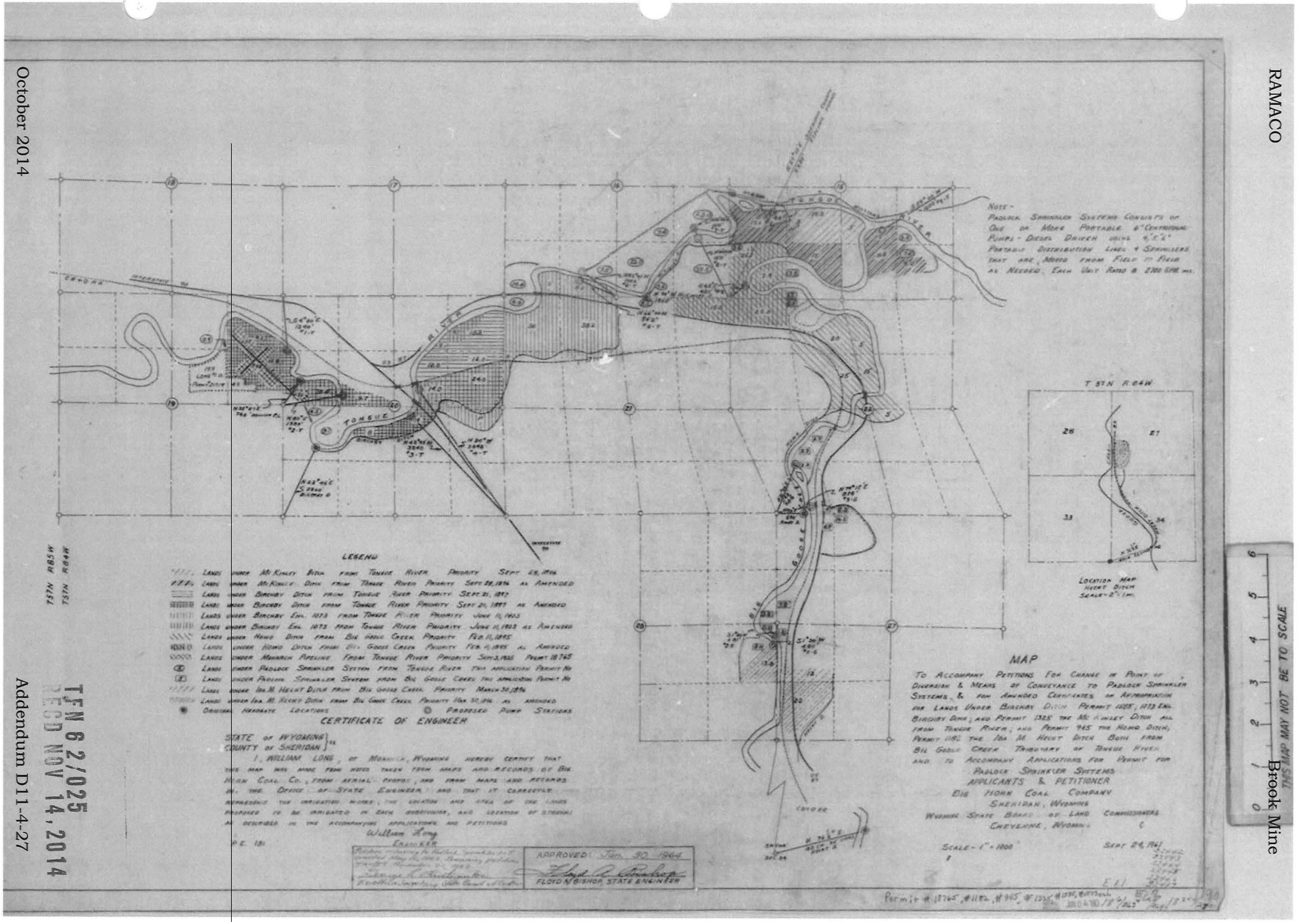


DEQ 11-184

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-26

October 2014


Note -
Padlock Sprinkler Systems Consists of One or More Portable 6" Centrifugal Pumps - Diesel Driven using 4"x 4" Portable Distribution Lines & Sprinklers that are Moved from Field to Field as Needed. Each Unit Rated @ 2300 GPM min.
LEGEND
Lands under Mc Kinley Ditch from Tongue River Priority Sept. 28, 1914
Lands under Mc Kinley Ditch from Tongue River Priority Sept 28, 1914 as Amended
Lands under Birchby Ditch from Tongue River Priority Sept 21, 1917
Lands under Birchby Ditch from Tongue River Priority Sept 21, 1917 as Amended
Lands under Birchby Enl. 1973 from Tongue River Priority June 11, 1923
Lands under Birchby Enl. 1973 from Tongue River Priority June 11, 1923 as Amended
Lands under Howe Ditch from Big Goose Creek Priority Feb 11, 1895
Lands under Howe Ditch from Big Goose Creek Priority Feb 11, 1895 as Amended
Lands under Monarch Pipeline From Tongue River Priority Sept 3, 1935 Permit 18765
Lands under Padlock Sprinkler System from Tongue River 1961 Application Permit No
Lands under Padlock Sprinkler System from Big Goose Creek 1961 Application Permit No
Lands under Jos. M. Hecht Ditch from Big Goose Creek. Priority March 30, 1954
Lands under Jos. M. Hecht Ditch from Big Goose Creek. Priority Mar 30, 1954 as Amended
Original Headgate Locations
Proposed Pump Stations
CERTIFICATE OF ENGINEER
STATE OF WYOMING } ss
COUNTY OF SHERIDAN }
I, WILLIAM LONG, of Monarch, Wyoming hereby certify that this map was made from notes taken from maps and records of Big Horn Coal Co., from aerial photos, and from maps and records in the Office of State Engineer, and that it correctly represents the irrigation works, the location and area of the lands proposed to be irrigated in each subdivision, and location of streams as described in the accompanying applications and petitions
William Long
Engineer
P.E. 181
APPROVED: Jan. 30, 1964
Floyd A. Bishop
FLOYD A. BISHOP, STATE ENGINEER
T 57 N R 84 W
Location Map
Howe Ditch
Scale - 2" = 1 mi.
MAP
To Accompany Petitions For Change in Point of Diversion & Means of Conveyance to Padlock Sprinkler Systems, & for Amended Certificates of Appropriation for Lands Under Birchby Ditch Permit 1025, 1973 Enl. Birchby Ditch; and Permit 1325 the Mc Kinley Ditch all from Tongue River; and Permit 945 the Howe Ditch, Permit 1182 the Jos M Hecht Ditch both from Big Goose Creek Tributary of Tongue River and to Accompany Applications for Permit for Padlock Sprinkler Systems
Applicants & Petitioner
Big Horn Coal Company
Sheridan, Wyoming
Wyoming State Board of Land Commissioners
Cheyenne, Wyoming
Scale - 1" = 1000'
Sept 24, 1964
Permit # 18765, # 1182, # 945, # 1325, # 1025, # 1973 Enl.
Tongue River
Goose Creek
Interstate 90
Brook Mine
RAMACO
October 2014
Addendum D11-4-27
TFN 6 2/025
RECD NOV 14, 2014
DEQ 11-185

BLEVINS PUMP 33816D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-186

Form S.W. 1
Rev. 2006

RAMACO

25.00
SE 35722
25.00
8/17/07
K Cameron

Brook Mine

Note: Do not fold this form. Use typewriter or print neatly with black ink.

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

03-17-2007 0932
SCANNED NOV 1 2007

APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING,
STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the 17th day of August, A.D. 2007, at 9:32 o'clock A M.

Phillip A. Ilsley
FOR John R. Barnes, For State Engineer

Recorded in Book 153 of Ditch Permits, on Page 45.

Fee Paid $ 25. Map Filed SA

WATER DIVISION NO. 2 DISTRICT NO. 5 Temp. Filing No. 34 6/95

PERMIT NO. 33816
SA-30

NAME OF FACILITY: **Blevins Domestic Pump**

1. Name(s), mailing address and phone no. of applicant(s) is/are **Stephanie Blevins & Clinton Krumm**
1692 State Hwy. 345
Ranchester, WY 82839 **307-655-2541**
E-mail address:
(If more than one applicant, designate one to act as Agent for others)

2. Name & address of agent to receive correspondence and notices: **Same as above**
E-mail address:

3. (a) The use to which the water is to be applied is **Domestic (Lawn & Garden)**

(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown in item 10 of the application and the details of the facilities used to divert and convey the appropriation must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

4. The source of the proposed appropriation is **Tongue River, trib. Yellowstone River**

Latitude: **N 44°54'21.05"** Longitude: **W 107°4'21.74"**

5. The point of diversion of the proposed work is located ' feet distant from the corner of Section T. N., R. W., and is in the **NE1/4 NE1/4** of Section **23** T. **57** N., R. **85** W.

Lot Block Subdivision Name

6. Are any of the lands crossed by the proposed facility owned by the State or Federal government? If so, describe lands and indicate whether State or Federally owned.

No – all privately owned lands

TFN 6 2/025
RECD NOV 14, 2014

7. The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is **0.056** cubic feet per second.

8. The accompanying map is prepared in accordance with the State Engineer's Manual of Regulations and Instructions for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the completion of construction is **existing**, and to complete the application of water to the beneficial uses stated in this application is **existing**

Permit No. 33816 Page No. 45
(Leave Blank)

10. The land to be irrigated under this permit is described in the following tabulation. (Give irrigable acreage in each 40-acre subdivision. Designate ownership of land, Federal, State or private. If private, list names of owners and land owned separately.) If application is for stock, domestic, or for purposes other than irrigation, indicate point of use by 40-acre subdivision and owner.

RAMACO Brook Mine

Township	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
57	85	23	X																
			FOR DOMESTIC USE ONLY AT THE POINT OF USE DESCRIBED ABOVE NOT TO EXCEED 0.056 CFS															

Number of acres to receive original supply _____

Number of acres to receive supplemental supply _____

Total number of acres to be irrigated _____

REMARKS

Application is for domestic (lawn & garden) water use, via a small portable pump from the Tongue River.

Pump will be used during normal growing seasons.

The amount of the appropriation shall be limited to the amount of water used for domestic (lawn & garden) purposes only not to exceed the diversion rate of 0.056 cfs from the Tongue River.

Type of Pump: Electric

Horsepower: 1/2

Delivery Method: Water is pumped from Tongue River through garden hose to sprinklers.

TFN 6 2/025
RECD NOV 14, 2014

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete

Signature of Applicant or Agent

7-20-07
Date

THE STATE OF WYOMING }
STATE ENGINEER'S OFFICE } ss.

TEMPORARY FILING NO. 34/6/95

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use the water available in the stream after all prior rights are satisfied.

The amount of appropriation for domestic supply shall be limited to the amount beneficially used for domestic purposes, diverted from Tongue River at a rate not to exceed 0.056 cubic-feet per second of water.

If in priority and in the event of a request for regulation, the applicant may be required to install a choke on the pump or a water flow reducing device in the pipeline which will provide for regulating the amount of water diverted to 0.056 cubic feet of water per second of time.

This permit is issued to make an existing facility a matter of record. The notice of completion of construction is hereby waived.

This permit is conditioned on the holder of this permit securing and/or providing free and unencumbered access to this facility site to allow State Engineer personnel to perform their duties as prescribed by Law. These duties include, but are not limited to, construction inspections and water administration.

This permit is granted subject to the terms of the Yellowstone River Compact.

TFN 6 2/025
RECD NOV 14, 2014

~~The time for completing the construction work shall terminate on December 31, 20_____.~~

~~The time for completing the application of water to beneficial use shall terminate on December 31, 20_____, and final proof of appropriation shall be made within 5 years thereafter.~~

Witness my hand this 25TH day of OCTOBER, A.D. 2007.

FOR PATRICK T. TYRRELL, State Engineer

Permit No. 33816

Page No. 45
(Leave Blank)

PERMIT NO. 33816

SA-30

PERMIT STATUS

Priority Date August 17, 2007

Approval Date October 25, 2007

PROOF PREPARED
ADJUDICATION IN PROCESS
CERT. REC. 86, P. 187 PROOF NO. 39709
IRR. ___ STK. ___ DOM. X MISC. ___
AC. ___ C.F.S. 0.056

SCANNED DEC 2 2008

TFN 6 2/025
RECD NOV 14, 2014

NOTICE

This permit, does not constitute a complete water right. It is your authority to begin construction work.

All appropriations for irrigation are limited to 1 cubic foot per second of time for each 70 acres of land irrigated, except as provided in Section 41-4-320, Wyoming Statutes, 1977. Appropriations for other uses are limited to the amount of water beneficially used in accordance with the terms of the permit.

Notice of completion of work and of application of the water to the beneficial uses described in the permit, must be filed in the State Engineer's Office before the expiration of the time allowed in the permit.

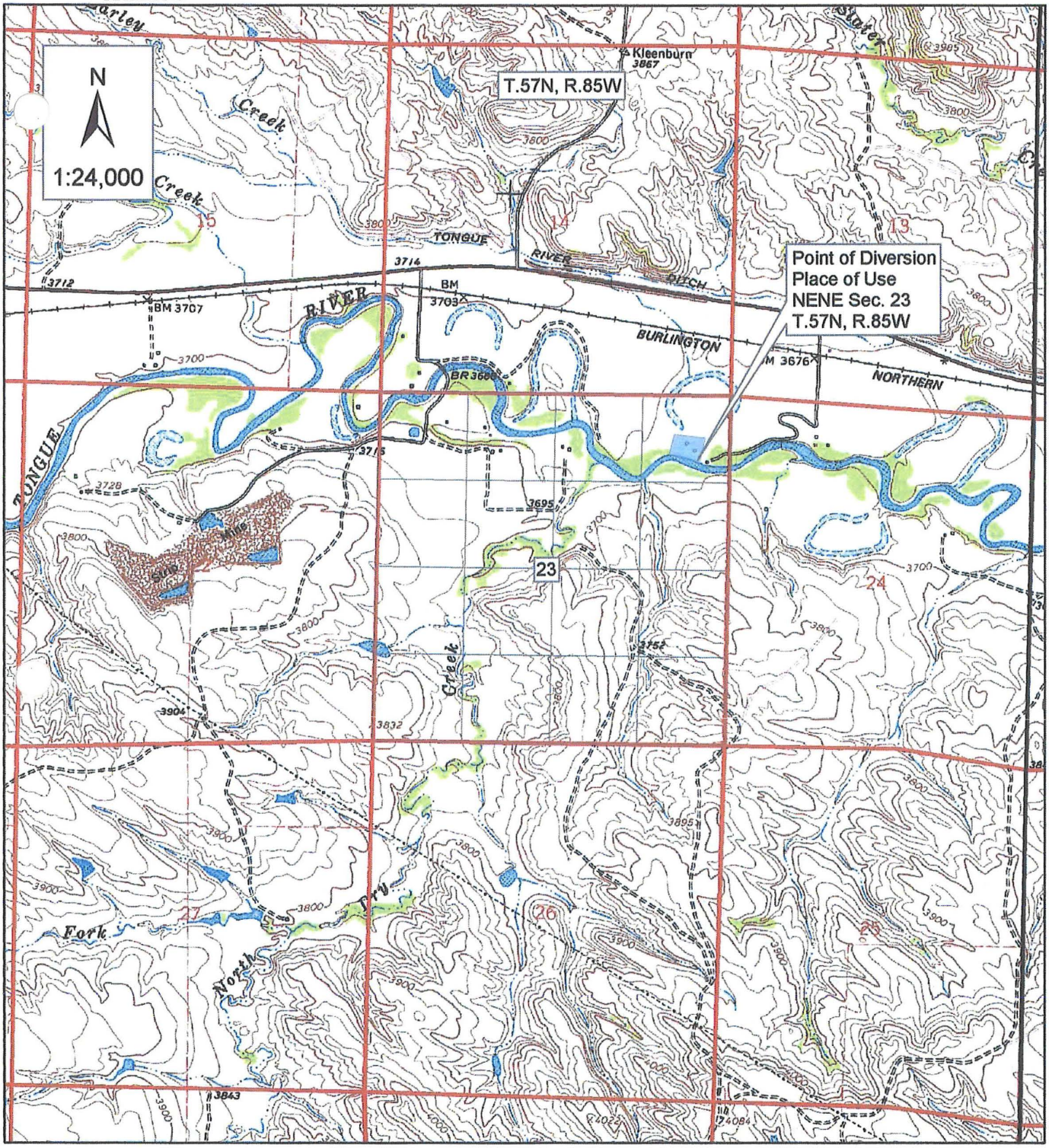
If extensions of time beyond the time limits set forth in the permit are required, requests for same must be in writing, stating why the additional time is required, and must be received in the State Engineer's Office before the expiration of the time allowed in the permit.

To perfect your water right, your Water Division Superintendent, or his authorized representative, will contact you after you have submitted notice to the State Engineer stating that you have applied the water to the beneficial uses described in your permit. After execution of the proof, it will be considered by the State Board of Control, and, if found to be satisfactory, the Board will issue to you a Certificate of Appropriation which will constitute a completed water right.

The granting of a permit does not constitute the granting of right-of-way. If any right-of-way is necessary in connection with the application ...uld be understood that this responsibility is the ap... s.

RAMACO

Brook Mine



Legend

Stephanie Blevins & Clinton Krumm's Property

APPROVED: October 29, 2007

John E. Hoover for

Patrick T. Tyrrell STATE ENGINEER

October 29, 2007

SCANNED NOV 1 2007

MAP TO ACCOMPANY APPLICATION FOR:

Blevins Domestic Pump

APPLICANTS:
Stephanie Blevins
Clinton Krumm
1692 State Hwy. 345
Ranchester, WY 82839

TFN 6 2/025
RECD NOV 14, 2014

338166 Fl. SA-30

Addendum D114-33

DEQ 11-191

DR41299 WATERHAUL 34741D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-192

RAMACO
SEO 9727
SW1-1133
Form S.W. 1
Rev. 12/22/2008
Mumm

Brook Mine

07/18/12 02:16 PM

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

STATE OF WYOMING

SCANNED AUG 08 2012

OFFICE OF THE STATE ENGINEER

APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING
STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the 18th day of July, 20 12, at 02:16 o'clock P M.

John R. Barnes for State Engineer

Recorded in Book 159 of Ditch Permits, on Page 70

Fee Paid $ 50.00 Map Filed SA-33, 34741D

WATER DIVISION NO. 2 DISTRICT NO. 5 TEMPORARY FILING NO. 35 2/254D

PERMIT NO. 34741

NAME OF FACILITY DR41299 WATER HAUL

1. Name(s), mailing address and phone no. of applicant(s) is/are WYDOT, 5300 BISHOP BLVD., CHEYENNE, Wyoming, 82009, PH: 307-777-4748

E-mail address:
(if more than one applicant, designate one to act as Agent for the others)

2. Name & address of agent to receive correspondence and notices MATT SIMPSON, 5300 BISHOP BLVD., CHEYENNE, Wyoming, 82009, PH: 307-777-4748

E-mail address: matt.simpson@wyo.gov

3. (a) The use to which the water is to be applied is Temporary (Road Construction)

(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown in item 10 of the application and the details of the facilities used to divert and convey the appropriation must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

4. The source of the proposed appropriation is Tongue River, tributary of Yellowstone River, tributary of Missouri River

5. The point of diversion of the proposed works is located _____ feet distant from the _____ corner of Section _____ T. _____ ., R. _____ ., and is in the NW1/4SE1/4 of Section 20 T. 057N ., R. 084W . Ori Sur.
Lot _____ Block _____ Subdivision Name _____
Latitude (Decimal Degrees) 44.90028 Longitude (Decimal Degrees) -107.02089

6. Are any of the lands crossed by the proposed facility owned by the State or Federal government? If so, describe lands and indicate whether State or Federally owned.
State Hwy Right of Way

TFN 6 2/025
RECD NOV 14, 2014

7. The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is 1 cubic feet per second (c.f.s.)

8. The accompanying map is prepared in accordance with the State Engineer's Rules and Regulations for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the completion of construction is Two Years, and to complete the application of water to the beneficial uses stated in this application is Two Years.

Permit No. 34741 Page No. 70
(Leave Blank)

10. The land to be irrigated under this permit is described in the following tabulation. (Give irrigable acreage in each 40-acre subdivision. Designate ownership of land, Federal, State or private. If private, list names of owners and land owned separately.) If application is for stock, domestic, or for purposes other than irrigation, indicate point of use by 40-acre subdivision and owner.

Town-	Range	Sec.	NE¼				NW¼				SW¼				SE¼				
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
UNKNOWN SURVEY			Temporary (Road Construction) at a rate not to exceed - c.f.s. Land Owner: State, Office of State Lands & Investments - ,																
057N	085W	17	A ALL																

Number of acres to receive original supply 0.00
Number of acres to receive supplemental supply 0.00
Total number of acres to be irrigated 0.00

REMARKS

NONE

THE AMOUNT OF APPROPRIATION SHALL BE LIMITED TO THE AMOUNT OF WATER USED FOR TEMPORARY INDUSTRIAL HIGHWAY CONSTRUCTION PURPOSES ONLY, NOT TO EXCEED THE DIVERSION RATE FROM THE TONGUE RIVER OF 450 GPM OR 1.0 CFS OR 300,000 GALLONS PER DAY OR A TOTAL OF 3,000,000 GALLONS IN TWO YEARS. THE WATER WILL BE PIPED AND/OR TRUCK HAULED TO THE POINTS OF USE FOR HIGHWAY CONSTRUCTION PURPOSES. PROJECT DR41299.

I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

MATT SIMPSON
Printed Name and Signature of Applicant or Agent

July 18, 2012
Date

TFN 6 2/025
RECD NOV 14, 2014

THE STATE OF WYOMING } ss.
STATE ENGINEER'S OFFICE }

TEMPORARY FILING NO. 352/254

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use the water available in the stream after all prior rights are satisfied.

The amount of appropriation shall be limited to the amount used for temporary industrial (road construction) purposes only, not to exceed 1.0 cubic feet of water per second of time, 300,000 gallons per day, or a total of 3,000,000 gallons.

The appropriation granted under this permit shall extend for only the period of time required to complete the road construction proposed under DR41299 Water Haul and in no case will extend beyond 1 Sep 2014, the two year limit for temporary use permits, or upon completion of the DR41299 Water Haul, whichever comes first.

The notices of completion and beneficial use are waived and will not be required because of the temporary nature of this appropriation.

This permit is granted with the condition that the permittee must notify the District Water Commissioner prior to diverting water.

This permit is conditioned on the holder of this permit securing and/or providing free and unencumbered access to this facility site to allow State Engineer personnel to perform their duties as prescribed by Law. These duties include, but are not limited to, construction inspections and water administration.

NO WATER SHALL BE DIVERTED UNDER THIS PERMIT UNLESS THERE IS SURPLUS WATER IN THIS DRAINAGE SYSTEM. WATER MAY NOT BE AVAILABLE UNDER THIS PERMIT DURING THE SUMMER MONTHS AND IN SOME DRAINAGE SYSTEMS WATER MAY NOT BE AVAILABLE DURING THE FALL, WINTER AND EARLY SPRING DUE TO FILLING OF RESERVOIRS. DURING THESE TIME PERIODS IT MAY BE NECESSARY FOR YOU TO OBTAIN WATER FROM EXISTING APPROPRIATIONS BY WATER AGREEMENT FILED WITH AND APPROVED BY THE STATE ENGINEER.

This permit will be automatically cancelled on 1 Sep 2014.

No final proof of appropriation to be accepted under this permit.

~~The time for completing the construction work shall terminate on December 31, 20_____.~~

~~The time for completing the application of water to beneficial use shall terminate on December 31, 20_____, and final proof of appropriation shall be made within 5 years thereafter.~~

Witness my hand this 31ST day of AUGUST, A.D. 2012.

PATRICK T. TYRRELL, State Engineer

Permit No. 34741

Page No. 70 (Leave Blank)

TFN 6 2/025
RECD NOV 14, 2014

PERMIT NO. 34741

PERMIT STATUS

Priority Date July 18, 2012 Approval Date August 3, 2012

TFN 6 2/025
RECD NOV 14, 2014

NOTICE

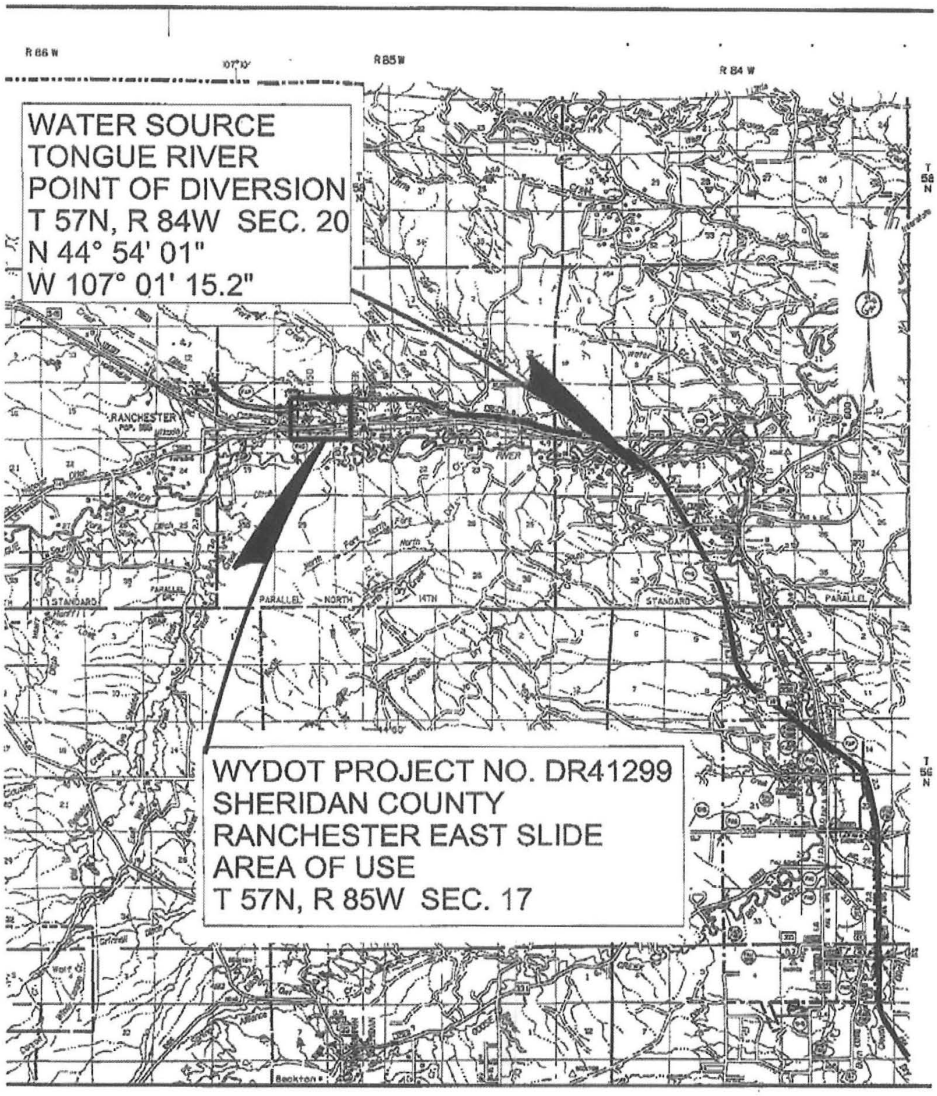
This permit, does not constitute a complete water right. It is your authority to begin construction work, which must be commenced within the time allowed in the permit.

Notice of completion of the work described in the permit, must be filed in the State Engineer's Office before the expiration of the time allowed in the permit.

If extensions of time beyond the time limits set forth in the permit are required, requests for same must be in writing, stating why the additional time is required, and must be received in the State Engineer's Office before the expiration of the time allowed in the permit.

Once the Notice of Completion has been filed, Proof of Appropriation will be prepared and sent to your Water Division Superintendent. The Superintendent will arrange with you for an inspection of the facility. Should you desire adjudication, the Proof will be considered by the Board of Control, and, if found to be satisfactory, the Board will issue to you a Certificate of Construction which will constitute a completed water right.

The granting of a permit does not constitute the granting of right-of-way. If any right-of-way is necessary in connection with the application it should be understood that this responsibility is the applicant's.



THE AMOUNT OF APPROPRIATION SHALL BE LIMITED TO THE AMOUNT OF WATER USED FOR TEMPORARY INDUSTRIAL HIGHWAY CONSTRUCTION PURPOSES ONLY, NOT TO EXCEED THE DIVERSION RATE FROM THE TONGUE RIVER OF 450 GPM OR 1 CFS OR 300,000 GALLONS PER DAY OR A TOTAL OF 3,000,000 GALLONS IN TWO YEARS. THE WATER WILL BE PIPED AND/OR TRUCK HAULED TO THE POINTS OF USE FOR CONSTRUCTION PURPOSES.

APPROVED: August 3, 2012

for Paul R. Brenner FOR
STATE ENGINEER
Patricia T. Tyrrell

MAP TO ACCOMPANY APPLICATION FOR
DR41299 WATER HAUL

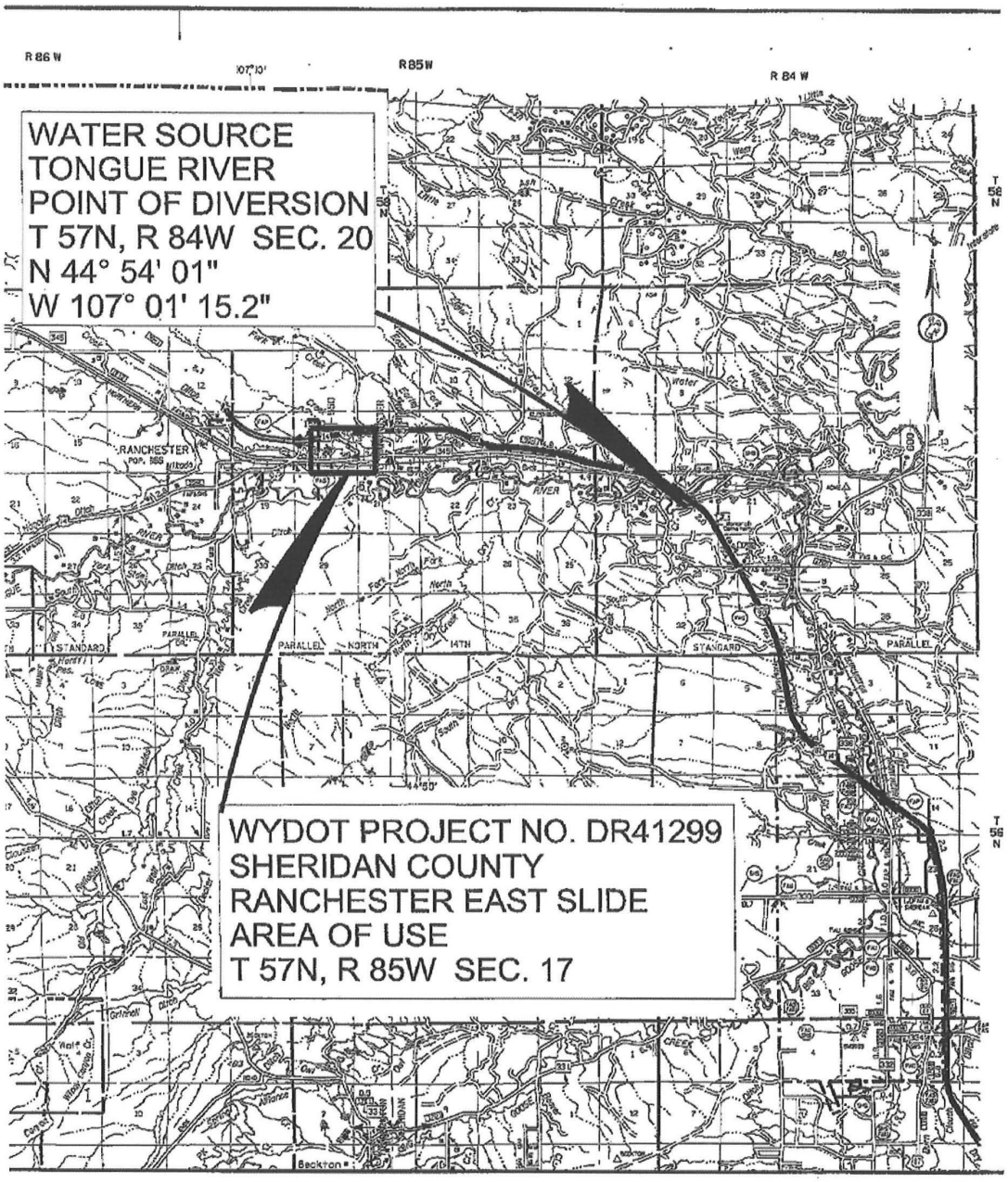
APPLICANT: WYOMING DEPARTMENT OF TRANSPORTATION
5300 BISHOP BLVD.
CHEYENNE, WY 82009

TFN 6 2/025
RECD NOV 14, 2014

TF 35 2/254

SCANNED AUG 06 2012

34741



THE AMOUNT OF APPROPRIATION SHALL BE LIMITED TO THE AMOUNT OF WATER USED FOR TEMPORARY INDUSTRIAL HIGHWAY CONSTRUCTION PURPOSES ONLY, NOT TO EXCEED THE DIVERSION RATE FROM THE TONGUE RIVER OF 450 GPM OR 1 CFS OR 300,000 GALLONS PER DAY OR A TOTAL OF 3,000,000 GALLONS IN TWO YEARS. THE WATER WILL BE PIPED AND/OR TRUCK HAULED TO THE POINTS OF USE FOR CONSTRUCTION PURPOSES.

APPROVED:_____ MAP TO ACCOMPANY APPLICATION FOR DR41299 WATER HAUL

TFN 6 2/025
RECD NOV 14, 2014

_____ APPLICANT: WYOMING DEPARTMENT OF TRANSPORTATION
STATE ENGINEER 5300 BISHOP BLVD.
CHEYENNE, WY 82009

EARLEY CREEK 1 3456D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-199

DIVISION No. 2 PERMIT No. 3456 DISTRICT No.

PROOF OF APPROPRIATION OF WATER

(In accordance with the provisions of Section 928, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming, and the regulations of the Board of Control thereunder.)

From Easley Creek Tributary Tongue River

1 Q. State your name. A. Luella Morrow

2 Q. Postoffice address. A. Sheridan Wyo

3 Q. Are you the original applicant for Permit No. 3456 ? A. Yes

4 Q. If not, state the date of your securing an interest therein, and the nature of your interest in the works constructed under such permit.

A.

5 Q. For what purpose is water used? A. Irrigation

6 Q. When did the construction of the Easley No 1 ditch (or other distributing works described in said permit) begin? A. 1901

7 Q. When was it completed? A. 1902

8 Q. Give date when water was first beneficially used. A. 1902

9 Q. What are the dimensions of the ditch (or other distributing works) built under said permit?

A. Width on top 5' Width on bottom 4' Depth 1' Grade 8'

10 Q. Give the legal subdivisions of land owned or controlled by you on which water has been used, and if an appropriation of water for irrigation is claimed, give the acreage which has been irrigated in each legal subdivision, prior to the time of the expiration of your permit.

A.

NW NW	Sec 10	T 57 R 85	22 Acres
E½ NW	"	"	12 "
NW NW	Sec 15	"	5 "
NE NW	"	"	20 "
NW NE	"	"	30 "
			89

11 Q. Has the water been used beneficially and land irrigated each year since the expiration of your permit?

A. Yes

12 Q. What crops were grown on this land in 1905? Give estimated acreage of each crop.

A. Grass & Hay

13 Q. During what months is water beneficially used?

A. March to November

14 Q. Give amount of your investment in the construction of ditch and laterals. A. $250.00

15 Q. Give estimated cost per acre of preparing land for irrigation. A. $5.00

16 Q. Does the map filed with this permit show correctly the location of diverting works and area of land where water is used? A. Yes

THE STATE OF WYOMING,
COUNTY OF Sheridan } ss.

I, Luella Morrow by J. C. Morrow, being first duly sworn, do depose and say that I have read the above and foregoing proof of appropriation of water; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 12 day of February, A. D. 1906

Luella Morrow J. C. Morrow

Subscribed and sworn to before me this 12 day of January, 1906

Frank K. Stotts

Superintendent, Water Division No. 2

TFN 6 2/025
RECD NOV 14, 2014

DITCH

PROOF OF APPROPRIATION

UNDER

PERMIT No. 3456

Division No. 2 District No.

DATE OF PRIORITY

NAME OF STREAM

TRIBUTARY OF

DITCH

NAME OF CLAIMANT

Filed with me this 12 day of , 190

Superintendent.

Filed in this office this day

of , 190

Secretary Board of Control.

Fees paid, $

The S. A. Bristol Co., Printers and Binders, Cheyenne

6501

REPORT OF SUPERINTENDENT

I hereby certify and report that I have made an investigation of the works constructed under Permit No. 3456, described in foregoing proof. I found same to be as stated in proof, except

I also certify that this proof has been opened for public inspection in accordance with regulations, and

I recommend that said proof be accepted and that certificate of appropriation be issued in accordance with said proof and the tabulation filed.

Frank A. Emerson

Supt. Water Division No. 2

Cheyenne, Wyoming, March 1 19 12

TFN 6 2/025
RECD NOV 14, 2014

October 2014

RAMACO

6501

THE STATE OF WYOMING.

CERTIFICATE OF APPROPRIATION OF WATER. CERTIFICATE RECORD NO. 17 PAGE 875

WHEREAS, Luella Morrow has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Barley Creek tributary of Tongue River through the Barley Creek No 1 Ditch under Permit No. 3456 for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming, and for irrigation

NOW KNOW YE, That the Board of Control, under the provisions of Division 1, Title 9, Chapters 10 and 14 of the Revised Statutes of Wyoming, 1899, has, by an order duly made and entered on the 4th day of April, A. D. 1906 in Order Record No. 3, Page 382, determined and established the priority and amount of such appropriation as follows:

Name of Appropriator Luella Morrow; Postoffice Address Sheridan, Wyoming; General Priority Number on main stream ; Priority Number on

Amount of Appropriation 1.27 cu. ft. per sec.; Date of Appropriation October 7-1901; Description of land to be irrigated and for which this appropriation is determined and established; Total Acreage Eighty-nine (89) acres.

22 acres SW¼ SW¼ of Section 10, T. 57 N., R. 85 W.
12 " SE¼ SW¼ " " " " " " " "
5 " NW¼ NW¼ " " 15 " " " " "
20 " NE¼ NW¼ " " " " " " "
30 " NW¼ NE¼ " " " " " " "
89 Total acreage

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I, CLARENCE T. JOHNSTON, President of the State Board of Control, have hereunto set my hand this 8th day of June, A. D. 1906, and caused the seal of said Board to be hereunto affixed.

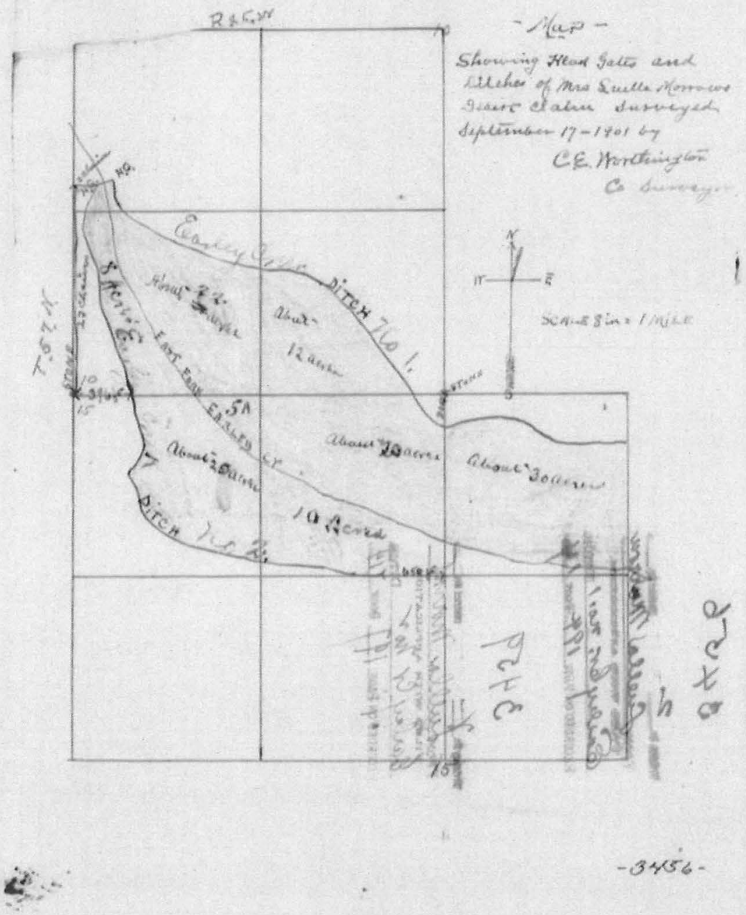
ATTEST: Robert P. Quest, Secretary. Clarence T. Johnston President.

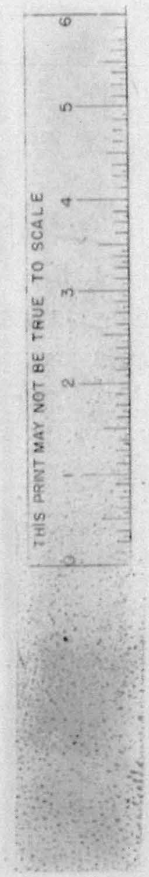
TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-44

Brook Mine

DEQ 11-202





TFN 6 2/025
RECD NOV 14, 2014

EARLEY CREEK 2 3459D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-204

DIVISION No. 2 PERMIT No. 3459 DISTRICT No.

PROOF OF APPROPRIATION OF WATER

(In accordance with the provisions of Section 928, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming, and the regulations of the Board of Control thereunder.)

From Cabin Creek Tributary Tongue River

1 Q. State your name. A. Lulla Morrow

2 Q. Postoffice address. A. Sheridan Wyo

3 Q. Are you the original applicant for Permit No. 3459 ? A. Yes

4 Q. If not, state the date of your securing an interest therein, and the nature of your interest in the works constructed under such permit.

A.

5 Q. For what purpose is water used? A. Irrigation

6 Q. When did the construction of the Cabin No 2 ditch (or other distributing works described in said permit) begin? A. 1901

7 Q. When was it completed? A. 1902

8 Q. Give date when water was first beneficially used. A. 1902

9 Q. What are the dimensions of the ditch (or other distributing works) built under said permit?

A. Width on top 5' Width on bottom 4' Depth 1' Grade 8'

10 Q. Give the legal subdivisions of land owned or controlled by you on which water has been used, and if an appropriation of water for irrigation is claimed, give the acreage which has been irrigated in each legal subdivision, prior to the time of the expiration of your permit.

A.

NW NW	Sec 10	T 57	R 85	8 Acres
NE NW	Sec 15	"	"	20 "
NE NW	"	"	"	10 "
				38 "

11 Q. Has the water been used beneficially and land irrigated each year since the expiration of your permit?

A. Yes

12 Q. What crops were grown on this land in 1925? Give estimated acreage of each crop.

A. Grass & Hay

13 Q. During what months is water beneficially used?

A. March to November

14 Q. Give amount of your investment in the construction of ditch and laterals. A. 450.

15 Q. Give estimated cost per acre of preparing land for irrigation. A. $5.00

16 Q. Does the map filed with this permit show correctly the location of diverting works and area of land where water is used? A. Yes

THE STATE OF WYOMING, }
COUNTY OF Sheridan } ss.

I, Lulla Morrow by J. C. Morrow, being first duly sworn, do depose and say that I have read the above and foregoing proof of appropriation of water; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 12 day of February, A. D. 1926

Lulla Morrow by J. C. Morrow

Subscribed and sworn to before me this 12 day of February, 1926

Frank V. Stutz

Superintendent, Water Division No. 2

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-206

REPORT OF SUPERINTENDENT

I hereby certify and report that I have made an investigation of the works constructed under Permit No. 5454, described in foregoing proof. I found same to be as stated in proof, except

I also certify that this proof has been opened for public inspection in accordance with regulations, and

I recommend that said proof be accepted and that certificate of appropriation be issued in accordance with said proof and the tabulation filed.

Frank K Smith

Supt. Water Division No. 2

Cheyenne Wyoming, March 14 19 16

DITCH

PROOF OF APPROPRIATION

UNDER

PERMIT No. 5454

DIVISION No. 2 DISTRICT No.

DATE OF PRIORITY September 1, 1920

NAME OF STREAM Crooks Creek

TRIBUTARY OF Laramie River

DITCH Crooks Creek

NAME OF CLAIMANT Frank K. Smith

Filed with me this 12 day of March, 19 16

Superintendent.

Filed in this office this day of 19

Secretary Board of Control.

Fees paid, $

The S. A. Bristol Co., Printers and Binders, Cheyenne

6502

TFN 6 2/025
RECD NOV 14, 2014

6502

THE STATE OF WYOMING.

CERTIFICATE OF APPROPRIATION OF WATER.

CERTIFICATE RECORD No. 17 PAGE 88

WHEREAS, Luella Morrow has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Barley Creek tributary of Tongue River through the Barley Creek No. 2 Ditch under Permit No. 3459 for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming, and for irrigation

NOW KNOW YE, That the Board of Control, under the provisions of Division 1, Title 9, Chapters 10 and 14 of the Revised Statutes of Wyoming, 1899, has, by an order duly made and entered on the 4th day of April, A. D. 1904, in Order Record No. 3, Page 387, determined and established the priority and amount of such appropriation as follows:

Name of Appropriator Luella Morrow; Postoffice Address Sheridan, Wyoming; General Priority Number on main stream ; Priority Number on

Amount of Appropriation .54 cu. ft. per sec.; Date of Appropriation September 27-1901; Description of land to be irrigated and for which this appropriation is determined and established; Total Acreage Thirty-eight (38) acres

6 acres S½ S½ of Section 10, Tp. 57 N. R. 85 W.
20 " N½ NW¼ " " 15 " " " " " "
10 " NE¼ NW¼ " " " " " " " " "
38 " Total acreage

TFN 6 2/025
RECD NOV 14, 2014

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I, CLARENCE T. JOHNSTON, President of the State Board of Control, have hereunto set my hand this 4th day of June, A. D. 1904, and caused the seal of said Board to be hereunto affixed.

ATTEST: Robert P. Quest. Secretary. Clarence T. Johnston President.

October 2014

Addendum D11-4-49

RAMACO

Brook Mine

DEQ 11-207

EAST SIDE DITCH2 4077D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-208

DIVISION No. 2 PERMIT No. 4077 DISTRICT No.

PROOF OF APPROPRIATION OF WATER

(In accordance with the provisions of Section 928, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming, and the regulations of the Board of Control thereunder.)

From State Creek Tributary Tongue River

1 Q. State your name. A. A & N Williams

2 Q. Postoffice address. A. Ranch Dayton Wyo

3 Q. Are you the original applicant for Permit No. 4077 ? A. No

4 Q. If not, state the date of your securing an interest therein, and the nature of your interest in the works constructed under such permit.

A. Purchased entire from A & E Vant

5 Q. For what purpose is water used? A. Irrigation

6 Q. When did the construction of the East Side No 2 ditch (or other distributing works described in said permit) begin? A. 1902

7 Q. When was it completed? A. 1902

8 Q. Give date when water was first beneficially used. A. 1902

9 Q. What are the dimensions of the ditch (or other distributing works) built under said permit?

A. Width on top 3' Width on bottom 2' Depth 1' Grade 10'

10 Q. Give the legal subdivisions of land owned or controlled by you on which water has been used, and if an appropriation of water for irrigation is claimed, give the acreage which has been irrigated in each legal subdivision, prior to the time of the expiration of your permit.

A. NW NE Sec 3 Tp 5 S R 85 W 7th Mer

11 Q. Has the water been used beneficially and land irrigated each year since the expiration of your permit?

A. Yes

12 Q. What crops were grown on this land in 1906 Give estimated acreage of each crop.

A. Grain and Hay

13 Q. During what months is water beneficially used?

A. March to Nov

14 Q. Give amount of your investment in the construction of ditch and laterals. A. $100

15 Q. Give estimated cost per acre of preparing land for irrigation. A. $5

16 Q. Does the map filed with this permit show correctly the location of diverting works and area of land where water is used? A. Yes

THE STATE OF WYOMING, }
COUNTY OF Sheridan } ss.

I, A A Williams & J D Meredith, being first duly sworn, do depose and say that I have read the above and foregoing proof of appropriation of water; that I know the contents thereof; and that the facts therein stated are true.

In Witness Whereof, I have hereunto set my hand this 6 day of March, A. D. 1907

A A Williams
J D Meredith

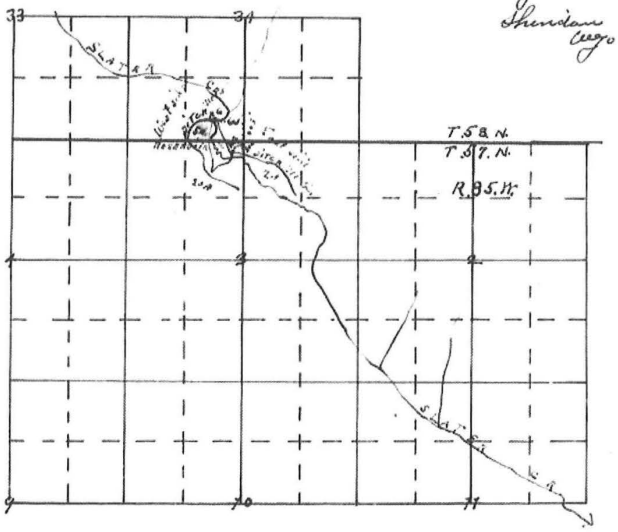
Subscribed and sworn to before me this 6 day of March, 1907

Superintendent, Water Division No. 2

TFN 6 2/025
RECD NOV 14, 2014

Map Showing
Desert Filing and Ditches
of Elias A. Hart Sheridan Co Wyo
July 26 - 1902

I hereby certify that I am a practical
Surveyor that on July 26th 1902 I surveyed
the ditches and located the Headgates
and that this map correctly represents
the same
C. E. Worthington
Sheridan
Wyo



Scale 1" = 2000'

4077
4078

TFN 6 2/025
RECD NOV 14, 2014

October 2014

RAMACO

7026.

THE STATE OF WYOMING

CERTIFICATE OF APPROPRIATION OF WATER

CERTIFICATE RECORD No. 25 PAGE 130

WHEREAS, D. H. Williams has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Slater Creek tributary of Tongue River through the East Side No. 2 Ditch under Permit No. 1407 for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming, and for irrigation

NOW KNOW YE, That the Board of Control, under the provisions of Division 1, Title 9, Chapters 10 and 14 of the Revised Statutes of Wyoming, 1899, has, by an order duly made and entered on the 12th day of June, A. D. 1907, in Order Record No. 4 Page 13, determined and established the priority and amount of such appropriation as follows:

Name of Appropriator D. H. Williams; Postoffice Address Monarch, Wyoming; General Priority Number on main stream ; Priority Number on Amount of Appropriation 1 cu. ft. per sec.; Date of Appropriation July 20. 1902; Description of land to be irrigated and for which this appropriation is determined and established; Total Acreage Seven (7) acres.

7 acres NW¼ NE¼ Section 3, To. 57 N. R. 85 W.

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I, CLARENCE T. JOHNSTON, President of the State Board of Control, have hereunto set my hand this 6th day of August, A. D. 1907, and caused the seal of said Board to be hereunto affixed.

ATTEST: Marshal Kalis, Secretary. Clarence T. Johnston, President.

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-53

Brook Mine

HART BROS DITCHES 1317D

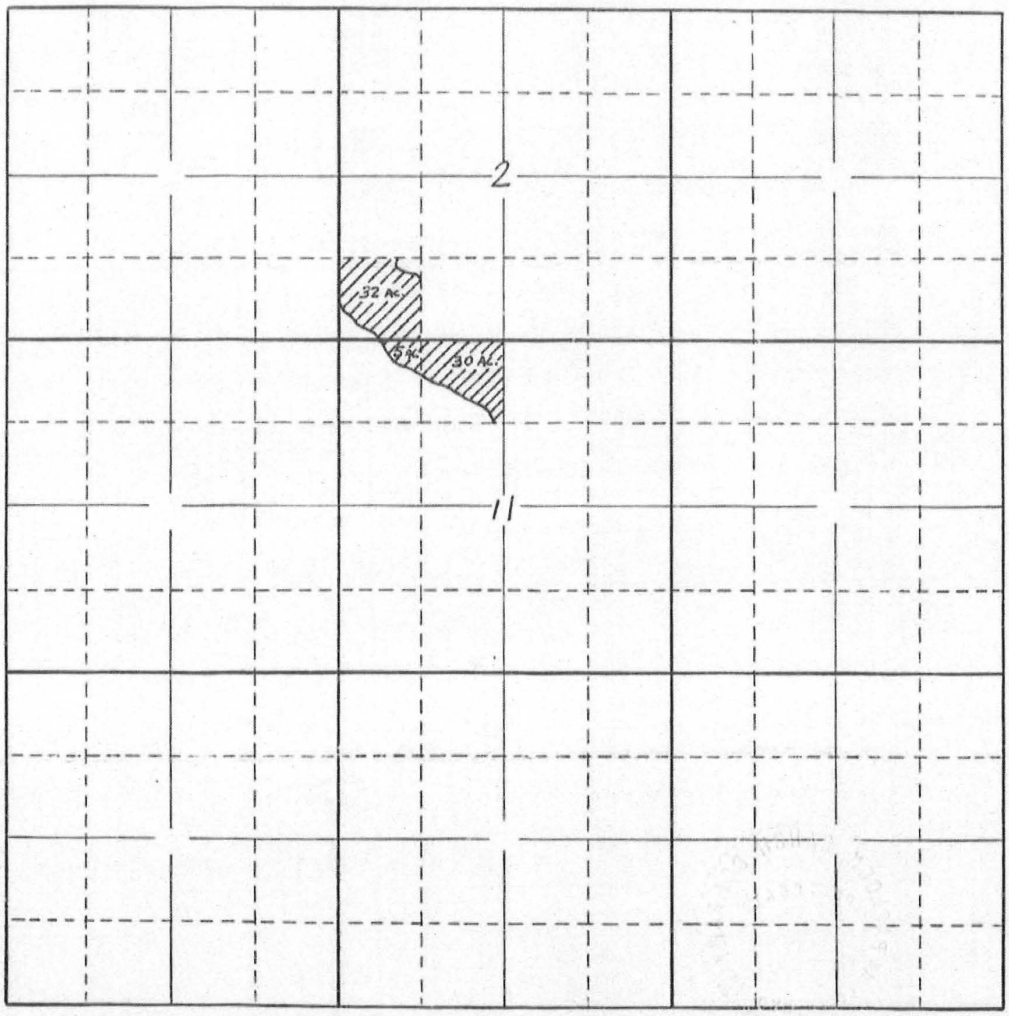
TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-212

MICRO FILMED OCT 10 '91

T.57 N., R.85 W.

Scale 1"= 2000'



TFN 6 2/025
RECD NOV 14, 2014

MISCELLANEOUS NOTICES
PERMIT NO. 1317

MICRO FILMED OCT 10 '91

State Engineer
Cheyenne, Wyoming

Dear Sir:

The requirements of a portion of Permit No. 1317,
name of facility, Hart Brothers Ditches,
recorded in the name of Hart Brothers,
and as issued by your office, have not been complied with on lands described below. Final proof for the beneficial use of water will not be submitted. You are, therefore, authorized and requested to eliminate the following described subdivisions from Permit No. 1317 upon the records of your office:

Township 57 North, Range 85 West	
Section 2: SW1/4 SW1/4	32 acres
Section 11: NE1/4 NW1/4	30 acres
NW1/4 NW1/4	5 acres
Total:	67 acres

This form must be signed by the owner(s) of the above lands and must be accompanied by a Certificate of Ownership.

Date October 20, 1989 Signed Dan S. Scott
DAN S. SCOTT, VICE PRESIDENT
Stephenie Loner
SECRETARY, PADLOCK RANCH CO.

CORPORATE SEAL

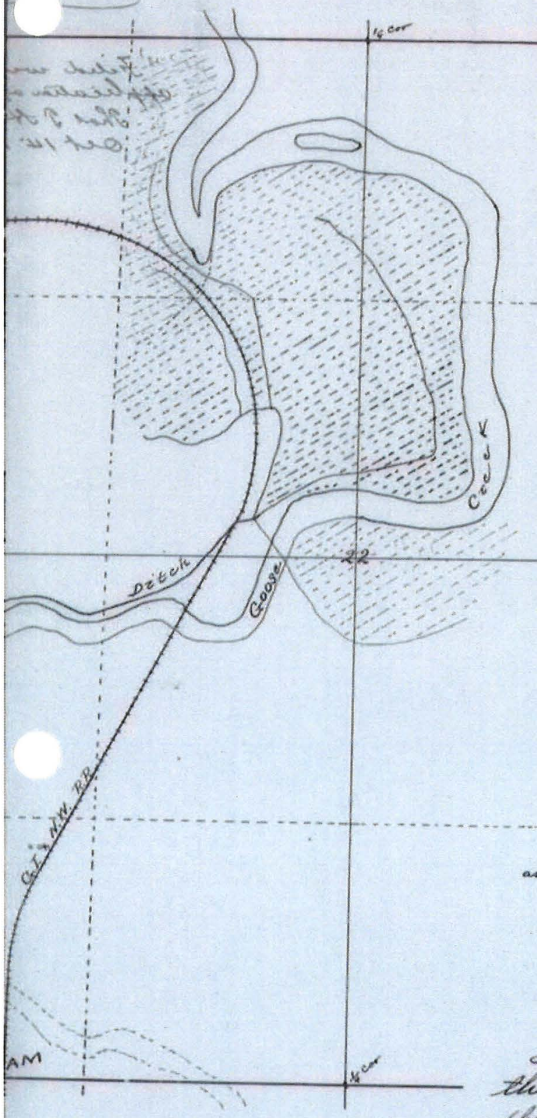
TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-56

HOWD 945D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-215



Plat
Showing location of Dam, Ditch lines and land watered. by Thomas T. Howd.
in
Section 22, T 57 N. R 84 W. 6th P.M.
Sheridan County
Wyoming.
Scale - 1 inch = 400 feet.
Red lines are for ditches.
Red dotted sections indicates land watered
Land watered = 75 acres.
Length of main ditch = 8 miles
Grade " " " = 2 feet per mile
width on bottom 3 feet.
Capacity of ditch - 2 cubic feet per second
Height of Dam = 4½ feet.

I, W. A. Swan. a practical surveyor in and for said county and state. do hereby certify that on the 6th day of April 1915 surveyed and located the dam and ditch lines as shown in sec 22 - T 57 N - R 84 W. and that this plat correctly represents the location of dam - ditches, and land watered by the Howd Ditch as shown on plat.

W. A. Swan
Surveyor.

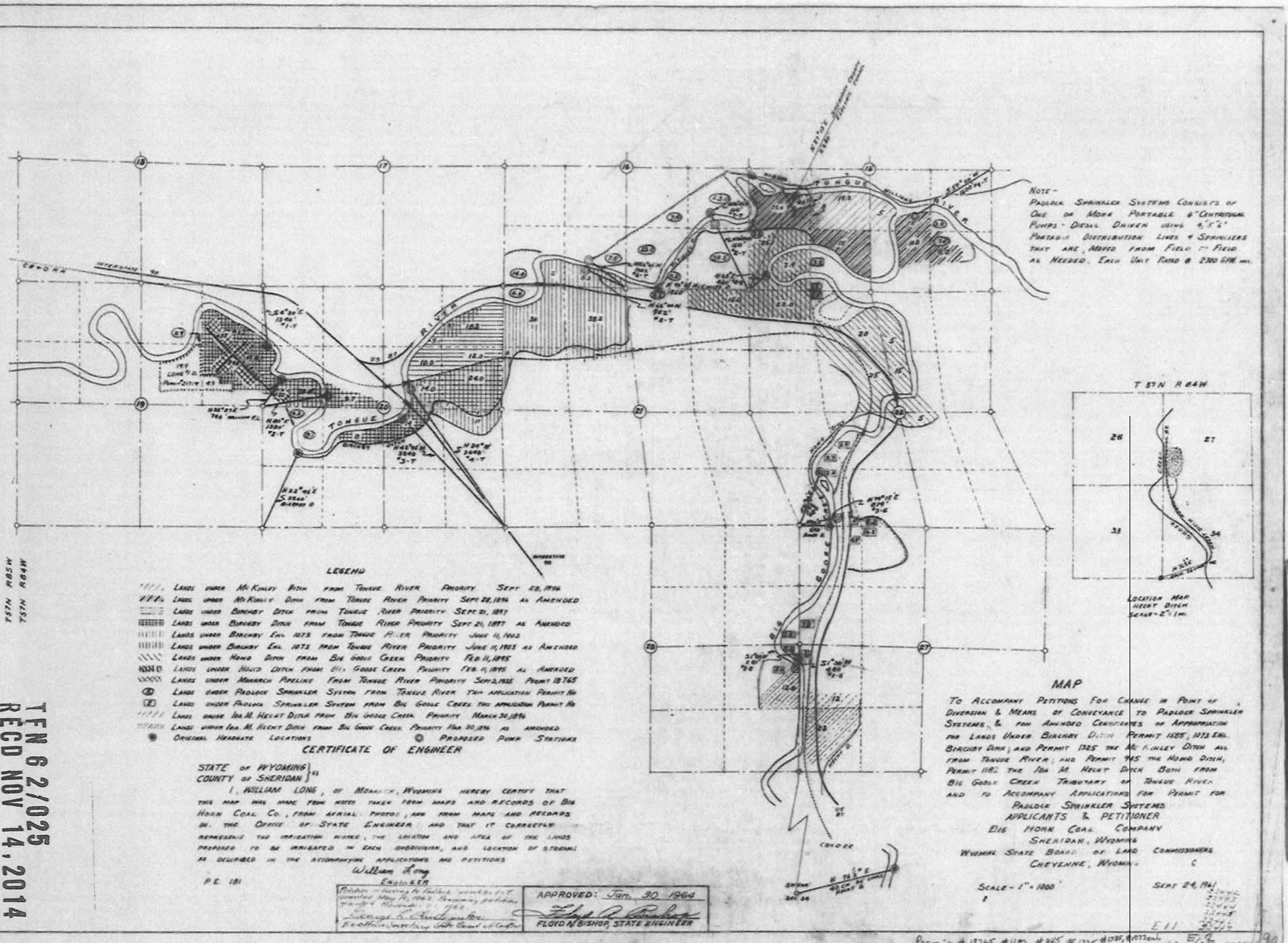
I Thomas J. Howd hereby certify that I am owner and proprietor of the E½ of the N.W.¼, the S.W.¼ of the N.E.¼ and the N.W.¼ of the S.E.¼ all of sec 22 T 57 N. R 84 W. and that the dam and ditches have been constructed for the purpose of watering the land designated on plat.

Thomas J. Howd

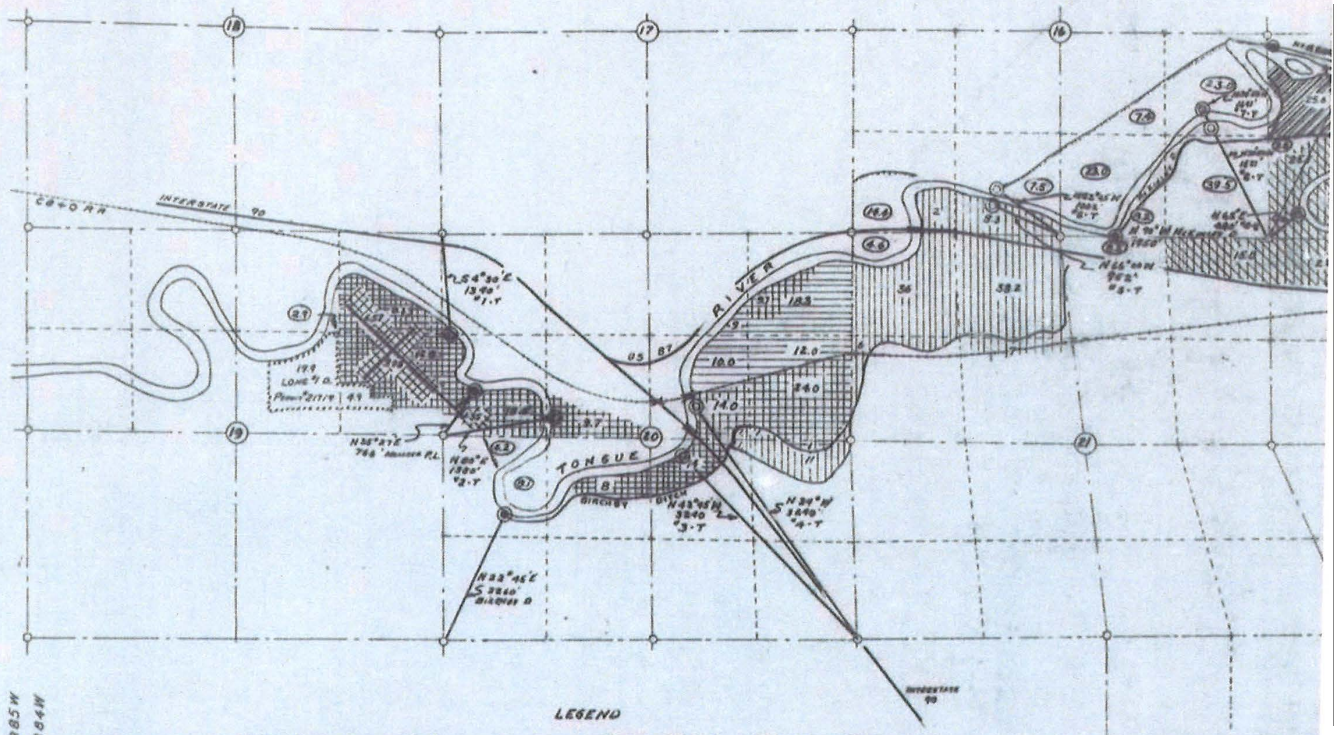
945

THIS PRINT MAY NOT BE TRUE TO SCALE
0 1 2 3 4 5 6

TFN 6 2/025
RECD NOV 14, 2014



TFN 6 2/025
RECD NOV 14, 2014



LEGEND

- Lands under McKinley Ditch from Tongue River Priority Sept 28, 1896
- Lands under McKinley Ditch from Tongue River Priority Sept 28, 1896 as Amended
- Lands under Birchby Ditch from Tongue River Priority Sept 21, 1897
- Lands under Birchby Ditch from Tongue River Priority Sept 21, 1897 as Amended
- Lands under Birchby Enl. 1073 from Tongue River Priority June 11, 1903
- Lands under Birchby Enl. 1073 from Tongue River Priority June 11, 1903 as Amended
- Lands under Howd Ditch from Big Goose Creek Priority Feb. 11, 1895
- Lands under Howd Ditch from Big Goose Creek Priority Feb. 11, 1895 as Amended
- Lands under Monarch Pipeline From Tongue River Priority Sept 3, 1935 Permit 18765
- Lands under Padlock Sprinkler System from Tongue River This Application Permit No
- Lands under Padlock Sprinkler System from Big Goose Creek This Application Permit No
- Lands under Ida M. Hecht Ditch from Big Goose Creek Priority March 30, 1896
- Lands under Ida M. Hecht Ditch from Big Goose Creek Priority Mar. 30, 1896 as amended
- Original Headgate Locations
- Proposed Pump Stations

CERTIFICATE OF ENGINEER

STATE OF WYOMING } ss
COUNTY OF SHERIDAN }

I, WILLIAM LONG, of Monarch, Wyoming hereby certify that this map was made from notes taken from maps and records of Big Horn Coal Co., from aerial photos, and from maps and records in the Office of State Engineer and that it correctly represents the irrigation works, the location and area of the lands proposed to be irrigated in each subdivision, and location of streams as described in the accompanying applications and petitions

William Long
ENGINEER

P.E. 181

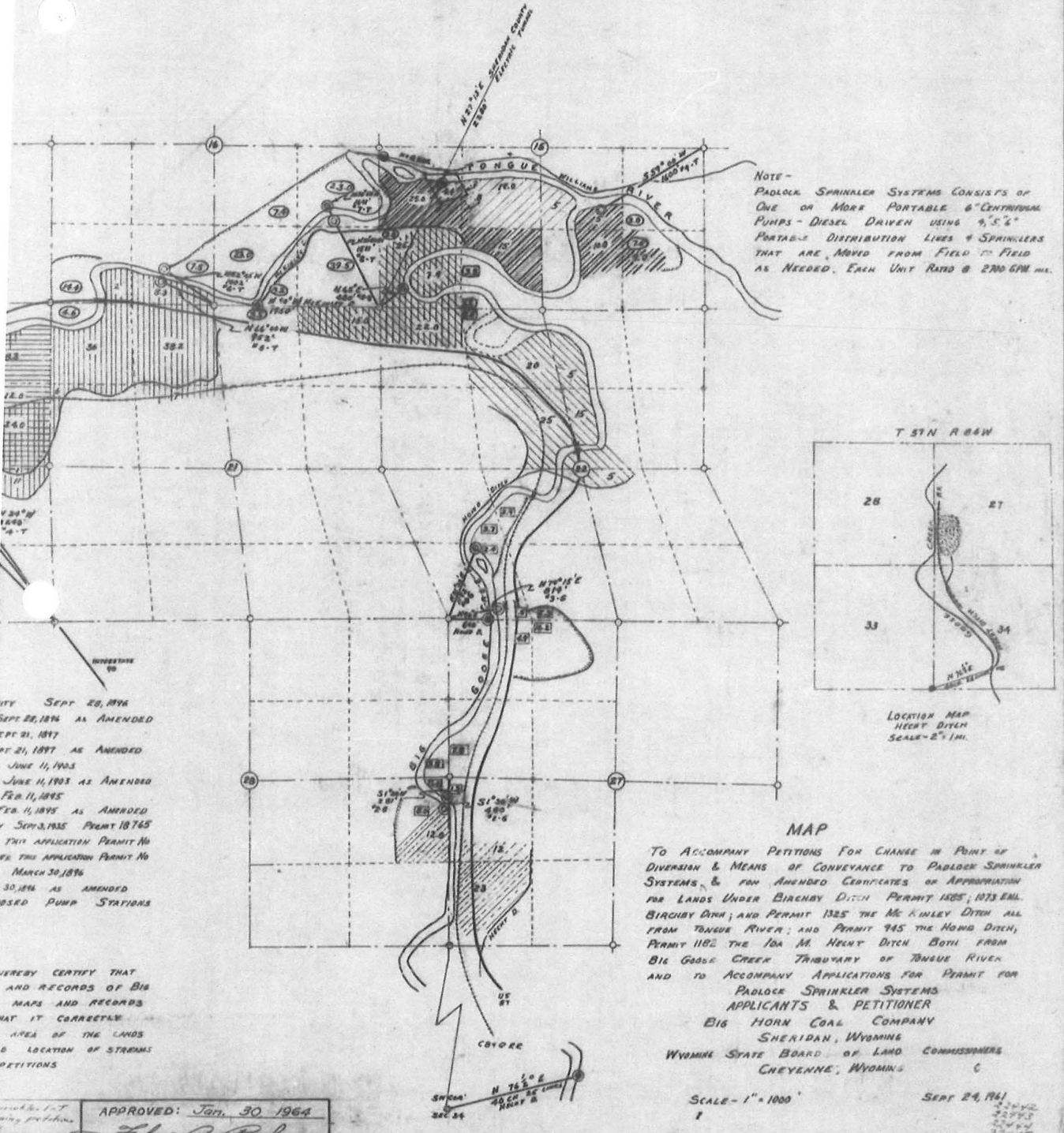
Petition returning to Padlock "previously L-T granted May 16, 1962. Remaining petition granted November 21, 1962
by George L. Christopulos
Ex-officio Secretary State Board of Control

APPROVED: Jan. 30 1964
Floyd A. Bishop
FLOYD A. BISHOP, STATE ENGINEER

TFN 6 2/025
RECD NOV 14, 2014

RAMACO

Brook Mine



NOTE -
PADLOCK SPRINKLER SYSTEMS CONSISTS OF ONE OR MORE PORTABLE 6" CENTRIFUGAL PUMPS - DIESEL DRIVEN USING 4", 5", 6" PORTABLE DISTRIBUTION LINES & SPRINKLERS THAT ARE MOVED FROM FIELD TO FIELD AS NEEDED. EACH UNIT RATED @ 2700 GPM ea.

ITY SEPT 28, 1896
SEPT 28, 1896 AS AMENDED
EPT 21, 1897
PT 21, 1897 AS AMENDED
JUNE 11, 1903
JUNE 11, 1903 AS AMENDED
FEB 11, 1895
FEB 11, 1895 AS AMENDED
Y SEPT 3, 1935 PERMIT 18765
THIS APPLICATION PERMIT No
EE THIS APPLICATION PERMIT No
MARCH 30, 1896
30, 1896 AS AMENDED
POSED PUMP STATIONS

HEREBY CERTIFY THAT
AND RECORDS OF BIG
MAPS AND RECORDS
THAT IT CORRECTLY
AREA OF THE LANDS
AND LOCATION OF STREAMS
PETITIONS

APPROVED: Jan. 30 1964
Floyd A. Bishop
FLOYD A. BISHOP, STATE ENGINEER

MAP

TO ACCOMPANY PETITIONS FOR CHANGE IN POINT OF DIVERSION & MEANS OF CONVEYANCE TO PADLOCK SPRINKLER SYSTEMS, & FOR AMENDED CERTIFICATES OF APPROPRIATION FOR LANDS UNDER BIRCHBY DITCH PERMIT 1585; 1073 EML. BIRCHBY DITCH; AND PERMIT 1325 THE Mc KINLEY DITCH ALL FROM TONGUE RIVER; AND PERMIT 945 THE HOARD DITCH, PERMIT 1182 THE IDA M. HEERT DITCH BOTH FROM BIG GOOSE CREEK TRIBUTARY OF TONGUE RIVER AND TO ACCOMPANY APPLICATIONS FOR PERMIT FOR PADLOCK SPRINKLER SYSTEMS

APPLICANTS & PETITIONER
BIG HORN COAL COMPANY
SHERIDAN, WYOMING

WYOMING STATE BOARD OF LAND COMMISSIONERS
CHEYENNE, WYOMING

SCALE - 1" = 1000'

SEPT 24, 1961

Permit # 18765, #1182, #945, #1325, #1585, #1073 emls.

JUN 04 '80

0 1 2 3 4 5 6

THIS MAP MAY NOT BE TO SCALE

October 2014

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-61

DEQ 11-219

JANE BUYOK PUMP 34669D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-220

RAMACO

Brook Mine

Rev. 6/2/2006

Note: Do not fold this form. Use typewriter or print neatly with black ink.

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

SCANNED APR 2 2012

APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING, STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the 31 day of January, A.D. 2011, at 9:44 o'clock A M.

John K. Barnes for State Engineer

Recorded in Book 158 of Ditch Permits, on Page 148

Fee Paid $ 25.00. Map Filed SA-33, 34669D

Temp. 35 3/124

WATER DIVISION NO. 2 DISTRICT NO. 5 Filing No.

PERMIT NO. 34669

NAME OF FACILITY: **Jane Buyok Domestic Pump**

1. Name(s), mailing address and phone no. of applicant(s) is/are **Jane Buyok**
102 Monarch Road
Ranchester, WY 82839 **307-673-2747**
E-mail address:
(If more than one applicant, designate one to act as Agent for others)

2. Name & address of agent to receive correspondence and notices: **Same as above**
E-mail address:

3. (a) The use to which the water is to be applied is **Domestic (Lawn & Garden)**

(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown in item 10 of the application and the details of the facilities used to divert and convey the appropriation must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

4. The source of the proposed appropriation is **Tongue River, trib. Yellowstone River**

Latitude: N 44.90202 Longitude: W 107.04512 NAD83

5. The point of diversion of the proposed work is located -- feet distant from the -- corner of Section -- T. -- N., R. -- W., and is in the SE1/4 NW1/4 of Section 19 T. 57 N., R. 84 W. ORIG SURVEY

Lot ____ Block ____ Subdivision Name ____

6. Are any of the lands crossed by the proposed facility owned by the State or Federal government? If so, describe lands and indicate whether State or Federally owned.

No – all privately owned lands

7. The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is **0.056** cubic feet per second.

8. The accompanying map is prepared in accordance with the State Engineer's Manual of Regulations and Instructions for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the completion of construction is **existing**, and to complete the application of water to the beneficial uses stated in this application is **existing**

TFN 6 2/025
RECD NOV 14, 2014

Permit No. 34669 Page No. 148 (Leave Blank)

4. The land to be irrigated under this permit is described in the following tabulation. (Give irrigable acreage in each 40-acre subdivision.) Designate ownership of land, Federal, State or private. If private, list names of owners and land owned separately.) If application is for stock, domestic, or for purposes other than irrigation, indicate point of use by 40-acre subdivision and owner.

			NE¼				NW¼				SW¼				SE¼				
Township	Range	Sec.	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	TOTALS
57	84	19								X									
			FOR DOMESTIC USE ONLY AT THE POINT OF USE DESCRIBED ABOVE NOT TO EXCEED 0.056 CFS															

Number of acres to receive original supply --

Number of acres to receive supplemental supply --

Total number of acres to be irrigated --

REMARKS

Application is for domestic (lawn & garden) water use, via a small portable pump from the Tongue River.

Pump will be used during normal growing seasons.

Type of Pump: Electric

Horsepower: 1 HP

Delivery Method: Water is pumped from Tongue River through HDPE pipe to sprinklers.

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete

TFN 6 2/025
RECD NOV 14, 2014

Signature of Applicant or Agent

1/24/11
Date

THE STATE OF WYOMING }
STATE ENGINEER'S OFFICE } ss.

TEMPORARY FILING NO. 35 3/124

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use the water available in the stream after all prior rights are satisfied.

The amount of appropriation shall be limited to the amount beneficially used for domestic purposes only, diverted from Tongue River at a rate not to exceed 25 G.P.M. or 0.056 cubic feet per second of water.

If in priority and in the event of a request for regulation, the applicant may be required to install a choke on the pump or a water flow reducing device in the pipeline which will provide for regulating the amount of water diverted to 0.056 cubic feet of water per second of time.

This permit is conditioned on the holder of this permit securing and/or providing free and unencumbered access to this reservoir site to allow State Engineer personnel to perform their duties as prescribed by Law. These duties include, but are not limited to, construction inspections and water administration.

This permit is issued to make an existing facility a matter of record. The notices of completion of construction and beneficial use are hereby waived.

~~The time for completing the construction work shall terminate on December 31, 20_____.~~

~~The time for completing the application of water to beneficial use shall terminate on December 31, 20_____, and final proof of appropriation shall be made within 5 years thereafter.~~

Witness my hand this 30TH day of APRIL, A.D. 2012.

TFN 6 2/025
RECD NOV 14, 2014

FOR PATRICK T. TYRRELL, State Engineer

Permit No. 34669

Page No. 148
(Leave Blank)

PERMIT NO. 34669

PERMIT STATUS

Priority Date January 31, 2011

Approval Date April 30, 2012

PROOF PREPARED
ADJUDICATION IN PROCESS

SCANNED APR 30 20[illegible]

NOTICE

This permit, does not constitute a complete water right. It is your authority to begin construction work.

All appropriations for irrigation are limited to 1 cubic foot per second of time for each 70 acres of land irrigated, except as provided in Section 41-4-320, Wyoming Statutes, 1977. Appropriations for other uses are limited to the amount of water beneficially used in accordance with the terms of the permit.

Notice of completion of work and of application of the water to the beneficial uses described in the permit, must be filed in the State Engineer's Office before the expiration of the time allowed in the permit.

If extensions of time beyond the time limits set forth in the permit are required, requests for same must be in writing, stating why the additional time is required, and must be received in the State Engineer's Office before the expiration of the time allowed in the permit.

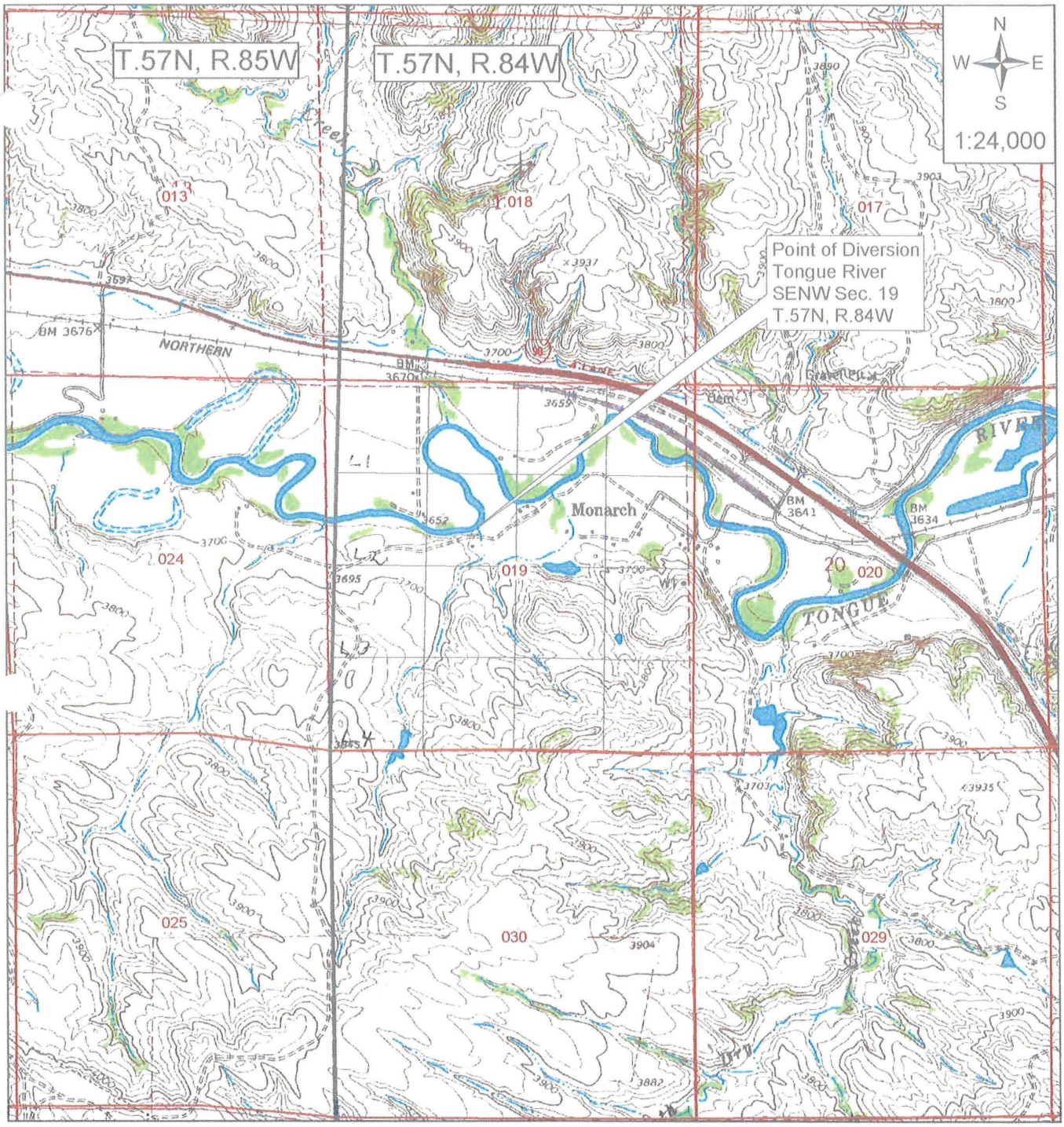
To perfect your water right, your Water Division Superintendent, or his authorized representative, will contact you after you have submitted notice to the State Engineer stating that you have applied the water to the beneficial uses described in your permit. After execution of the proof, it will be considered by the State Board of Control, and, if found to be satisfactory, the Board will issue to you a Certificate of Appropriation which will constitute a completed water right.

The granting of a permit does not constitute the granting of right-of-way. If any right-of-way is necessary in connection with the application it should be understood that this responsibility is the applicant's.

TFN 6 2/025
RECD NOV 14, 2014

RAMACO

Brook Mine



APPROVED: April 30, 2012

Patrick T. Tyrrell STATE ENGINEER

MAP TO ACCOMPANY APPLICATION FOR:
Jane Buyok Domestic Pump

APPLICANT:
Jane Buyok
102 Monarch Road
Ranchester, WY 82839

TFN 6 2/025
RECD NOV 14, 2014

October 2014 Addendum D11-4-67

SCANNED APR 30 2012

3 4066 File SA-33

DEQ 11-225

JOHNSON PUMP 33569

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-226

RAMACO

Form SW. 1
Rev. 10-1999

Brook Mine

NOTE: Do not fold. Form. Use type-writer or print neatly with black ink.

300 32442
25.00
8/11/06

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

MICRO FILMED SCANNED DEC 01 2006 SEP 06 2006

APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

Kathy Cameron

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING, STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the 11th day of August, A.D. 2006, at 9:30 o'clock A M.

Phillip A. Velez
for JOHN R. BARNES for State Engineer

Recorded in Book 151 of Ditch Permits, on Page 98.

Fee Paid $ 25.00. Map Filed SA

WATER DIVISION NO. 2 DISTRICT NO. 5 Temp. Filing No. 33 2/325

PERMIT NO. 33569

SA-29

NAME OF FACILITY Johnson Domestic Pump

1. Name(s), mailing address and phone no. of applicant(s) is/are John & Gaylene Johnson
P.O. Box 424
Ranchester, WY 82839
(307) 655-2410

(If more than one applicant, designate one to act as Agent for the others)

2. Name & address of agent to receive correspondence and notices Same as Above

3. (a) The use to which the water is to be applied is Domestic

(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown in item 10 of the application and the details of the facilities used to divert and convey the appropriation must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

4. The source of the proposed appropriation is Tongue River, tributary Yellowstone River
Lat. 44.903333
Long. 107.068333

5. The point of diversion of the proposed works is located ——— feet distant from the ——— corner of Section ———, T. ——, N., R. ——, W., and is in the NE¼NE¼ of Section ~~27 NE NE~~ 23 T. 57 N., R. 85 W. KC

Lot — Block — Subdivision Name —

6. Are any of the lands crossed by the proposed facility owned by the State or Federal government? If so, describe lands and indicate whether State or Federally owned.
No

7. The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is 0.056 cubic feet per second. or 25 gpm. KC

8. The accompanying map is prepared in accordance with the State Engineer's Manual of Regulations and Instructions for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the completion of construction is 1 year, and to complete the application of water to the beneficial uses stated in this application is 1 year

TFN 6 2/025
RECD NOV 14, 2014

Permit No. 33569

Page No. 98 (Leave Blank)

October 2014 Addendum D11-4-69

DEQ 11-227

10. The land to be irrigated under this permit is described in the following tabulation. (Give irrigable acreage in each 40-acre subdivision. Designate ownership of land, Federal, State or private. If private, list names of owners and land owned separately.) If application is for stock, domestic, or for purposes other than irrigation, indicate point of use by 40-acre subdivision and owner.

			NE¼				NW¼				SW¼				SE¼				
Township	Range	Sec.	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	TOTALS
~~57~~	~~85~~	~~27~~																	
57	85	23	X	(garden & lawn)															
				For domestic use only at the point of use															
				described above not to exceed 0.056 CFS or 25 GPM															

Number of acres to receive original supply 1

Number of acres to receive supplemental supply

Total number of acres to be irrigated

REMARKS

Application is for domestic (garden & lawn) water use, via a small portable pump from Tongue River. Pump will be used during normal growing seasons.

The amount of appropriation shall be limited to the amount of water used for domestic (garden & lawn) purposes only not to exceed the diversion rate from Tongue River ~~of~~ of 25 GPM or 0.056 CFS.

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

TFN 6 2/025
RECD NOV 14, 2014

John L. Johnson
Signature of Applicant or Agent

8/10/06
Date

THE STATE OF WYOMING }
STATE ENGINEER'S OFFICE } ss.

TEMPORARY FILING NO. 33 2/325

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use the water available in the stream after all prior rights are satisfied.

The amount of appropriation for domestic supply shall be limited to the amount beneficially used for domestic purposes, diverted from Tongue River at a rate not to exceed 0.056 cubic-feet per second of water.

If in priority and in the event of a request for regulation, the applicant may be required to install a choke on the pump or a water flow reducing device in the pipeline which will provide for regulating the amount of water diverted to 0.056 cubic feet of water per second of time.

This permit is granted subject to the terms of the Yellowstone River Compact.

The time for completing the construction work shall terminate on December 31, 20 08.

The time for completing the application of water to beneficial use shall terminate on December 31, 20 08, and final proof of appropriation shall be made within 5 years thereafter.

Witness my hand this 27ND day of August, A.D. 2006.

TFN 6 2/025
RECD NOV 14, 2014

FOR PATRICK T. TYRRELL, State Engineer

Permit No. 33569

Page No. 98
(Leave Blank)

PERMIT NO. 33569

SA-29

PERMIT STATUS

Priority Date August 11, 2006 Approval Date August 22, 2006

June 19, 2007 Notice of Completion of Construction on June 18, 2007, received from applicant.

June 19, 2007 Notice of Completion of Beneficial Use on June 18, 2007, received from applicant.

PROOF PREPARED
ADJUDICATION IN PROCESS

SCANNED JUL 16 2007

CERT. REC. 86, P. 185 PROOF NO. 39707

IRR. ____ STK. ____ DOM. X MISC. ____

AC. ____ C.F.S. 0.056

SCANNED DEC 2 2008

TFN 6 2/025
RECD NOV 14, 2014

NOTICE

This permit, does not constitute a complete water right. It is your authority to begin construction work.

All appropriations for irrigation are limited to 1 cubic foot per second of time for each 70 acres of land irrigated, except as provided in Section 41-4-320, Wyoming Statutes, 1977. Appropriations for other uses are limited to the amount of water beneficially used in accordance with the terms of the permit.

Notice of completion of work and of application of the water to the beneficial uses described in the permit, must be filed in the State Engineer's Office before the expiration of the time allowed in the permit.

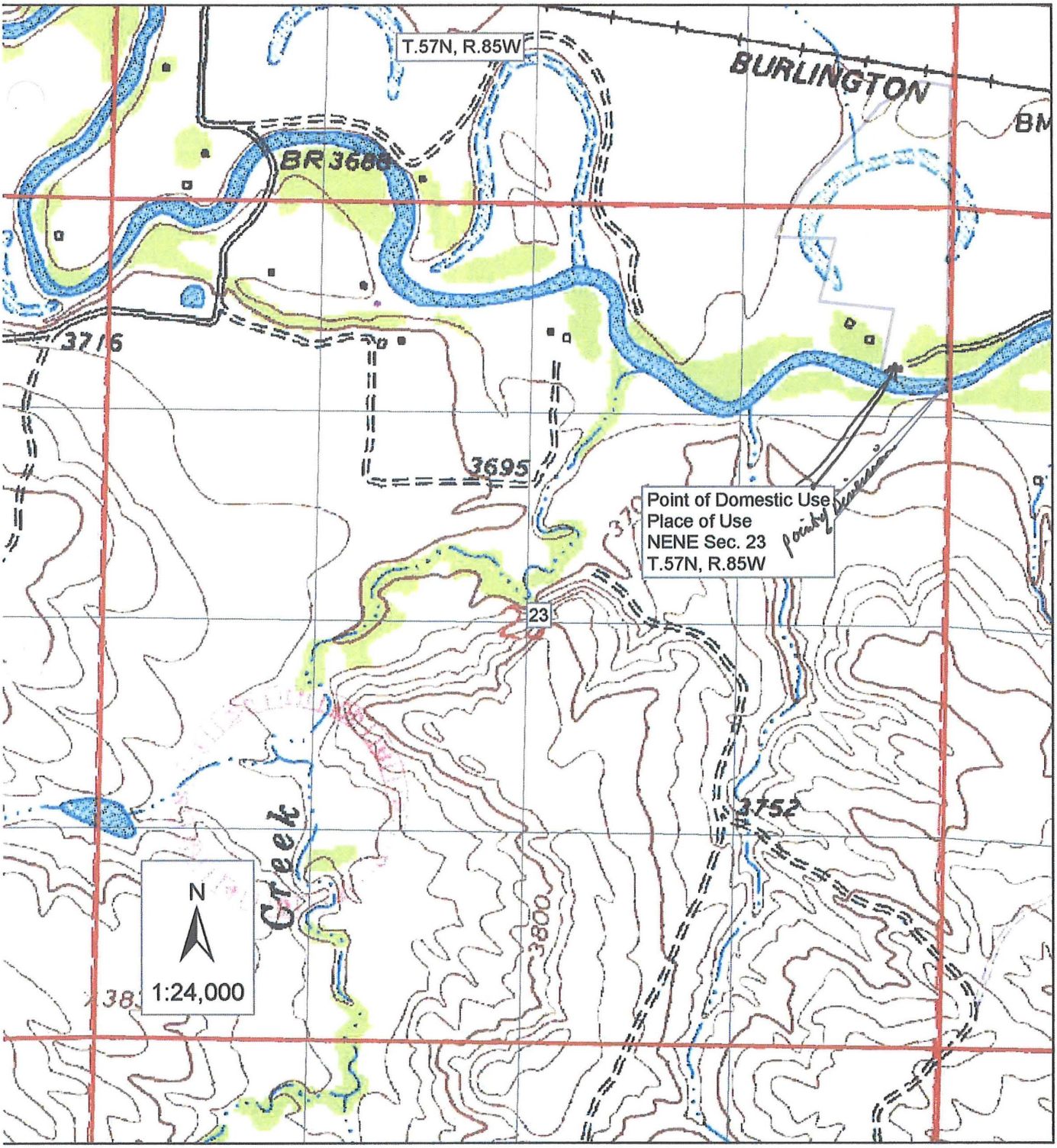
If extensions of time beyond the time limits set forth in the permit are required, requests for same must be in writing, stating why the additional time is required, and must be received in the State Engineer's Office before the expiration of the time allowed in the permit.

To perfect your water right, your Water Division Superintendent, or his authorized representative, will contact you after you have submitted notice to the State Engineer stating that you have applied the water to the beneficial uses described in your permit. After execution of the proof, it will be considered by the State Board of Control, and, if found to be satisfactory, the Board will issue to you a Certificate of Appropriation which will constitute a completed water right.

The granting of a permit does not constitute the granting of right-of-way. If any right-of-way is necessary in connection with the applicatio uld be understood that this responsibility is the ap 's.

RAMACO

Brook Mine



SCANNED SEP 06 2006

APPROVED: August 22, 2006

for Robert Barrett

Patrick T. Tyrrell STATE ENGINEER

October 2014

MAP TO ACCOMPANY APPLICATION FOR:

Johnson Domestic Pump

TFN 6 2/025

APPLICANT: RECD NOV 14, 2014

John & Gaylene Johnson

P.O. Box 424

Ranchester, WY 82839

21 - C 33569 Folder 5A129 Addendum #1 2473

DEQ 11-231

KOOI COAL MINING 8298D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-232

RAMACO

Application for a Permit to Divert and

Brook Mine

Cert. Record 32 P 250 Ac. 2.00 cu. ft.

The S. A. Bristol Co., Printers and Binders, Cheyenne

Proof submitted.

NOV 1911

Water Division No. 2 District No.

I, Arnold Tschirgi, of Sheridan, County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant Koor Coal Mining Co.
2. The postoffice address of the applicant Koor - Wyoming
3. The use to which the water is to be applied is Mining and Town purposes.
4. The name of the ditch or canal is "Koor Coal Mining Co's water supply"
5. The source of the proposed appropriation is Tongue River
6. The headgate of the proposed ditch or canal is located South 40° E. 550 ft from the North 4 cor. ——— of Section 23, Township 57 N., Range 85 W.
7. The said ditch or canal is to be ——— miles long and to pass through the following lands (give route by courses and distances, or by naming legal subdivisions crossed):

The present works consists of a pumping plant - Suctions and main supply pipe 2740 ft. to treasure reservoir with proposed distribution of service pipe on the following subdivisions occupied by the Company's plant and town site - viz - E½ of W½ Sec. 23 - T. 57 N. R. 85 W.

("Thirty miner's inches per sec.")

8. The dimensions of said works are: (a) [At headgate] Width on top (at water-line) ——— feet; width on bottom ——— feet; depth of water ——— feet; grade ——— feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate:

[At ———] width on top (at water-line) ——— feet; width on bottom ——— feet; depth of water ——— feet; grade ——— feet per mile.

[At ———] width on top (at water-line) ——— feet; width on bottom ——— feet; depth of water ——— feet; grade ——— feet per mile.

[At ———] width on top (at water-line) ——— feet; width on bottom ——— feet; depth of water ——— feet; grade ——— feet per mile.

9. Describe the character of proposed works, stating: 1st. The nature of material to be moved. 2nd. Number and length of tunnels, if any. 3rd Amount of fluming, if any.

10. The estimated cost of said ditch is 5000 00 Dollars.

11. The land to be irrigated has a total area of ——— acres, described as follows: (Give estimated acreage in fractions of subdivisions)

TFN 6 2/025
RECD NOV 14, 2014

12. Construction will begin on proposed works on or before ———, 190

13. The time required for the completion of ditches and other distributing works is two year from July 1st, 1908

14. The time required to complete the application of water to the beneficial use stated in this application is 2 year from July 1st, 1908

15. A map of the proposed ditch or canal, prepared in accordance with Chapter 14, R. S. 1899, accompanies this application.

Signed: Arnold Tschirgi

Appropriate the Water of the State of Wyoming

THE STATE OF WYOMING,
County of Sheridan } ss.

I hereby certify that the foregoing application was signed in my presence and sworn to before me by Arnold Ischirgi this 13 day of March, 190 8

S. F. Hoof
Notary Public.

My commission expires January 31st, 1909

Seal

Notice of commencement received Dec. 2-1910. (Mar. 23-1911)

Notice of expiration mailed SEP 2 3 1910

THE STATE OF WYOMING,
State Engineer's Office. } ss.

This is to certify that I have examined the foregoing application and have returned the same without my approval for the following reasons:

Witness my hand this day of , A. D. 190

State Engineer.

THE STATE OF WYOMING,
State Engineer's Office. } ss.

This is to certify that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

TFN 6 2/025
RECD NOV 14, 2014

Construction of proposed works shall begin within one year from date of approval.

The time for completing the work shall terminate on December 31, 1910

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1910

The amount of the appropriation shall be limited to ~~one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 190~~ , and the ~~additional~~ volume used for Mining & Municipal purposes on or before said date.

Witness my hand this 1st day of April , A. D. 190 8

Clarence T. Johnston
State Engineer.

THE STATE OF WYOMING,
State Engineer's Office. } ss.

This instrument was received and filed for record on the 16th day of March , A. D. 190 8, at 9 o'clock A. M. and duly recorded in Book 26 of Applications on Page 285.

Clarence T. Johnston

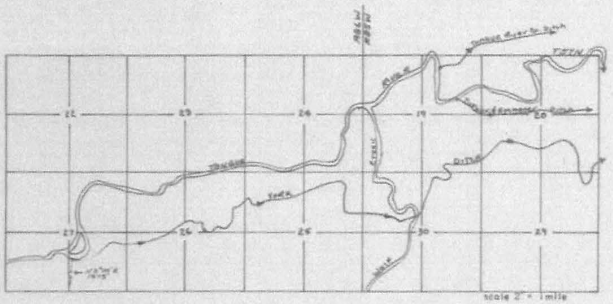
MCKINLEY 1335D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-235

RAMACO

October 2014



Small scale map showing York Ditch above lands covered by these petitions

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by O. Shilling, not covered by these petitions

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by E. R. Williams, not covered by these petitions

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by R. Soltis, covered by listed petition (1)

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by J.T. & J. Legerski, covered by listed petition (6)

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by M. & J. Haratyk, covered by listed petition (7)

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by G. Legerski, covered by listed petition (5)

Lands under McPhillamey Ditch, permit no. 5016, priority 8-2-1902, owned by G. Legerski, covered by listed petition (4)

Lands under McPhillamey Ditch, permit no. 1133 enl., priority 11-12-1903, owned by G. Legerski, covered by listed petition (4)

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (2)

York Ditch changed to
Lands under Masters Pump, permit no. 388, priority 1-6-1893, owned by W. Welch, petition for change of pt. of diversion granted 3-14-1916

Lands under York Ditch, permit no. 1126 enl., priority 11-9-1903, owned by W. Welch, covered by listed petition (3)

Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (3)

Lands under York Ditch, permit no. 1129 enl., priority 11-12-1903, owned by G. Legerski, covered by listed petition (5)

NOTE:

(1) Ditch will be graded back from pump outlet, with identical hydraulic characteristics as exist in present York Ditch

(2) Legerski pump data:
pumping head = 110 feet
30 HP pump
1445 L.F. 12" discharge pipe

(3) Tom pump ditch data:
pumping head 47 feet
5 H.P. pump
330 L.F. 4" pipe

(4) Haratyk pump ditch data:
pumping head = 22 feet
3 H.P. pump
260 L.F. 3" pipe

(5) Legerski sprinkler data:
1500 L.F. main line pipe (6")
1000 L.F. distr. pipe (4")
max. pumping head = 30 feet

(6) Welch sprinkler data:
3000 L.F. main line pipe (6")
2000 L.F. distr. pipe (4")
max. pumping head = 105 feet

(7) Soltis sprinkler data:
1500 L.F. main line pipe (6")
1100 L.F. distr. pipe (4")
max. pumping head = 110 feet

MAP

To Accompany

(1) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO SOLTIS SPRINKLER
(2) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO WELCH SPRINKLER
(3) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO. 388 AND YORK DITCH PERMIT NO. 1126enl. TO MASTERS PUMP
(4) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF McPHILLAMEY DITCH TO LEGERSKI SPRINKLER
(5) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO. 388 AND ALL OF PERMIT NO. 1129 enl. TO LEGERSKI PUMP
(6) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO TOM PUMP DITCH
(7) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO HARATYK PUMP DITCH

PETITIONERS

(1) Rudolph Soltis	Rochester, Wyoming
(2 & 3) William Welch	Sheridan, Wyoming
(4 & 5) George Legerski	" "
(6) Joe, Tom, & John Legerski	" "
(7) M. & J. Haratyk	" "

CERTIFICATE OF SURVEYOR

COUNTY OF SHERIDAN
STATE OF WYOMING

I, Walter J. Pitch, of Sheridan, Wyoming, certify that this map was made from records and maps on file in the State Engineers Office and from notes taken during an actual survey made by me on January 11, 23, 24, 1962, and that it correctly represents the irrigation works, the location and area of lands to be irrigated in each subdivision and the location of streams in so far as these petitions are affected.

REGISTRATION NO. 537

Engineer & Surveyor

Petition #2 & granted May 9, 1962
Petition #7 granted May 10, 1963

Deputy State Engineer

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-78

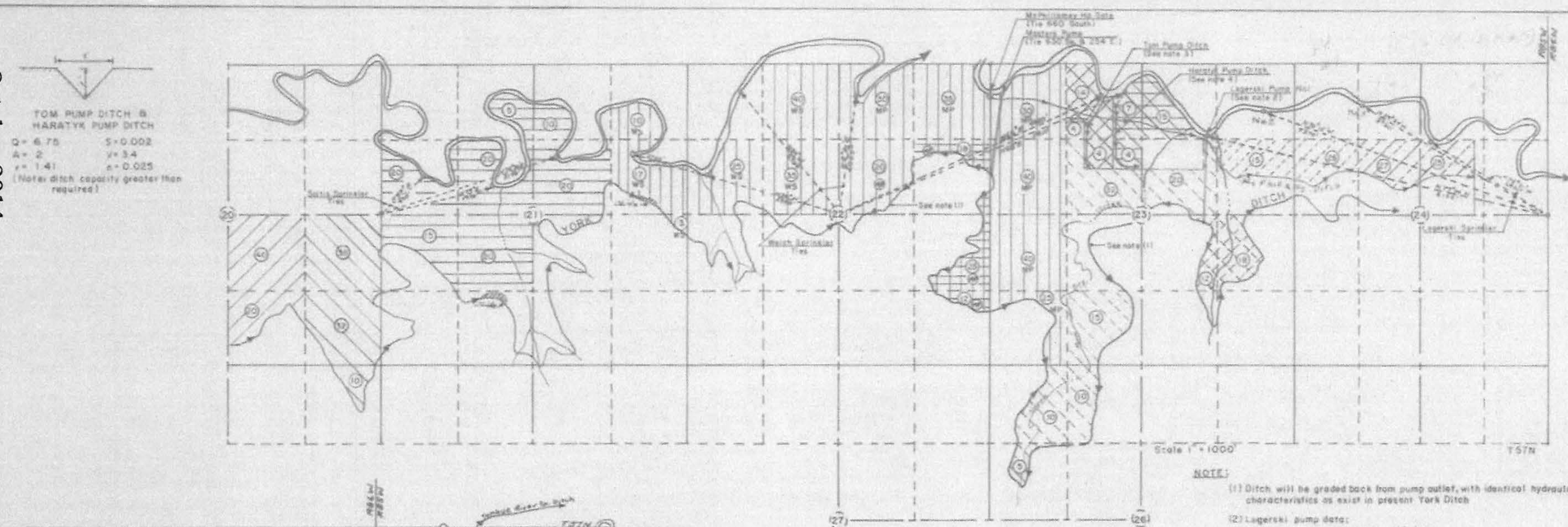
Brook Mine

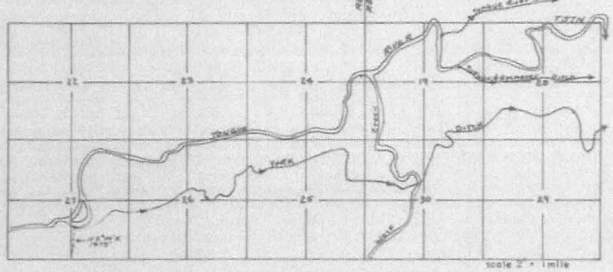
DEQ 11-236

MCPHILL 5016D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-237





Small scale map showing York Ditch above lands covered by these petitions

- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by O. Shilling, not covered by these petitions
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by E.R. Williams, not covered by these petitions
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- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by G. Legerski, covered by listed petition (5)
- Lands under McPhillamey Ditch, permit no. 5016, priority 8-2-1902, owned by G. Legerski, covered by listed petition (4)
- Lands under McPhillamey Ditch, permit no. 1135 enl., priority 11-12-1903, owned by G. Legerski, covered by listed petition (4)
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (2)
- Lands under York Ditch changed to Masters Pump, permit no. 388, priority 1-6-1893, owned by W. Welch, petition for change of pt. of diversion granted 3-14-1916
- Lands under York Ditch, permit no. 1128 enl., priority 11-9-1903, owned by W. Welch, covered by listed petition (3)
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (3)
- Lands under York Ditch, permit no. 1129 enl., priority 11-12-1903, owned by G. Legerski, covered by listed petition (5)

NOTE:

(1) Ditch will be graded back from pump outlet, with identical hydraulic characteristics as exist in present York Ditch

(2) Legerski pump data:
pumping head = 110 feet
30 H.P. pump
1445 L.F. 12" discharge pipe

(3) Tom pump ditch data:
pumping head 47 feet
5 H.P. pump
330 L.F. 4" pipe

(4) Haratyk pump ditch data:
pumping head = 22 feet
3 H.P. pump
260 L.F. 3" pipe

(5) Legerski sprinkler data:
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max. pumping head = 30 feet

(6) Welch sprinkler data:
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2000 L.F. distr. pipe (4")
max. pumping head = 105 feet

(7) Soltis sprinkler data:
1500 L.F. main line pipe (6")
1100 L.F. distr. pipe (4")
max. pumping head = 110 feet

MAP

To Accompany

(1) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO SOLTIS SPRINKLER
(2) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO WELCH SPRINKLER
(3) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO. 388 AND YORK DITCH PERMIT NO. 1128 enl. TO MASTERS PUMP
(4) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF McPHILLAMEY DITCH TO LEGERSKI SPRINKLER
(5) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO. 388 AND ALL OF PERMIT NO. 1129 enl. TO LEGERSKI PUMP
(6) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO TOM PUMP DITCH
(7) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO HARATYK PUMP DITCH

PETITIONERS

(1) Rudolph Soltis	Ranchester, Wyoming
(2 & 3) William Welch	Sheridan, Wyoming
(4 & 5) George Legerski	" "
(6) Jos., Tom, & John Legerski	" "
(7) M. & J. Haratyk	Acme, Wyoming

CERTIFICATE OF SURVEYOR

COUNTY OF SHERIDAN
STATE OF WYOMING ss

I, Walter J. Pilch, of Sheridan, Wyoming, certify that this map was made from records and maps on file in the State Engineers Office and from notes taken during an actual survey made by me on January 11, 23, 24, 1962, and that it correctly represents the irrigation works, the location and area of lands to be irrigated in each subdivision and the location of streams in so far as these petitions are affected.

REGISTRATION NO. 537

Engineer & Surveyor

TFN 6 2/025
RECD NOV 14, 2014

Petitions 5 & 6 granted May 9, 1963
Petition 7 granted May 10, 1963

DEQ 11-239

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-81

October 2014

NOTE:

(1) Ditch will be graded back from pump outlet, with identical hydraulic characteristics as exist in present York Ditch

(2) Legerski pump data:
pumping head = 110 feet
30 H.P. pump
1445 L.F. 12" discharge pipe

(3) Tom pump ditch data:
pumping head 47 feet
5 H.P. pump
330 L.F. 4" pipe

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(10) Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by J.,T. & J. Legerski, covered by listed petition (6)

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(10) Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by G. Legerski, covered by listed petition (5)

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(10) Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (2)

(10) Lands under Masters Pump, permit no. 388, priority 1-6-1893, owned by W. Welch, petition for change of pt. of diversion granted 3-14-1916
York Ditch changed to

(10) Lands under York Ditch, permit no. 1128 enl., priority 11-9-1903, owned by W. Welch, covered by listed petition (3)

(10) Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (3)

(10) Lands under York Ditch, permit no. 1129 enl., priority 11-12-1903, owned by G. Legerski, covered by listed petition (5)

Petitions 5 & 6 granted May 9, 1963
Petition 7 granted May 11, 1963
Petitions 1, 2, 3, 4 granted November 25, 1963
George L. Christopulos
Ex-officio Secretary State Board of Control

MAP

To Accompany

(1) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO SOLTIS SPRINKLER

(2) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO WELCH SPRINKLER

(3) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO. 388 AND YORK DITCH PERMIT NO. 1128 enl. TO MASTERS PUMP

(4) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF McPHILLAMEY DITCH TO LEGERSKI SPRINKLER

(5) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO. 388 AND ALL OF PERMIT NO. 1129 enl. TO LEGERSKI PUMP

(6) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO TOM PUMP DITCH

(7) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO HARATYK PUMP DITCH

PETITIONERS

(1) Rudolph Soltis	Ranchester, Wyoming
(2 & 3) William Welch	Sheridan, Wyoming
(4 & 5) George Legerski	" "
(6) Joe, Tom, & John Legerski	" "
(7) M. & J. Haratyk	Acme, Wyoming

0 1 2 3 4 5 6

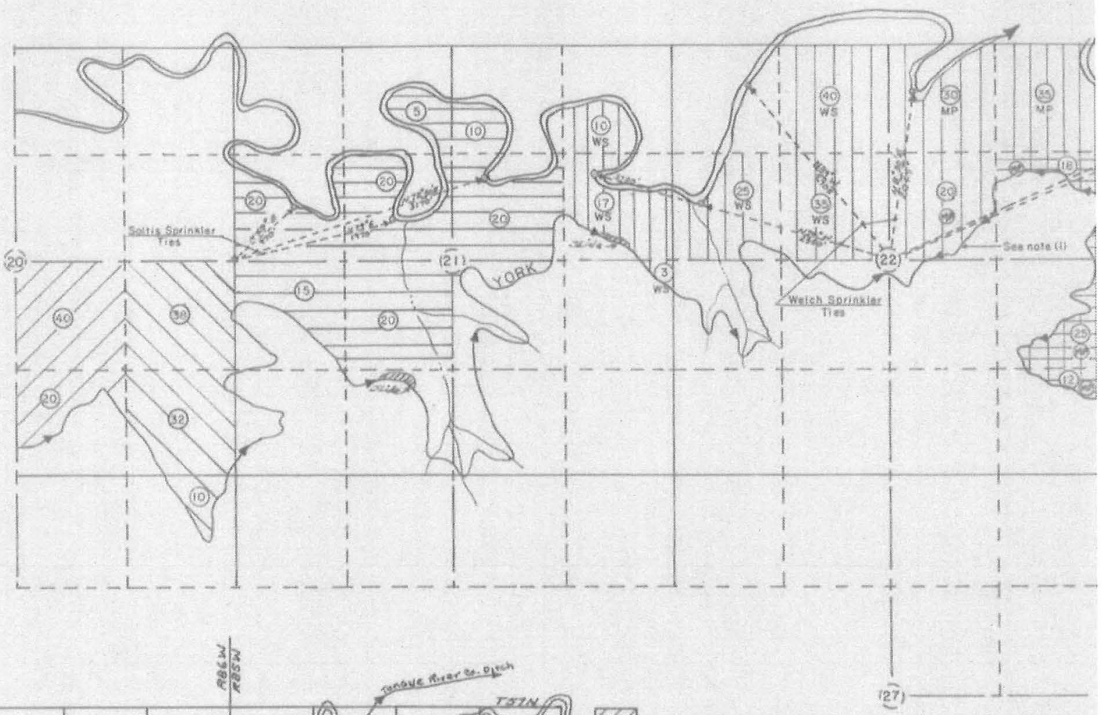
THIS MAP MAY NOT BE TO SCALE

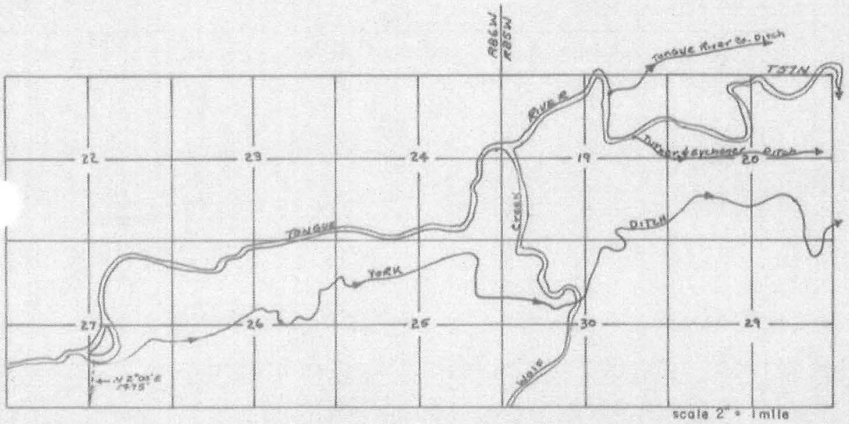
RAMACO

Brook Mine

TOM PUMP DITCH &
HARATYK PUMP DITCH

Q = 6.75 S = 0.002
A = 2 V = 3.4
r = 1.41 n = 0.025
(Note: ditch capacity greater than required)





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York Ditch (changed to
Lands under Masters Pump), permit no. 388, priority 1-6-1893
W. Welch, petition for change of pt. of diversion granted 3-14

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Lands under York Ditch, permit no. 1129 enl., priority 11-12-19
G. Legerski, covered by listed petition (5)

CERTIFICATE OF SURVEYOR

COUNTY OF SHERIDAN
STATE OF WYOMING ss

I, Walter J. Pilch, of Sheridan, Wyoming, certify that this map was made from records and maps on file in the State Engineers Office and from notes taken during an actual survey made by me on January 11, 23, 24, 1962, and that it correctly represents the irrigation works, the location and area of lands to be irrigated in each subdivision and the location of streams in so far as these petitions are affected.

REGISTRATION NO. 537

Walter J. Pilch
Engineer & Surveyor

TFN 6 2/025
RECD NOV 14, 2014

Petitions 5 & 6 granted May
Petition 7 granted May
Petitions 1, 2, 3 & 4 granted
George A. Christ
Ex-officio Secretary State Bo

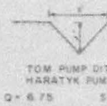
MCPHILL ENL 1133E

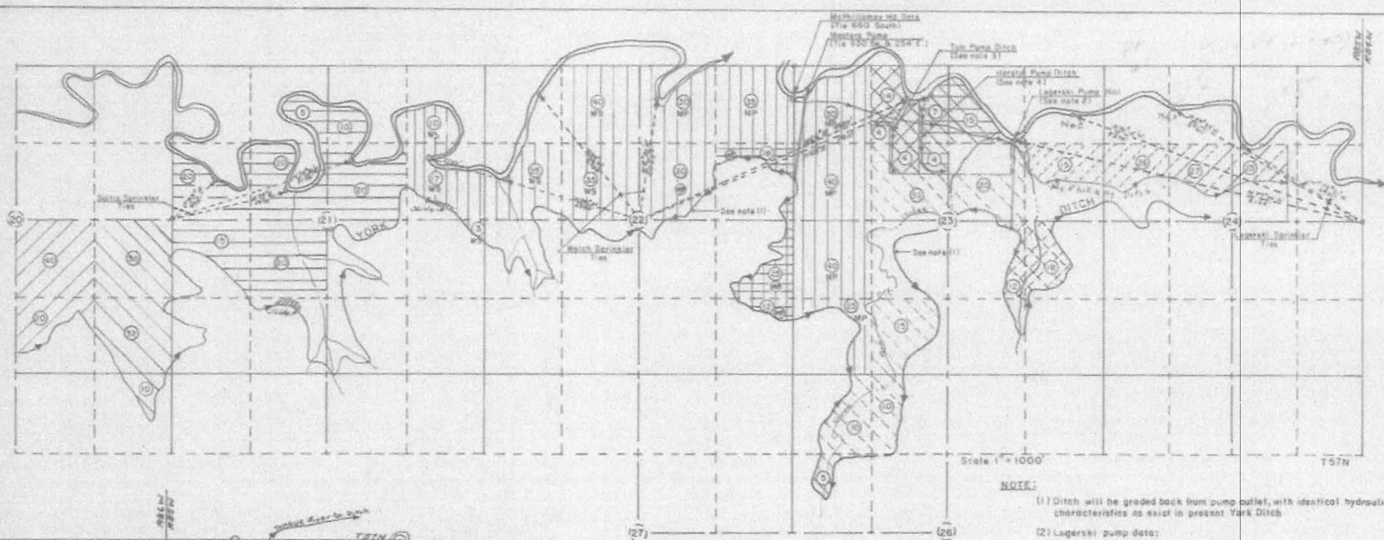
TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-241

RAMACO

October 2014





NOTE:

(1) Ditch will be graded back from pump outlet, with identical hydraulic characteristics as exist in present York Ditch

(2) Legerski pump data:
pumping head = 110 feet
30 H.P. pump
1445 L.F. 12" discharge pipe

(3) Tom pump ditch data:
pumping head 47 feet
5 H.P. pump
330 L.F. 4" pipe

(4) Haratyk pump ditch data:
pumping head = 22 feet
3 H.P. pump
260 L.F. 3" pipe

(5) Legerski sprinkler data:
1500 L.F. main line pipe (6")
1000 L.F. distr. pipe (4")
max. pumping head = 30 feet

(6) Welch sprinkler data:
3000 L.F. main line pipe (6")
2000 L.F. distr. pipe (4")
max pumping head = 105 feet

(7) Soltis sprinkler data:
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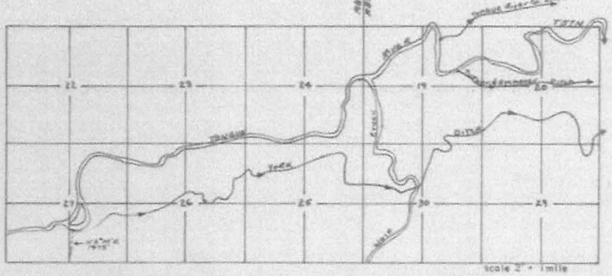
1100 L.F. distr. pipe (4")
max. pumping head = 110 feet



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MAP

To Accompany

(1) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO SOLTIS SPRINKLER
(2) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO WELCH SPRINKLER
(3) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO. 388 AND YORK DITCH PERMIT NO. 1128 enl. TO MASTERS PUMP
(4) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF McPHILLAMEY DITCH TO LEGERSKI SPRINKLER
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(6) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO TOM PUMP DITCH
(7) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO HARATYK PUMP DITCH

PETITIONERS

(1) Rudolph Soltis	Ranchester, Wyoming
(2 & 3) William Welch	Sheridan, Wyoming
(4 & 5) George Legerski	" "
(6) Joe, Tom, & John Legerski	" "
(7) M. & J. Haratyk	Acme, Wyoming

CERTIFICATE OF SURVEYOR

COUNTY OF SHERIDAN
STATE OF WYOMING ss

I, Walter J. Pitch, of Sheridan, Wyoming, certify that this map was made from records and maps on file in the State Engineers Office and from notes taken during an actual survey made by me on January 11, 23, 24, 1962, and that it correctly represents the irrigation works, the location and area of lands to be irrigated in each subdivision and the location of streams in so far as these petitions are affected.

REGISTRATION NO. 537

Engineer & Surveyor

Petitions 5 & 6 granted May 9, 1963
Petition 7 granted May 10, 1963

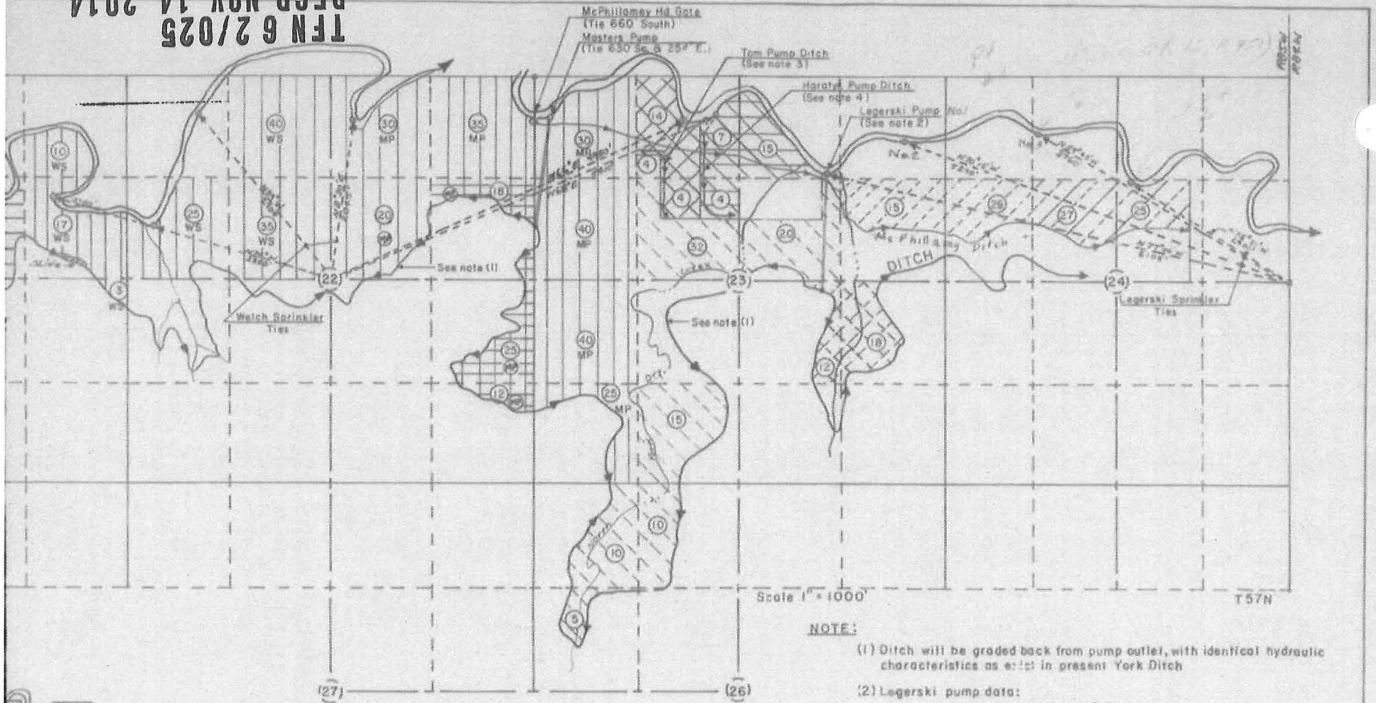
Ex-officio Secretary State Board of Control

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-84

Brook Mine

TFN 6 2/025
RECD NOV 14, 2014



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pumping head = 110 feet
30 H.P. pump
1445 L.F. 12" discharge pipe

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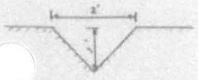
(6) Joe, Tom, & John Legerski	" "
(7) M. & J. Haratyk	Acme, Wyoming

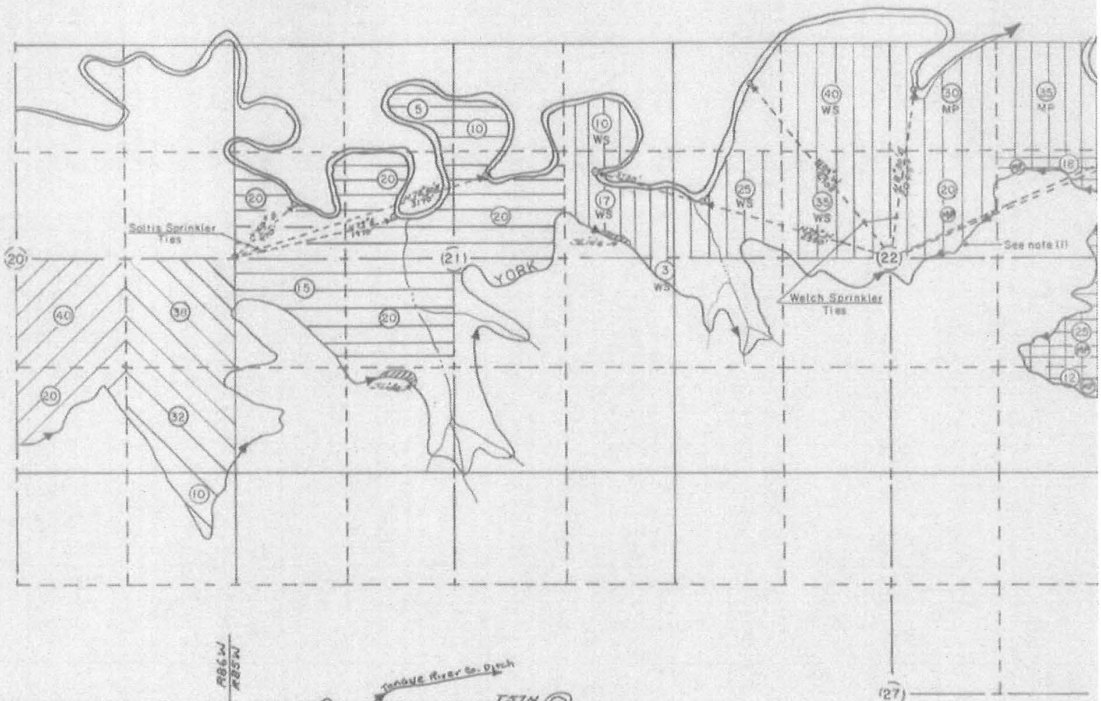
Petitions 5 & 6 granted May 9, 1963
Petition 7 granted May 11, 1963
Petitions 1, 2, 3, & 4 granted November 23, 1962
George L. Christopulos
Ex-officio Secretary State Board of Control

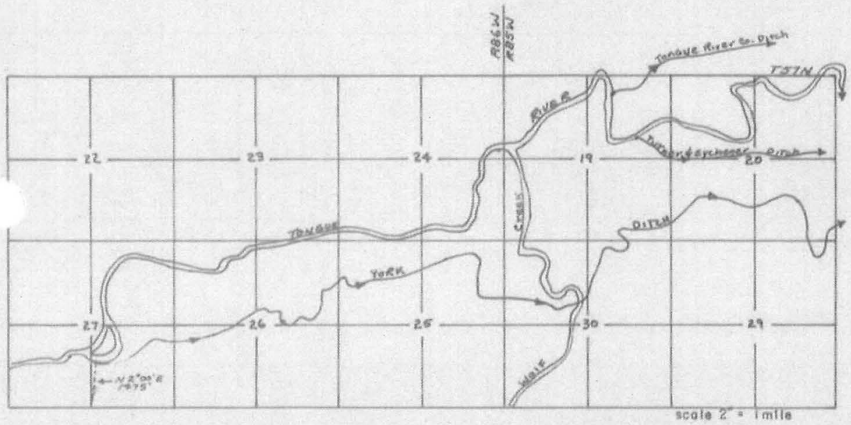
0 1 2 3 4 5 6
THIS MAP MAY NOT BE TO SCALE



TOM PUMP DITCH &
HARATYK PUMP DITCH

Q = 6.75 S = 0.002
A = 2 V = 3.4
r = 1.41 n = 0.025
(Note: ditch capacity greater than required)





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CERTIFICATE OF SURVEYOR

COUNTY OF SHERIDAN
STATE OF WYOMING ss

I, Walter J. Pilch, of Sheridan, Wyoming, certify that this map was made from records and maps on file in the State Engineers Office and from notes taken during an actual survey made by me on January 11, 23, 24, 1962, and that it correctly represents the irrigation works, the location and area of lands to be irrigated in each subdivision and the location of streams in so far as these petitions are affected.

REGISTRATION NO. 537

Walter J. Pilch
Engineer & Surveyor

Petitions 5 & 6 granted May
Petition 7 granted May
Petitions 1, 2, 3 & 4 granted
George K. Christ
Ex-officio Secretary State Bo

TFN 6 2/025
RECD NOV 14, 2014

MONARCH PIPELINE 18765D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-245

C.R.56,p.5,A.17.90

RAMACO

PERMIT NO. 18765 B5

Brook Mine

NOTICE OF COMPLETION RECEIVED October 7, 1937 PROOF SUBMITTED

APPLICATION FOR A PERMIT TO DIVERT AND APPROPRIATE THE WATER OF THE STATE OF WYOMING

WATER DIVISION No. 2 DISTRICT No. 5

I, Paul F. Anderson of Sheridan,

County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant Sheridan Wyoming Coal Co.

2. The postoffice address of the applicant Monarch, Wyoming.

3. The use to which the water is to be applied is Irrigation.

4. The name of the pipe line is Monarch Pipe Line.

5. The source of the proposed appropriation is Tongue River which is a tributary of Yellowstone River (Montana).

6. The headgate of the proposed pipe line is located N. 35° 27' E. 766.0 feet distant from the W¼ corner of Section 20 T. 57 N., R. 84 W., and is in the SW¼ NW¼ of Section 20 T. 57 N., R. 84 W.

7. The said pipe line is to be 0.568 miles long.

8. The carrying capacity of the pipe line at the headgate is 0.89 cu. ft. per sec.

9. (a) The nature of the material to be moved is Earth.

(b) Number, length and size of tunnels None.

(c) Number, length and size of flumes None.

10. The estimated cost of said works is $ 870.00 Dollars.

11. Construction on proposed work will begin within one year from date of approval of this application.

12. The time required for the completion of the pipe line and other distributing works is one year from December 31st, 19 35.

13. The time required to complete the application of water to the beneficial uses stated in this application is one year from December 31st, 1935.

14. The accompanying map is prepared in accordance with the Manual of Regulations and Instructions for Filing Applications in the State Engineer's Office and is hereby declared a part of this application.

15. The land to be irrigated is described in the following tabulation:

(Give irrigable acreage in each 40-acre subdivision. Designate ownership of land, Government, State or Private. If Private, give names of owners)

TOWNSHIP	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
57N.	84W.	19	6.57			9.98													16.55
"	"	20							1.35										1.35

Above lands owned by applicant.

TOTAL NUMBER OF ACRES TO BE IRRIGATED 17.90

(Signed) Paul F. Anderson

THE STATE OF WYOMING,)
) SS.
COUNTY OF Sheridan)

TFN 6 2/025
RECD NOV 14, 2014

I hereby certify that the foregoing application was signed in my presence and sworn to before me by Paul F. Anderson this 29th day of July, 1935.

J. C. Rhodes
Notary Public

October 2014

Addendum D11-4-88

DEQ 11-246

THE STATE OF WYOMING,)
) SS.
STATE ENGINEER'S OFFICE,)

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use surplus water of the stream when all prior rights are satisfied.

Construction of proposed work shall begin within one year from the date of approval.

The time for completing the work shall terminate on December 31, 1938.

The time for completing the application of water to beneficial use shall terminate on December 31, 1938, and final proof of appropriation shall be made within five years thereafter.

The amount of appropriation shall be limited to one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 1938.

Witness my hand this 15th day of September, A. D. 1937.

John D. Quinn, State Engineer.

THE STATE OF WYOMING,)
) SS.
State Engineer's Office,)

This instrument was received and filed for record on the 3rd day of September, A. D. 1935, at 10:00 o'clock A. M.

Edwin W. Burritt
State Engineer.

Recorded in Book 61 of Applications, on Page 118.

Oct. 7, 1937 - Notice of commencement of construction of work received.
Oct. 7, 1937 - Notice of completion of the application of water to beneficial use received.
Certificate Record 56, page 5, acres 17.30.

TFN 6 2/025
RECD NOV 14, 2014

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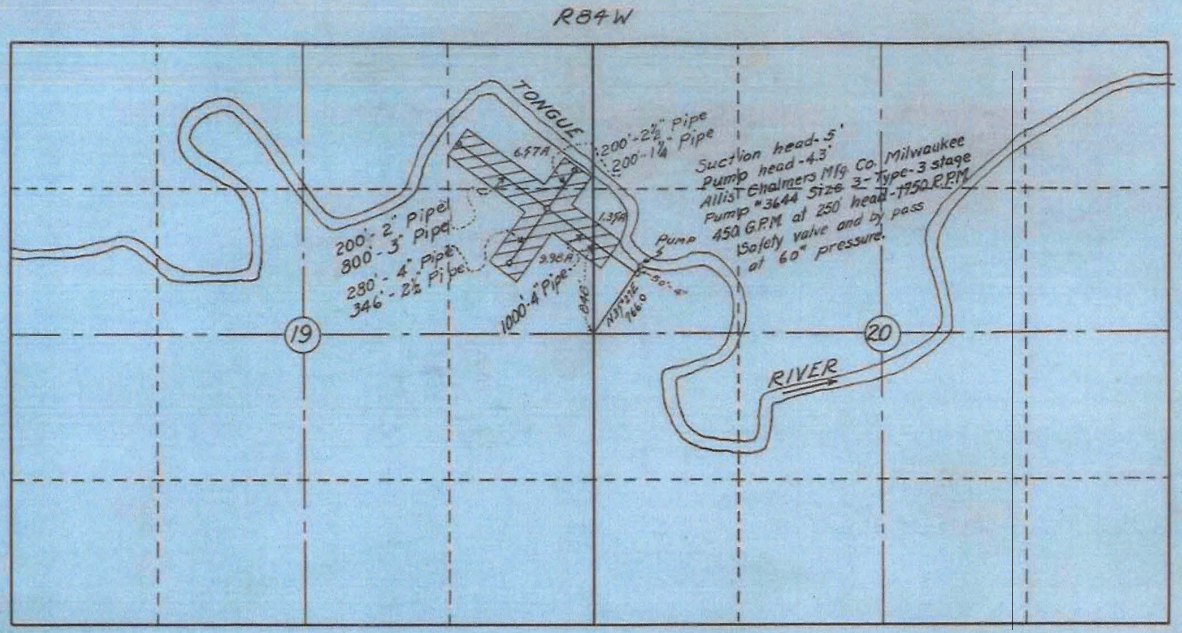
TFN 6 2/025
RECD NOV 14, 2014

October 2014

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-91

RAMACO



CERTIFICATE OF SURVEYOR

STATE OF WYOMING } ss
COUNTY OF SHERIDAN }

I, Paul F. Anderson of Sheridan Wyoming hereby certify that this map was made from notes taken during an actual survey made under my supervision on March 11, 1935 and that it correctly represents the irrigation works described in the accompanying application together with a meander of streams, and shows accurately the location and area of the lands proposed to be irrigated in each subdivision.

Paul F. Anderson
SURVEYOR

Registration No. 55

Approved September 15, 1937
John D. Quinn
John D. Quinn, State Engineer.

MAP

To Accompany Application For

MONARCH PIPE LINE

Applicant

SHERIDAN WYOMING COAL CO
MONARCH WYO

SCALE 1"=1000'

LEGEND

Lands irrigable under this application

18765

1.3 3/4361 B5

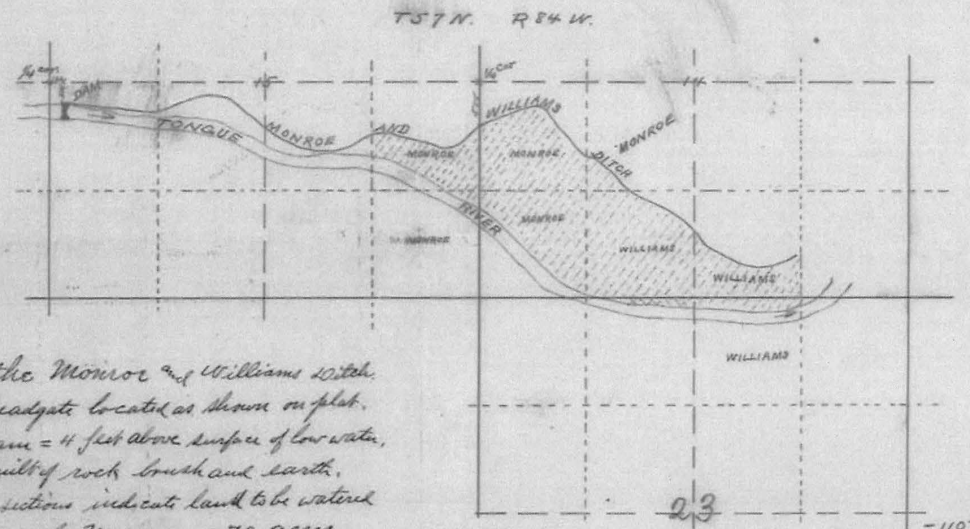
Brook Mine

DEQ 11-249

MONROE WILLIAMS 1107D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-250



Plat of the Monroe and Williams Ditch.
Dam & headgate located as shown on plat.
Height of dam = 4 feet above surface of low water.
Dam to be built of rock brush and earth.
Dotted red sections indicate land to be watered
Land watered by Monroe = 70 acres
" " Williams = 70 "
Grade of ditch = 4' fall per mile
Width " on bottom = 3 feet
Scale of plat = 1" to 1000'

I. W. Asbran a practical surveyor, hereby certify that I have surveyed the Monroe and Williams ditch and that this plat correctly represents the location of dam, ditches & land watered.

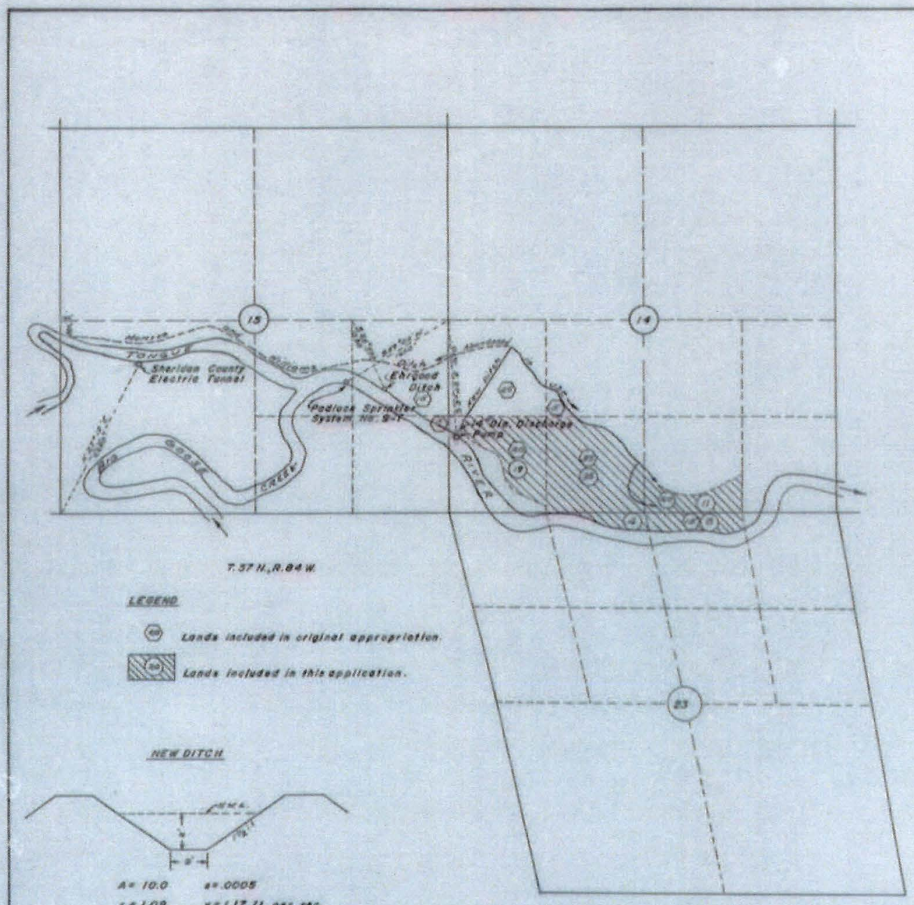
W. A. Brown. Surveyor.
Sheridan, Wyo.

THIS PRINT MAY NOT BE TRUE TO SCALE

TFN 6 2/025
RECD NOV 14, 2014

0 1 2 3 4 5 6

THIS MAP MAY NOT BE TO SCALE



LEGEND

Lands included in original appropriation.

Lands included in this application.

NEW DITCH

A= 10.0 s= .0005
r = 1.09 v= 1.17 ft. per sec.
n = 0.030 Q= 11.7 c.f.s.
max. pump cap. =3000 gal. per min

Scale: 1"= 1000'

CERTIFICATE OF SURVEYOR

State of Wyoming)
County of Sheridan) ss

I, James R. Wright of Sheridan, Wyoming, hereby certify that this map was made from notes taken during an actual survey made by me on June 11, 1963, from the records of the State Engineer and from plans of the Wyoming Highway Department which show the corners of Section 23, and that it correctly shows the location of Tongue River, the pump and the lands to be irrigated.

R.L.S. 259 James R. Wright Surveyor

TFN 6 2/025
RECD NOV 14, 2014

MAP
TO ACCOMPANY PETITIONS FOR
CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE
AND
CORRECTION OF LAND DESCRIPTION
FOR
MONROE AND WILLIAMS DITCH, PERMIT 11107
PETITIONERS
R. ROY WILLIAMS AND OTHERS
SHERIDAN, WYOMING

Petition granted May 13, 1964
George F. Christensen
Ex-officio Secretary State Board of Control

Permit No. 11107 D-2 204

CERTIFICATE RECORD,

Cross 4859

3-400

THE STATE OF WYOMING.

CERTIFICATE OF APPROPRIATION OF WATER.

WHEREAS, Robert T Williams has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Tongue River through the Monroe & Williams Ditch under Permit No. 1107 for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming, and for Irrigation

NOW KNOW YE, That the Board of Control, under the provisions of Division I, Title 9, Chapters 10 and 14 of the Revised Statutes of Wyoming, 1899, has, by an order duly made and entered on the 18th day of January, A. D. 1904, in Order Record No. 3, Page 164, determined and established the priority and amount of such appropriation as follows:

3 165

Name of Appropriator, Robert T Williams; Post-office Address, Sheridan Wyoming. General Priority Number on main stream and tributaries ; Priority Number on Tongue River No 26 Amount of Appropriation, 2. cu. ft. per. sec.; Date of Appropriation Dec 24 1895; Description of land to be irrigated, and for which this appropriation is determined and established 140 acres Fifteen (15) acres NE¼SE¼ Five (5) acres SE¼SE¼ Sec 25 & Twenty-five (25) acres N½N½ Twenty (20) acres S½S½ Five (5) acres NE¼S½ Thirty-five (35) acres SE¼S½ Twenty (20) acres S½SE¼ Section 14 & Fifteen (15) acres N½NE¼ Sec 23 T 57 N. R 84 W.

Amended description; change in point of diversion & means of conveyance for part O.R. 15, P. 533.

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I, Clarence T Johnston, President of the State Board of Control, have hereunto set my hand this 15th day of June, A. D. 1904 and caused the seal of said Board to be hereunto affixed.

ATTEST: Jenny L Babcock Secretary. President.

Cross 4860

October 2014
Addendum D11-4-95
TFN 6 2/025
RECD NOV 14, 2014
RAMACO
Brook Mine
DEQ 11-253

Wherefore I recommend that said appropriation be — allowed and that a certificate of appropriation be issued in accordance with said proof and the tabulation thereof filed herewith.

Dated Sheridan Aug 19, 1903

Frank [illegible]

Superintendent of Water Division No. 2

PROOF OF APPROPRIATION

UNDER

PERMIT NO. 1107.

Division No. 2 District No. 5

Date of Appropriation Dec 26 1895

GENERAL. PRIORITIES. STREAM.

NAME OF STREAM.

Tongue River

TRIBUTARY OF

NAME OF CLAIMANT.

Robert T. Williams

Filed with me this 28 day of Aug 1903

Frank [illegible]

Superintendent.

Filed in this office this day of 190

Secretary Board of Control.

Dec. 1107

4859

TFN 6 2/025
RECD NOV 14, 2014

PERMIT NO. 1107

Proof of Appropriation of Water.

(In accordance with the provisions of Section 928, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming, and the regulations of the Board of Control thereunder.)

From Tongue River Division No. 2 District No. 5

1 Q. State your name.

A. Robert T. Williams

2 Q. Postoffice address.

A. Sheridan, Wyoming

3 Q. Are you the original applicant for Permit No. 1107 ?

A. Yes

4 Q. If not, state the date of your securing an interest therein and the nature of your interest in the works constructed under such permit.

A. Own the James Monroe interest

5 Q. When did the construction of the Monroe & Williams ditch (or other distributing works described in said permit) begin?

A. Winter of 1895 & 1896

6 Q. When was it completed?

A. July 1900

7 Q. What are the dimensions of the ditch (or other distributing works) built under said permit?

A. Width on top 5 feet Width on bottom 3 feet Depth 1 ft Grade 4 ft

8 Q. Give the legal subdivisions of land owned or controlled by you on which water has been used, and if an appropriation of water for irrigation is claimed, give the acreage which has been irrigated in each legal subdivision.

A. NE¼ SE¼	Sec 15	T 57	R 84 W		15 acres
SE¼ SE¼	" 15	"	"		5 "
NW¼ SW¼	" 14	"	"		25 "
SW¼ SW¼	" 14	"	"		20 "
NE¼ SW¼	" 14	"	"		5 "
SE¼ SW¼	" 14	"	"		35 "
SW¼ SE¼	" 14	"	"		20 "
NW¼ NE¼	" 23	"	"		15 "
					140 "

9 Q. Give the date when, under the terms of this permit, water was first beneficially used.

A. July 1900

10 Q. If for irrigation, give the location and acreage irrigated the first year and the location and acreage irrigated each subsequent year to the present.

A. Same answered by question 8 land been irrigated every subsequent year to present.

11 Q. What crops were grown on this land in 1903? Give estimated acreage of each crop.

A. Upper 20 A. Next 2nd Estate of A. about 5A Garden 4 A. Hay Below 105 A.

12 Q. During what months is water beneficially used?

A. April to October

13 Q. Give amount of your investment in the construction of ditch and laterals.

A. $2000.00

14 Q. Give estimated cost per acre of preparing land for irrigation.

A. $22

15 Q. Does the map which accompanies this proof show correctly the location of diverting works and area of land where water is used?

A. Yes

THE STATE OF WYOMING,
COUNTY OF Sheridan } ss.

I, Robert T. Williams, being first duly sworn, do depose and say that I have read the above and foregoing proof of appropriation of water; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 28 day of August A. D. 1903

Robert T. Williams

Sheridan, WYO., Aug 28, 1903

I HEREBY CERTIFY that the foregoing affidavit was read to the affiant in my presence before he signed his name thereto; that said affiant is to me personally known (or has been satisfactorily identified before me by _____), and that I verily believe him to be a credible person and the person he represents himself to be; and that this affidavit was subscribed and sworn to before me at Sheridan Wyo on this 28 day of August, 1903

Frank W. Watts
Superintendent, Water Division No. 2

Note.—This proof is intended to be used only by parties making appropriations under permits issued in accordance with Section 106, Chapter 14, Title 9, Wyoming Rev. Revised Statutes of Wyoming.

The map referred to in Paragraph 14 must show the entire work in the case of individual ditches. In the case of larger works only one map of the entire canal need be filed. Individual proof must, however, show ditch from point of diversion from main canal, and all laterals on land reclaimed. Where the duplicate map filed in the office of the State Engineer and returned to the applicant gives the necessary details and shows accurately the location of completed work, it may be filed.

The map which accompanies this proof must be on tracing linen, be accurately drawn on a scale of not less than two inches to the mile, and verified by the party making the measurements.

REPORT OF OFFICIAL EXAMINATION BY SUPERINTENDENT.

I HEREBY CERTIFY AND REPORT that pursuant to the notice of completion of appropriation, filed with the State Engineer and in accordance with the rules and practice of the Board of Control, I appeared at Sheridan Wyoming on the 28 day of August, 1903, and took and received the foregoing sworn proof of appropriation of water through the Ramaco & Williams Ditch from Long on Goose under Permit No. 1107 by Robt. T. Williams, the owner thereof; that I made a personal examination of said ditch, and of the land irrigated thereunder and described in said permit; that I found said ditch had an average width of 4 feet, a depth of 1 and a grade of about 4 feet per mile. I found a sufficient number of laterals of a capacity to fully irrigate the land described herein, and found that of the land described in said permit the following acreage has been irrigated and reclaimed in each 40-acre tract, to-wit:

Same as answered by Question 8

On this land the following crops were grown in 1903

Same as answered by Question 11

I also certify that after due publication of notice of the time and place, said proof was opened for public inspection on the 17 day of October, 1903, at Sheridan Wyo in accordance with the provisions of said notice and the regulations of the Board of Control; that at said time

No persons

appeared filed contest or objection to said proof.

TFN 6 2/025
RECD NOV 14, 2014

POWER DITCH 8321D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-256

7
8321.

Application for a Permit to Divert and

The S. A. Bristol Co., Printers and Binders, Cheyenne

Water Division No. 2. District No. _____

I, C. E. Worthington, of Sheridan, County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant W. E. Wagner

2. The postoffice address of the applicant Sheridan Wyo

3. The use to which the water is to be applied is power

4. The name of the ditch or canal is Power Ditch

5. The source of the proposed appropriation is Tongue River

6. The headgate of the proposed ditch or canal is located N. 38 West 1920 ft from ¼ Sec Corner on South side of Section 11, Township 57 N. Range 84 W.

7. The said ditch or canal is to be 450 feet ~~miles long and to pass through the following lands (give route by courses and distances, or by naming legal subdivisions crossed):~~

For details of waterway Fall &c
See accompanying plat

8. The dimensions of said works are: (a) [At headgate] Width on top (at water-line) 17 feet; width on bottom 10 feet; depth of water 7 feet; grade 2.5 feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate:

[At _____] width on top (at water-line) _____ feet; width on bottom _____ feet; depth of water _____ feet; grade _____ feet per mile.

[At _____] width on top (at water-line) _____ feet; width on bottom _____ feet; depth of water _____ feet; grade _____ feet per mile.

[At _____] width on top (at water-line) _____ feet; width on bottom _____ feet; depth of water _____ feet; grade _____ feet per mile.

9. Describe the character of proposed works, stating: 1st. The nature of material to be moved. 2nd. Number and length of tunnels, if any. 3rd Amount of fluming, if any.

Earth and Rock
Tunnel 260 ft

10. The estimated cost of said ditch is $3,000.00 Dollars.

11. The land to be irrigated has a total area of _____ acres, described as follows:
(Give estimated acreage in fractions of subdivisions)

TFN 6 2/025
RECD NOV 14, 2014

12. Construction will begin on proposed works on or before June 15- , 1908

13. The time required for the completion of ditches and other distributing works is 3 years from Dec 31 , 1908

14. The time required to complete the application of water to the beneficial use stated in this application is 3 years from Dec 31 , 1908

15. A map of the proposed ditch or canal, prepared in accordance with Chapter 14, R. S. 1899, accompanies this application.

Signed: C. E. Worthington

NOTE.—*The statements in the foregoing application must comply with the requirements of Chapter 14, R. S. 1899.*

Appropriate the Water of the State of Wyoming

THE STATE OF WYOMING, }
COUNTY OF Wyoming } ss.

I hereby certify that the foregoing application was signed in my presence and sworn to before me by
C. E. Worthington this 18 day of March, 190 8
W. E. Millis, Notary Public.
My Commission Expires Dec 28-1908.
Seal.

Notice of expiration mailed Sep 23 1910

Time for completion extended to December 31, 1912.
Clarence Johnston
State Engineer. Dec. 28-1910.

Notice of expiration mailed SEP 10 1912

Time for completion extended to Dec 31, 1913. Rel Parshall, State Eng. Dec 21 1912.

Time for completion extended to Dec 31, 1914. Rel Parshall State Eng. Dec 24, 1913

Notice of expiration mailed SEP 15 1914

Time for completion extended to DEC 31 1915 A. J. PARSHALL, State Engineer. DEC 30 1914

Notice of expiration mailed SEP 21 1915

Time for completion extended to DEC 31 1917 J. A. True State Engineer DEC 31 1915

Notice of expiration mailed OCT 1 1917

Time for completion extended to DEC 31 1920 J. A. True State Engineer DEC 31 1917

Notice of expiration mailed SEP 30 1920

Time for completion extended to DEC 31 1923 Frank L. Emerson State Engineer DEC 31 1920

Notice of expiration mailed SEP 30 1923

NOTICE OF EXPIRATION OF TIME FOR COMPLETION TO BENEFICIAL USE MAILED. SEP 30 1923

Time for completion extended to DEC 31 1924 C. D. Shaver State Engineer DEC 26 1923

Notice of expiration mailed SEP 30 1924

NOTICE OF EXPIRATION OF TIME FOR COMPLETION TO BENEFICIAL USE MAILED. SEP 30 1924

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

Time for completion extended to DEC 31 1925 Frank L. Emerson State Engineer DEC 31 1924

This is to certify that I have examined the foregoing application and have returned the same without my approval for the following reasons:

Notice of expiration mailed. SEP 30 1925

NOTICE OF EXPIRATION OF TIME FOR COMPLETION TO BENEFICIAL USE MAILED. SEP 30 1925

Last Report 3/13/26

Witness my hand this ____ day of ____, A. D. 190__

State Engineer.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

This is to certify that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

Not to interfere with the use of water for irrigation.

SCANNED MAY 15 2009

Construction of proposed works shall begin within one year from date of approval.

The time for completing the work shall terminate on December 31, 1910

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1960

The amount of the appropriation shall be limited to ~~one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 190__, and~~ the ~~additional~~ volume used for Power purposes on or before ~~said date.~~ December 31st, 1910.

Witness my hand this 14th day of April, A. D. 190 8

Clarence T. Johnston
State Engineer.

TFN 6 2/025
RECD NOV 14, 2014

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

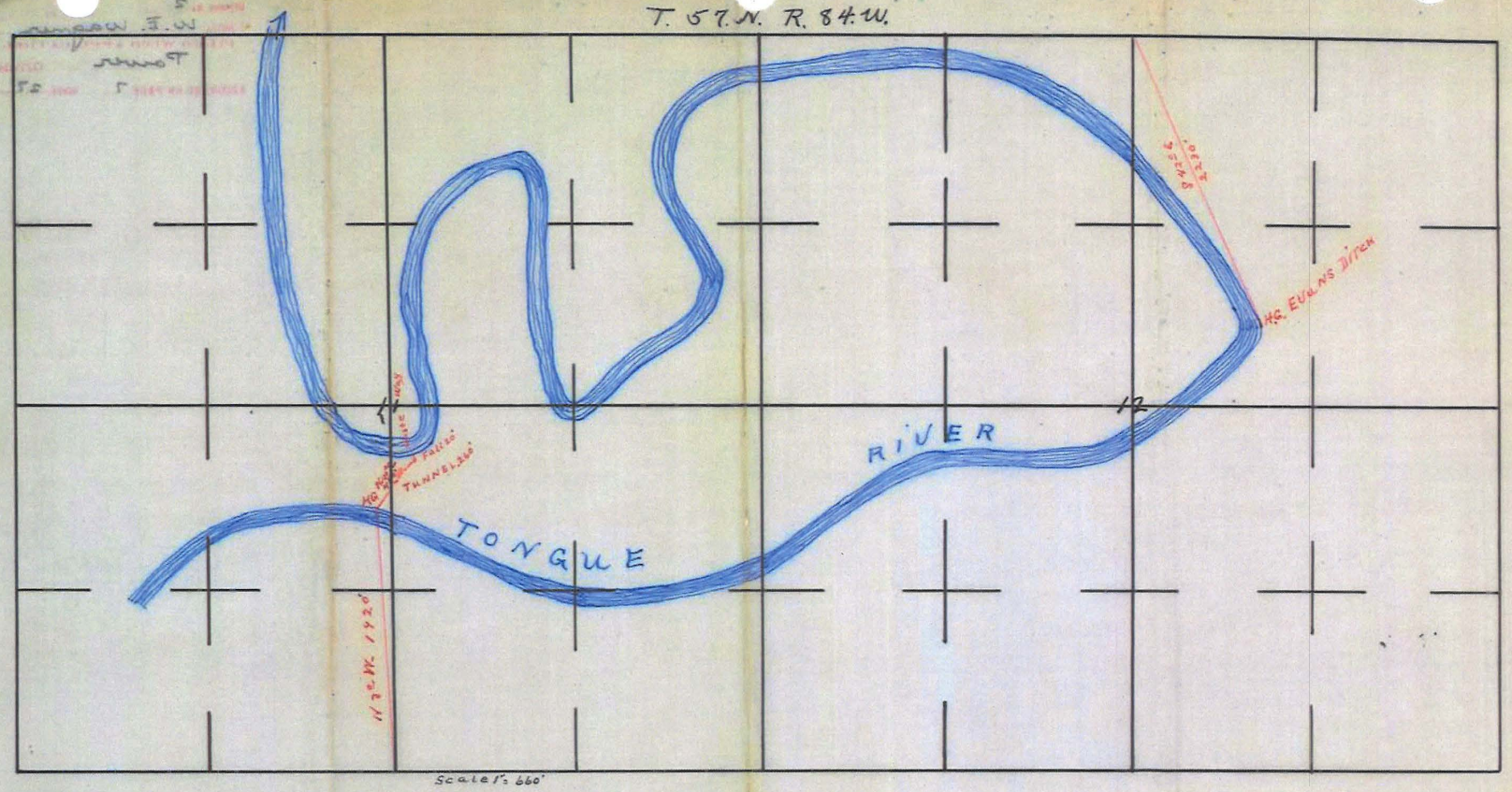
This instrument was received and filed for record on the 20th day of March, A. D. 190 8, at 9 o'clock A.M., and duly recorded in Book 27 of Applications on Page 7.

Clarence T. Johnston
State Engineer.

October 2014

RAMACO

1568



CERTIFICATE OF SURVEYOR.

STATE OF WYOMING, County of Sheridan } ss.

I, C.C. Worthington of Sheridan hereby certify that this map was made from notes taken during an actual survey made by me on ..... March ..... 1908 ..... and that it correctly represents the irrigation works described in the accompanying application together with a meander of streams, and shows accurately the location and area of the lands proposed to be irrigated in each forty acre tract.

C.C. Worthington

Surveyor.

SCANNED MAY 15 2009

8321

Addendum D11-4-101

TFN 6 2/025
RECD NOV 14, 2014

Brook Mine

DEQ 11-259

ROSA DITCHES 5679D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-260

October 2014

RAMACO

10 Q. If for irrigation, give the location and acreage irrigated the first year and the location and acreage irrigated each subsequent year to the present.

A. The land described in Section 8 has been irrigated since 1904

11 Q. What crops were grown on this land in 1904? Give estimated acreage of each crop.

A. Hay 100 Acres

12 Q. During what months is water beneficially used?

A. April to October

13 Q. Give amount of your investment in the construction of ditch and laterals.

A. $300.00

14 Q. Give estimated cost per acre of preparing land for irrigation.

A. 5.00

15 Q. Does the map which accompanies this proof show correctly the location of diverting works and area of land where water is used?

A. Yes

THE STATE OF WYOMING, } ss.
COUNTY OF Sheridan }

I, Rosa Master for Thos E Master Est., being first duly sworn, do depose and say that I have read the above and foregoing proof of appropriation of water; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 3 day of Sept A. D. 1904

Rosa Master
By Thomas E Master as Agent

Subscribed and sworn to before me at Sheridan, Wyo., Sept 3 1904

I HEREBY CERTIFY that the foregoing affidavit was read to the affiant in my presence before he signed his name thereto; that said affiant is to me personally known (or has been satisfactorily identified before me by _____), and that I verily believe him to be a credible person and the person he represents himself to be; and that this affidavit was subscribed and sworn to before me at Sheridan Wyo on this 3 day of Aug Sept 1904

Frank A Coates
Superintendent, Water Division No. 2

NOTE.—This proof is intended to be used only by parties making appropriations under permits issued in accordance with section 326, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming.

The map referred to in Paragraph 15 must show the entire work in the case of individual ditches. In the case of larger works only one map of the entire canal need be filed. Individual proof must, however, show ditch from point of diversion from main canal, and all laterals on land reclaimed. Where the duplicate was filed in the office of the State Engineer and returned to the applicant gives the necessary details and shows accurately the location of completed work, it may be filed.

The map which accompanies this proof must be on tracing linen, must be accurately drawn, on a scale of not less than two inches to the mile, and verified by the party making the measurements.

REPORT OF OFFICIAL EXAMINATION BY SUPERINTENDENT.

I HEREBY CERTIFY AND REPORT that pursuant to the notice of completion of appropriation, filed with the State Engineer, and in accordance with the rules and practice of the Board of Control, I appeared at Sheridan Wyo on the 3 day of Sept, 1904, and took and received the foregoing sworn proof of appropriation of water through the Rosa M Ditch from Gulch into Tongue River under Permit No. 5679 by Rosa Master the owner thereof; that I made a personal examination of said ditch, and of the land irrigated thereunder and described in said permit; that I found said ditch had an average width of 1 feet, a depth of 1/2 and a grade of about 20 feet per mile. I found a sufficient number of laterals of a capacity to fully irrigate the land described herein, and found that of the land described in said permit the following acreage has been irrigated and reclaimed in each forty-acre tract, to-wit:

Same as described in Section 8

On this land the following crops were grown in 19 04

Same as described in Section 11

I also certify that after due publication of notice of the time and place said proof was opened for public inspection on the 7 day of Nov., 1904, at Sheridan Wyo in accordance with the provisions of said notice and the regulations of the Board of Control; that at said time

No party

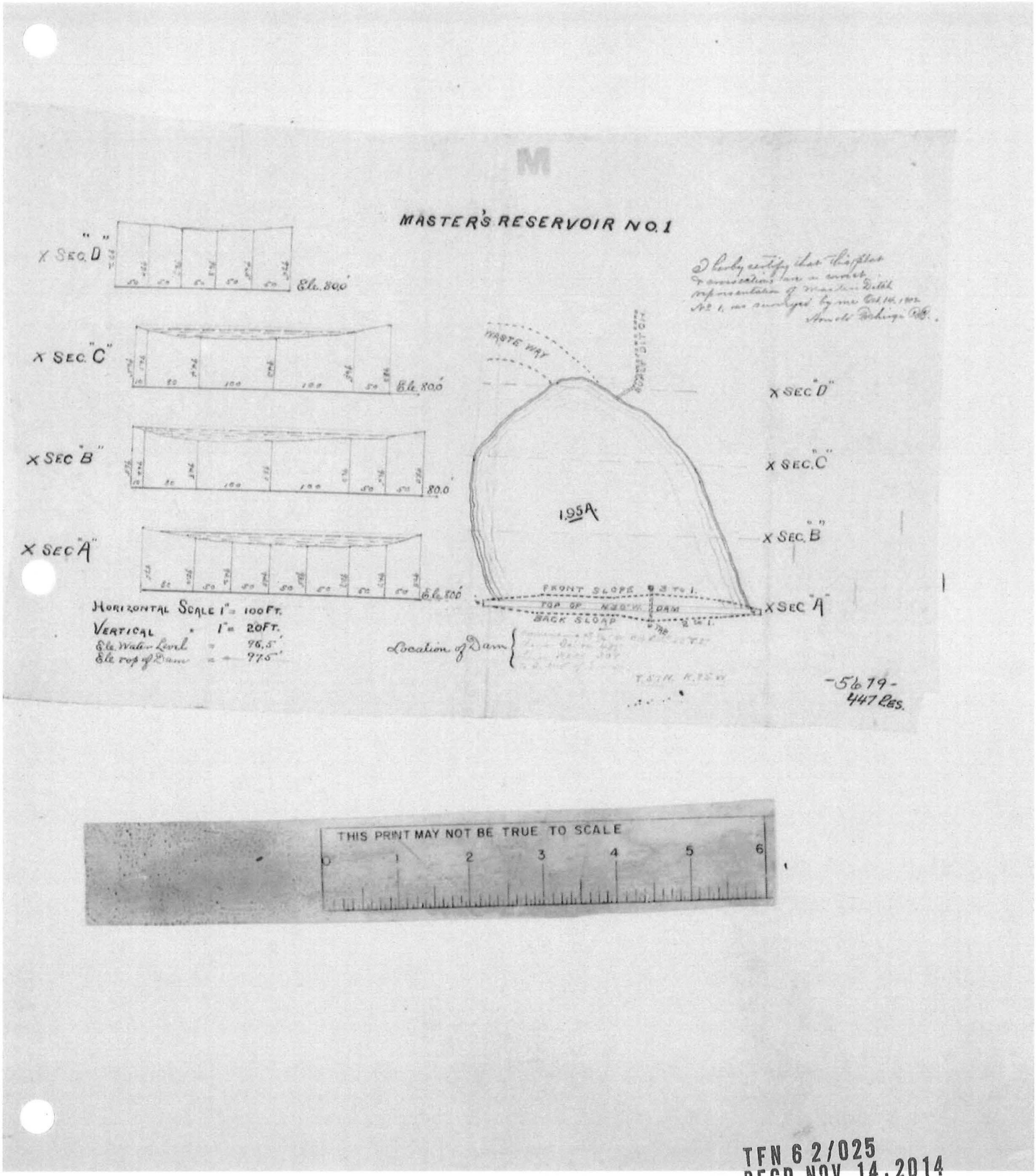
appeared ~~—~~ filed any contest or objection to said proof.

TFN 6 2/025
RECD NOV 14, 2014

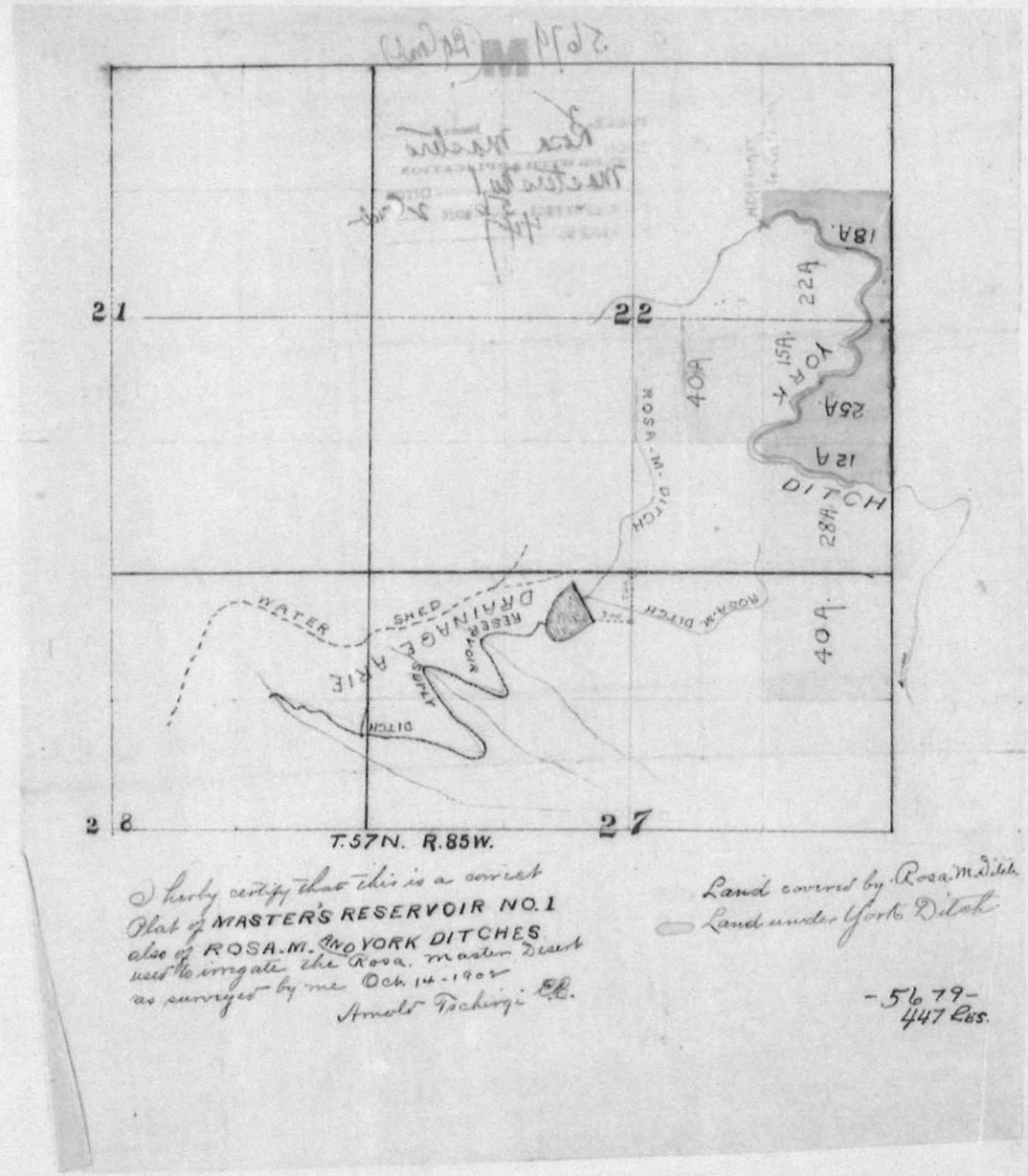
Addendum D11-4-103

Brook Mine

DEQ 11-261



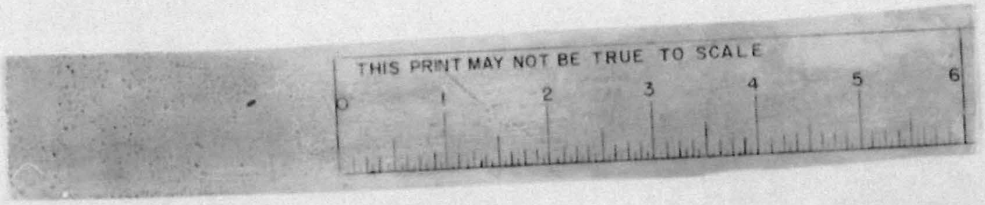
TFN 6 2/025
RECD NOV 14, 2014



I hereby certify that this is a correct Plat of MASTER'S RESERVOIR NO. 1 also of ROSA.M. AND YORK DITCHES as surveyed by me Oct. 14-1902
Arnold Tschirgi C.E.

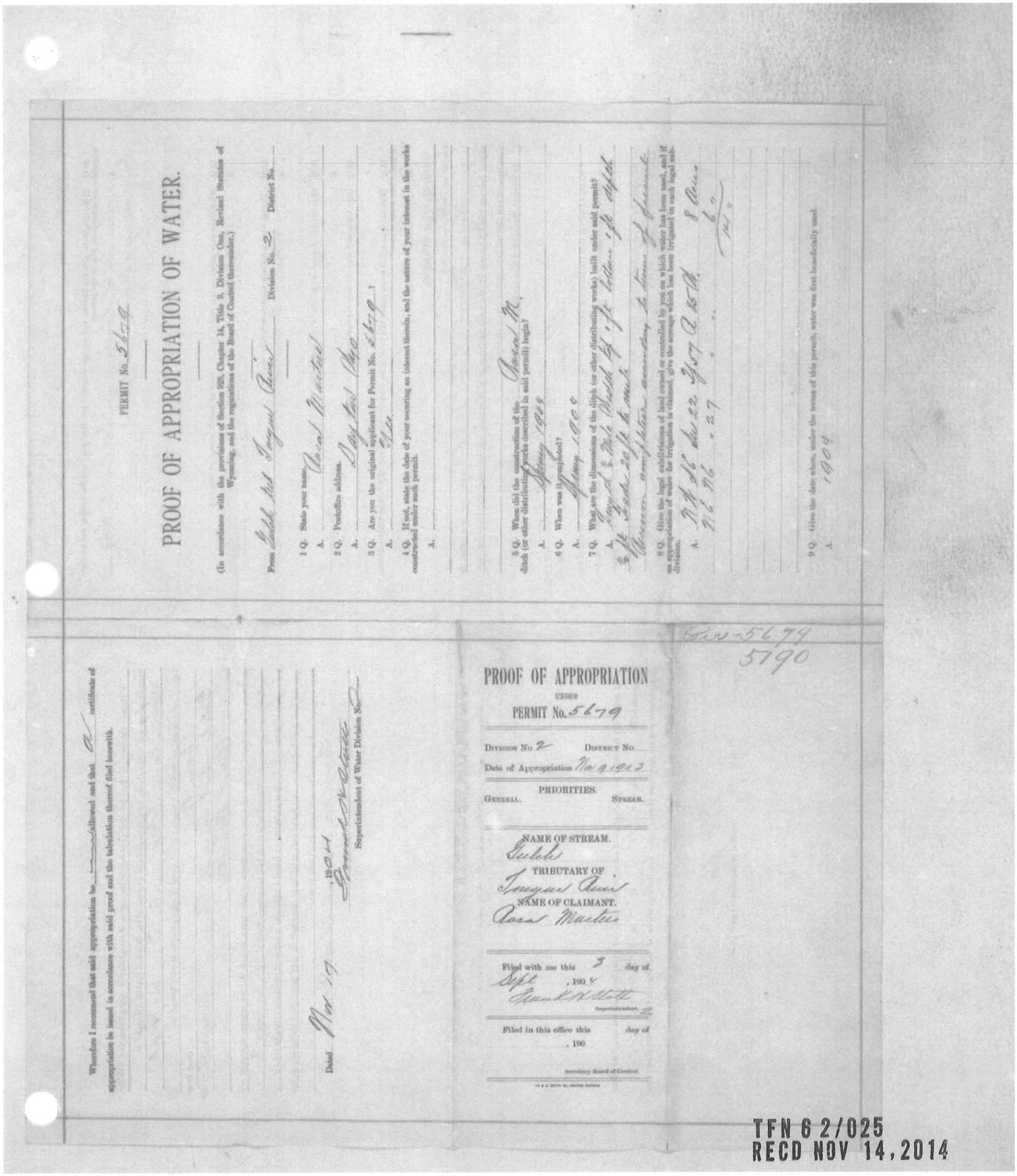
Land covered by Rosa M. Ditch
Land under York Ditch

-5b 79-
447 Res.



TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-264



PERMIT No. 5679

PROOF OF APPROPRIATION OF WATER.

(In accordance with the provisions of Section 1925, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming, and the regulations of the Board of Control thereunder.)

From Little Fork Tongue River Division No. 2 District No.

1 Q. State your name.
A. Coal Master

2 Q. Postoffice address.
A. Dayton Wyo

3 Q. Are you the original applicant for Permit No. 5679?
A. Yes

4 Q. If not, state the date of your securing an interest therein, and the nature of your interest in the works constructed under such permit.
A.

5 Q. When did the construction of the ditch (or other distributing works) described in said permit) begin?
A. May 1908

6 Q. When was it completed?
A. May 1909

7 Q. What are the dimensions of the ditch (or other distributing works) built under said permit?
A. Head 2 ft Bed 1 ft Depth 1 ft Length 20 ft 6 miles

8 Q. Give the legal subdivisions of land owned or controlled by you on which water has been used, and if an application is made for irrigation is claimed, give the acreage which has been irrigated in each legal subdivision.
A. NW SE Sec 22 T 57 N R 85 W 8 Acres
NE NE " 27 " " " 6 "
14

9 Q. Give the date when, under the terms of this permit, water was first beneficially used.
A. 1909

Wherefore I recommend that said appropriation be allowed and that a certificate of appropriation be issued in accordance with said proof and the tabulation thereof filed herewith.

Dated Nov 19, 1914

Superintendent of Water Division No.

PROOF OF APPROPRIATION
UNDER
PERMIT No. 5679

Division No. 2 District No.
Date of Appropriation Nov 9 1903

PRIORITIES.
GENERAL. STREAM.

NAME OF STREAM.
Little
TRIBUTARY OF
Tongue River
NAME OF CLAIMANT.
Coal Master

Filed with me this 3 day of
Sept, 1914
Frank Wolcott
Superintendent.

Filed in this office this day of
, 19
Secretary Board of Control.

Conv-5679
5790

TFN 6 2/025
RECD NOV 14, 2014

SHERIDAN COUNTY ELEC TUNNEL 11181D

TFN 6 2/025
RECD NOV 14, 2014

Application for a Permit to Divert and

Water Division No. 2. District No.

Proof submitted NOV 1912

I, Judson Bibb, the general manager and agent of the Sheridan County Electric Company, a corporation at Sheridan, County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant ~~Sheridan County Electric Company, a corporation duly organized and existing under and by virtue of the laws of the State of New Jersey~~
2. The postoffice address of the applicant ~~is Sheridan, Wyoming~~ See Endorsement.
3. The use to which the water is to be applied is manufacturing, or more specifically to condense the stream from the turbines of the power plant of said applicant, situate on Tongue River
4. The name of the ditch or canal is no ditch or canal. It is a tunnel and its name is Sheridan County Electric Company Tunnel
5. The source of the proposed appropriation is Tongue River, Sheridan County, Wyoming
6. The headgate of the proposed ditch or canal is located North 24 East 2370 ft. from the South West corner of

of Section 15, Township 57 N Range 84 W

7. The said ~~ditch or canal is to be~~ tunnel is approximately 100 feet in length and is ~~miles long and to pass through the following lands (give route by courses and distances, or by naming legal subdivisions crossed)~~ situate wholly within the NW¼ of SW¼ of said Section 15

The said tunnel is made of concrete all the way through, and its dimensions are seven feet by ten feet the entire length. The tunnel is of practically same grade as stream at that point, and permits water to flow through very slowly.

8. The dimensions of said works are: (a) [At headgate] Width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate:

[At] Width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.
[At] Width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.
[At] Width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.

9. Describe the character of proposed works, stating: 1st. The nature of the material to be moved. 2nd. Number and length of tunnels, if any. 3rd. Amount of fluming, if any.

This tunnel was completed in December 1910, and has been in operation ever since. 1st. The material moved was dirt
2nd. The no. of tunnel is one, 100 feet long
3rd. ~~None~~ Flumming

10. The estimated cost of said ~~ditch~~ is twelve hundred Dollars.
11. The land to be irrigated has a total area of acres, described as follows:

(Give estimated acreage in fractions of subdivisions)

The amount of water required for the purpose of condensing the stream from said turbines is five (5) cubic feet per second of time, and this application is for that amount. The plant where said water is used is situate in the NW¼ of SW¼ of Sec. 15, T. 57 N. R. 84 W.
The water passes through the tunnel and the stream from the turbines is exhausted into it, creating a vacuum in the condensers. The water then passes into Tongue River again, undiminished in quantity and not in any way rendered impure

12. Construction will begin on proposed works on or before , 191 .
13. The time required for the completion of ditches and other distributing works is year from , 191 .
14. The time required to complete the application of water to the beneficial use stated in this application is year from , 191 .
15. A map of the proposed ditch or canal, prepared in accordance with Chapter 14, R. S. 1899, accompanies this application.

Signed: Judson Bibb

NOTE.—*The statements in the foregoing application must comply with the requirements of Chapter 14, R. S. 1899.*

TFN 6 2/025
RECD NOV 14, 2014

Appropriate the Water of the State of Wyoming

THE STATE OF WYOMING, } ss.
COUNTY OF Sheridan }

I hereby certify that the foregoing application was signed in my presence and sworn to before me by Judson Bibb this 6th day of March, 1912.

James H. Burgess
Notary Public

Seal.

Notice of completion received MAY 13 1912

March 19, 2001 Fort Acme Inc. owners of the Sheridan County Electric Company hereby transfers and assigns all their rights, title and interest of whatsoever nature in this permit to Lee A. Bartel, HC 36 Box 2168, Hardin, MT, his heirs, successors or assigns forever. Assignment filed in Miscellaneous Notices under this permit.

MICRO FILMED MAY 04 2001

Water diverted not to exceed 5 cubic feet per second and to be returned to the stream undiminished in volume

SCANNED APR 2 2010

THE STATE OF WYOMING, } ss.
STATE ENGINEER'S OFFICE, }

This is to certify that I have examined the foregoing application and have returned the same without my approval for the following reasons:

Witness my hand this ____ day of ____, A. D. 191__

State Engineer.

THE STATE OF WYOMING, } ss.
STATE ENGINEER'S OFFICE, }

This is to certify that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions: # see above

Jacque Watts

Construction of proposed works shall begin within one year from date of approval.

The time for completing the work shall terminate on December 31, 1913.

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1913.

The amount of the appropriation shall be limited to ~~one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 191__, and~~ the ~~additional~~ volume used for manufacturing purposes on or before said date.

Witness my hand this 2d day of May, A. D. 1912.

a. J. Parshall
State Engineer.

THE STATE OF WYOMING, } ss.
STATE ENGINEER'S OFFICE, }

This instrument was received and filed for record on the 23rd day of March, A. D. 1912, at 9 o'clock A. M., and duly recorded in Book 36 of Applications, on Page 168.

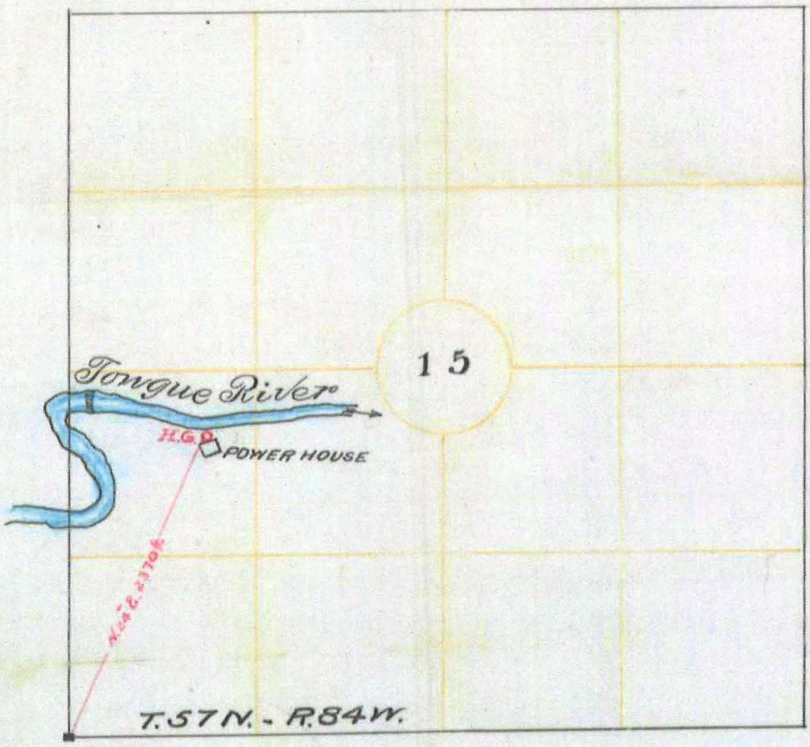
a. J. Parshall.
State Engineer.

TFN 6 2/025
RECD NOV 14, 2014

I, Arnold Tschirgi of Sheridan, hereby certify that this map was made from notes taken during an actual survey made by me on March 9 - 1912, and that it correctly shows the location of the headgate to the tunnel entering the Power House of the Sheridan Electrict Light & Power Co, taken from Tongue River for manufacturing purposes

Arnold Tschirgi

License No 91. Surveyor



TFN 6 2/025
RECD NOV 14, 2014

$2.00 fee to accompany

SMITH DOMESTIC PUMP 33570D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-269

RAMACO

State Engineer's Office

HERSCHLER BUILDING, 4-E CHEYENNE, WYOMING 82002
(307) 777-7354 FAX (307) 777-5451
seoleg@seo.wyo.gov

MICRO FILMED DEC 0 1 2006

Brook Mine

DAVE FREUDENTHAL
GOVERNOR

PATRICK TYRRELL
STATE ENGINEER

September 6, 2006

EARL & ROBIN SMITH
PO BOX 697
RANCHESTER, WY 82839

RE: Smith Domestic Pump, Permit No. 33570

Dear Applicants:

Enclosed please find a copy of the above referenced permit and the accompanying map. The time limits for Completion of Construction, and Completion of Application of Water to Beneficial Use are indicated in the enclosed permit. Furnished herewith are partially filled out Notice Forms which must be completed and sent to this office within the time limits specified on your permit, in order for you to keep your filings in good standing on our records.

Should the enclosed copies of the permit or print be lost or destroyed, additional copies may be obtained for a nominal charge.

If the work proposed under this permit cannot be accomplished within the time allowed, the State Engineer may grant an extension of time to complete the work. Your request for such extension must be received in writing before the specified time expires and give reason for the State Engineer to grant the extended time.

If you have any questions regarding this permit, feel free to contact this office at (307) 777-6168.

With best regards,

Leah Bratton for
PATRICK T. TYRRELL
State Engineer

PTT/cme
Enclosures

ec: Mike Whitaker, Superintendent
Bill Knapp, and Pat Boyd, Hydrographer Commissioners
Water Division II
PO Box 6103
Sheridan, WY 82801

TFN 6 2/025
RECD NOV 14, 2014

MICRO FILMED DEC 0 1 2006

NOTICE OF COMPLETION OF CONSTRUCTION

This form is to be filled in with the date that all of the construction work required under the permit referenced below has been finished.

If all of the construction work cannot be finished by the expiration date for completion of construction given on the permit, write the State Engineer and request an extension of time to finish the work, giving the reasons why more time is required. Such request must be received prior to the expiration date for completion of construction shown on the permit above the State Engineer's signature. IF THIS NOTICE IS NOT RETURNED OR AN EXTENSION OF TIME IS NOT REQUESTED BEFORE THE EXPIRATION DATE, YOUR PERMIT WILL BE SUBJECT TO CANCELLATION.

(Fill out and return Form below)

NOTICE OF COMPLETION OF CONSTRUCTION

SEP 20 [redacted] ENGINEER [redacted]NE, WYO.

Sheridan County, Wyoming

Sept 15, 2006

PERMIT NO(s). 33570

WYOMING STATE ENGINEER
HERSCHLER BUILDING 4-EAST
CHEYENNE WY 82002

I hereby notify you that on the 15th day of September, 2006, construction work was entirely completed under the terms of Permit No. **33570** on the **Smith Domestic Pump** which is proposed to appropriate water from **Tongue River.**

Earl D. Smith
Signature of Applicant or Authorized Agent

Earl D. Smith
Printed Name of Applicant/Authorized Agent

TFN 6 2/025
RECD NOV 14, 2014

MICRO FILMED DEC 0 1 2006

NOTICE OF COMPLETION OF THE APPLICATION OF WATER TO BENEFICIAL USE

This form is to be completed with the date water was used for the purpose or purposes specified in the permit referenced below.

This form should not be completed until 1) *all* set-out lands have been irrigated or 2) beneficial use made at *all* proposed points of use, or 3) the maximum water use allowed under the permit is developed. If a) the irrigation of *all* of the lands, or b) beneficial use made at *all* the proposed points of use, or c) the maximum diversion contemplated under the permit cannot be completed by the expiration date for *Completion of Beneficial Use* specified in the permit, write the State Engineer and request an extension of time, giving the reasons why more time is required to complete *all* the permitted uses or develop the resource to its maximum permitted capacity. Such request must be received *prior to the expiration date* for completion of beneficial use shown in the permit above the State Engineer's signature.

IF THIS NOTICE IS NOT RETURNED OR AN EXTENSION OF TIME IS NOT REQUESTED BEFORE THE EXPIRATION DATE, YOUR PERMIT WILL BE SUBJECT TO CANCELLATION.

(Fill out and return Form below)

RECEIVED SEP 20 2006

NOTICE OF BENEFICIAL USE OF WATER

Sheridan County, Wyoming

Sept. 18, 2006
(DATE)

PERMIT NO. 33570

WYOMING STATE ENGINEER
HERSCHLER BUILDING 4-EAST
CHEYENNE WY 82002

I hereby notify you that I have completed the application of water to beneficial use for all set-out lands or uses proposed under the **Smith Domestic Pump**, Permit No. **33570**, proposing to divert water from Tongue River on the 18th day of September, 2006.

Earl D. Smith
Signature of Applicant or Authorized Agent

Earl D. Smith
Printed Name of Applicant/Authorized Agent

TFN 6 2/025
RECD NOV 14, 2014

TONGUE RIVER DITCH ENL 1552E

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-273

RAMACO

Application for a Permit to Divert and

Brook Mine

Cert. Record 26 P 213 Ac. 56.

THE S. A. BRISTOL CO., PRINTERS AND BINDERS, CHEYENNE

Water Division No. 2. District No. 5.

ENLARGEMENT OF THE Tongue River Ditch (Con. Ditch)

I, Lynwood Tschirgi, of Sheridan, County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The location and description of the ditch to be enlarged is as follows—

2. The headgate is situated S. 44° 15' E. -1030 ft. from North ¼ Cor. of Section 19, Township 57, Range 85.

3. Said ditch is 6 miles long and passes through the following lands (give legal subdivisions) the same being correctly shown on the map accompanying this application:

N½ NE¼ Sec. 19, T. 57 N. R. 85 W. SW¼ Sec. 15 T. 57 R. 85 SW¼ Sec. 13 T. 57 R. 85
SE¼ SE¼ " 18 " " " SE¼ NW¼ " 15 S½ SE¼ " 13 " "
S½ S½ " 17 " " " S½ NE¼ " 15 S½ SW¼ " 18 T. 57 R. 84.
SW¼ " 16 " " " NE¼ SE¼ " 15
SE¼ " 16 " " " N½ S½ " 14

4. The dimensions of said ditch are: Width on top (at water-line) 11.5 feet; width on bottom 8.5 feet; depth of water 1.7 feet; grade 2.5 feet per mile.

5. Said ditch now serves to irrigate the following described land:

S½ SW¼ Sec. 17, T. 57 R. 85. W½ SE¼ Sec. 15, T. 57 R. 85 W.
NW¼ " 20 " " SW¼ NE¼ " 15 " "
NW¼ " 21 " " NE¼ SE¼ " 15 " "
N½ NE¼ " 21 " " SW¼ " 14 " "
N½ NW¼ " 22 " " NW¼ SE¼ " 14 " "
NW¼ NE¼ " 22 " " S½ S½ " 13 " "
S½ SW¼ " 15 " " N½ N½ " 24 " "
NE¼ SW¼ " 15 " " SW¼ S½ " 18 T. 57 N. R. 84 W.
NW¼ NW¼ " 19 " "

6. The total area now irrigated from said ditch being 1435 acres.

7. Application is hereby made for permission to enlarge or extend the use of water through the above named and described ditch and to divert and appropriate the water of the State as follows:

1. The name of the applicant Fred McPhillamey.
2. The postoffice address of the applicant Monarch, Wyo.
3. The use to which the water is to be applied is Irrigation.
4. The name of the ditch or canal is Tongue River Ditch.
*5. The source of the proposed appropriation is Tongue River.

and the head of the proposed extension is located of Section , Township , Range

6. The said ditch or canal as enlarged is to be 6 miles long and to pass through the following lands (give sections, townships and ranges):

Sections 13-14-15-16-17-18-19, T. 57 N. R. 85 W.
" 18 T. 57 N. R. 84 W.

7. The dimensions of said ditch are to be: (a) [At headgate] Width on top (at water-line) 12 feet; width on bottom 9 feet; depth of water 1.7 feet; grade 2.5 feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate: [At 3179 feet] width on top (at water-line) 11 ft.; width on bottom 8 ft.; depth of water 1.5 ft.; grade 2.5 ft. per mile. [At 4400 ft.] width on top (at water-line) 9.0 ft.; width on bottom 5.5 ft., depth of water 1.5 ft., grade 2.5 ft. per mile.

8. Describe the character of proposed works, stating: 1st. The nature of material to be moved. 2nd. Number and length of tunnels, if any. 3rd. Amount of fluming, if any.

Earth
175' flume.

9. The estimated cost of said enlargement is 500 Dollars.

10. The land to be irrigated has a total area of 56 Acres acres, described as follows:

(Give estimated acreage in fractions of subdivisions)

NE¼ NW¼ Sec. 19 T. 57 R. 84 22.
NW¼ NE¼ " 19 " " 34.

TFN 6 2/025
RECD NOV 14, 2014

7. The dimensions of said ditch are to be: (a) [At he ate] Width on top (at water-line) 12 feet; width bottom 9 feet; depth of water 1.7 feet; grade 2.5 feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate: [At 3179 feet] width on top (at water-lin " ft. width on bottom 8 ft.; depth of water 1.5 ft.; grade 2.5 ft. per mile.

[At 4400 ft.

8. Describe

of tunnels, if an

at 2 mi. from H. G. Top. 8 - Bottom 5 feet - Grade 2.5 per mi.
at 3 3/4 mi " " " Top. 5 " 3 " " 5 " " "

9. The estimated cost of said enlargement is 500 Dollars.

10. The land to be irrigated has a total area of 56 Acres acres, described as follows:

(Give estimated acreage in fractions of subdivisions)

NE¼ NW¼ Sec. 19 T. 57 - R. 84 22.
NW¼ NE¼ " 19 " " 34.

* If the proposed work is to be an extension of the original ditch, give the location of the head of the extension by courses and distances from the nearest Government corner.

October 2014

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-117

RAMACON

Brook Mine

DEQ 11-275

Appropriate the Water of the State of Wyoming.

11. Construction of the proposed enlargement or extension will begin within one year from date of approval of this application.

12. The time required for the completion of enlargement or extension is one year from July 1st, 1906.

13. The time required to complete the application of water to the beneficial use stated in this application is one year from July 1, 1906.

14. A map in duplicate, prepared in accordance with the provisions of Section 35 of the Water Laws, accompanies this application.

Signed: Arnold Tschirgi

NOTE.—The statements in the foregoing application must comply with the requirements of Chapter 14, R. S. 1899.

NOTE.—Before applications for the enlargement of ditches can be approved, the written consent of the owners of such ditches must be secured, and this must accompany the application.

THE STATE OF WYOMING, }
COUNTY OF Sheridan } ss.

I hereby certify that the foregoing application was signed in my presence and sworn to before me by Arnold Tschirgi this 5th day of May, 1906.

J. F. Hoop
Notary Public.

My commission January 31-1909. Seal.

Notice of Expiration Mailed
OCT 11 1907

Extract of minutes of the Tongue River Ditch Co.- Held March 11-1905 at the Company's office - at Ranchester, Wyo.

Moved and seconded that Fred McPhillamey be allowed to become a member of the Tongue River Ditch Co.- provided that he enlarges the ditch flumes and lopes - sufficient to carry the required state appropriation of water.

The above motion was adopted & passed March 11, 1905.

O. F. Rhode
Secy.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

This is to certify that I have examined the foregoing application and have returned the same without my approval for the following reasons:

Witness my hand this day of , A. D. 190

State Engineer.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

This is to certify that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

The records of the State Engineer's Office show the waters of Tongue R. & trib. to be largely appropriated. The appropriator under this permit is hereby notified of this fact and that the issuance of this permit grants only the right to divert and use the surplus or waste water of the stream and confers no rights which will interfere with or impair the use of water by prior appropriators.

Work will begin within one year from date of approval.

The time for completing construction shall terminate on December 31, 1907.

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1907.

The amount of the appropriation shall be limited to one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 1907, ~~and the additional volume applied to~~ purposes on or before said date.

TFN 6 2/025
RECD NOV 14, 2014

Witness my hand this 26th day of May, A. D. 1906.

Clarence T. Johnston
State Engineer.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

This instrument was received and filed for record on the 8th day of May, A. D. 1906, at 9 o'clock A. M., and duly recorded in Book 6 of Enlargements on Page 263.

October 2014

RAMACO

Notes of Ditch Survey

Sta.	Course	Dis.	Remarks
0			is head Sta. being S. 44° 30' E. 1920 ft. from N¼ Cor. bet. Sec. 18 & 19. T. 57. R. 85
0	N 61° E.	2.97	to left in center of R. Road Canal.
1	S. 85 30 E.	6000	along center line of " " " Sta. 1+72.4 in Tongue Riv. Sta. 1+72.4 in Ditch, to Dam Sta.
2	N 45° E.	1667	Sta. 1 = same 47.2 ft. to N & S fence.
3	N 10 30 E.	1400	
4	N 14½ E.	2500	Sta. 4+50 to Ditch Sta. 4+50 to Ditch
5	N 7½ E.	1045	
6	N 47½ E.	2300	
7	S 49½ E.	1900	Sta. 7+50 ft. N & S fence
8	S 38° E.	2900	Sta. 8+00 ft. Ditch Sta.
9	S 76° E.	1930	
10	S 82° E.	3000	Sta. 10+ 130 ft. Ditch Sta.
11	S 74½ E.	3600	
12	S. 16° E.	1600	to Head Gate. Sta. 13.

Sta. 13 is N. 72½ W. of N¼ Cor. bet. Sec. 11 & 19. T. 57. R. 84.

PLAT
OF
TONGUE RIVER DITCH
TO BE ENLARGED
To Irrigate the
N½ NW¼ & NW¼ NE¼ of
Sec. 19 T. 57. R. 84

Scale 1" = 2000 ft.

CERTIFICATE OF SURVEYOR.

STATE OF WYOMING, } ss.
County of Sheridan }

I, Arnold Tschirgi of Sheridan, Wyo. hereby certify that the work was made from actual notes taken during an actual survey made by me on the April 16 1906 and that it correctly represents the irrigation works as staked out by me for constructing appropriation thereon, with a description of structures, and shows correctly the location and area of the lands proposed to be irrigated as near as I can learn.

Arnold Tschirgi

R. 86 W. R. 85 W. R. 85 W. R. 84 W. T. 57 N.

TONGUE RIVER

RIVER

DITCH

Barclay Cr.

Stream Cr.

Flume

Tongue River

Stream Cr.

Flume

Flume

180 A.

260 A.

200 A.

200 A.

80 A.

100 A.

15 A.

22 A.

34 A.

LATE MAL. CAN.

18 17 16 15 14 13 18

19 20 21 22 23 24 19

1 2 3 4 5 6 7 8 9 10 11 12 13

SCANNED JAN 19 2010

TFN 6 2/025
RECD NOV 14, 2014

Addendum D11-4-119

Brook Mine

VANESSA DOMESTIC PUMP 34570D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-278

RAMACO ASW 683

03/14/11 09:31 AM Brook Mine

Form S.W. 1
Rev. 12/22/2008

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

E7649
25.00

KYLE MUMM

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

APPLICATION FOR PERMIT TO APPROPRIATE SURFACE WATER

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

Filing/Priority Date

THE STATE OF WYOMING
STATE ENGINEER'S OFFICE } SS.

This instrument was received and filed for record on the 14th day of March, 20 11, at 09:31 o'clock A M.

JOHN BARNES For State Engineer

Recorded in Book 158 of Ditch Permits, on Page 49

Fee Paid $ 25.00 Map Filed SA-32

WATER DIVISION NO. 2 DISTRICT NO. 5 TEMPORARY FILING NO. 35 6/132D

PERMIT NO. **P34570.0D**

NAME OF FACILITY VANESSA DOMESTIC PUMP

1. Name(s), mailing address and phone no. of applicant(s) is/are JOHN AND VANESSA BUYOK, 86 MONARCH ROAD, RANCHESTER, Wyoming, 82839, PH: 307-673-0068

E-mail address:

(If more than one applicant, designate one to act as Agent for the others)

2. Name & address of agent to receive correspondence and notices SAME AS ABOVE

E-mail address:

3. (a) The use to which the water is to be applied is Domestic Use-- Surface water

(b) If more than one beneficial use of water is applied for, the location and ownership of the point of use must be shown on the map in sufficient detail to allow the State Engineer to establish the amount of appropriation. In multiple use applications, stock and domestic purposes are limited to 0.056 cubic feet per second.

The source of the proposed appropriation is Tongue River, tributary of Yellowstone River, tributary of Missouri River

5. The point of diversion of the proposed works is located _____ feet distant from the _____ corner of Section _____ T. _____ ., R. _____ ., and is in the SW1/4NE1/4 of Section 19 T. 057N ., R. 084W .

Lot _____ Block _____ Subdivision Name _____

Latitude (Decimal Degrees) 44.90306 Longitude (Decimal Degrees) -107.04200

6. Are any of the lands crossed by the proposed facility owned by the State or Federal government? If so, describe lands and indicate whether State or Federally owned.

No- all privately owned lands

The carrying capacity of the ditch, canal, pipeline or other facility at the point of diversion is 0.056 cubic feet per second (c.f.s.)

8. The accompanying map is prepared in accordance with the State Engineer's Rules and Regulations for filing applications and is hereby declared a part of this application. The State Engineer may require the filing of detailed construction plans.

9. The estimated time required for the completion of construction is _____, and to complete the application of water to the beneficial uses stated in this application is _____

TFN 6 2/025
RECD NOV 14, 2014

Permit No. **P34570.0D**

Page No. 158/49
(Leave Blank)

10. The land to be irrigated under this permit is described in the following tabulation. Give irrigable acreage in each 10 acre subdivision. Designate ownership of land, Federal, State or private. If private, list names of owners and land owned separately. If application is for stock, domestic, or for purposes other than irrigation, indicate point of use by 10 acre subdivision and owner.

Town	Range	Sec.	NE¼				NW¼				SW¼				SE¼				
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
			Domestic Use for a single family dwelling at the following point of use not to exceed .056 c.f.s. Land Owner: Patented, Applicant - JOHN AND VANESSA BUYOK																
057N	084W	19			A X														

Number of acres to receive original supply 0.00
Number of acres to receive supplemental supply 0.00
Total number of acres to be irrigated 0.00

REMARKS

Application is for domestic (lawn and garden) water use, via a small portable pump from the Tongue River. Pump will be used during normal growing seasons. Type of Pump: Electric Horsepower: 1HP Delivery Method: Water is pumped from the Tongue River through HDPE pipe to springlers.

.056 cfs (25 gpm)

I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

JOHN AND VANESSA BUYOK
Printed Name and Signature of Applicant or Agent

March 14, 2011
Date

TFN 6 2/025
RECD NOV 14, 2014

THE STATE OF WYOMING } ss.
STATE ENGINEER'S OFFICE }

TEMPORARY FILING NO. 35 6/132D

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This permit grants only the right to use the water available in the stream after all prior rights are satisfied.

The amount of appropriation shall be limited to the amount beneficially used for Domestic purposes only, not to exceed 0.056 cubic feet per second of time.

This permit is issued to make an existing facility a matter of record. The notice of completion of construction is hereby waived.

The notice of beneficial use has been waived.

Witness my hand this 1□h day of October, A.D. 2011

TFN 6 2/025
RECD NOV 14, 2014

□OHN □ARNES For State Engineer

Permit No. P3□5□0.0D

Page No. 158/□9

RAMACO

Brook Mine

PERMIT NO. P3□5□0.0D

PERMIT STAT□S

Priority Date March 1□, 2011

Approval Date October 1□, 2011

TFN 6 2/025
RECD NOV 14, 2014

NOTICE

This permit does not constitute a complete water right. It is your authority to begin construction work.

All appropriations for irrigation are limited to 1 cubic foot per second of time for each □0 acres of land irrigated, except as provided in Section □1□□320, Wyoming Statutes, 19□□ Appropriations for other uses are limited to the amount of water beneficially used in accordance with the terms of the permit.

Notice of completion of work and of application of the water to the beneficial uses described in the permit, must be filed in the State Engineer's Office before the expiration of the time allowed in the permit.

If extensions of time beyond the time limits set forth in the permit are re□uired, re□uests for same must be in writing, stating why the additional time is re□uired, and must be received in the State Engineer's Office before the expiration of the time allowed in the permit.

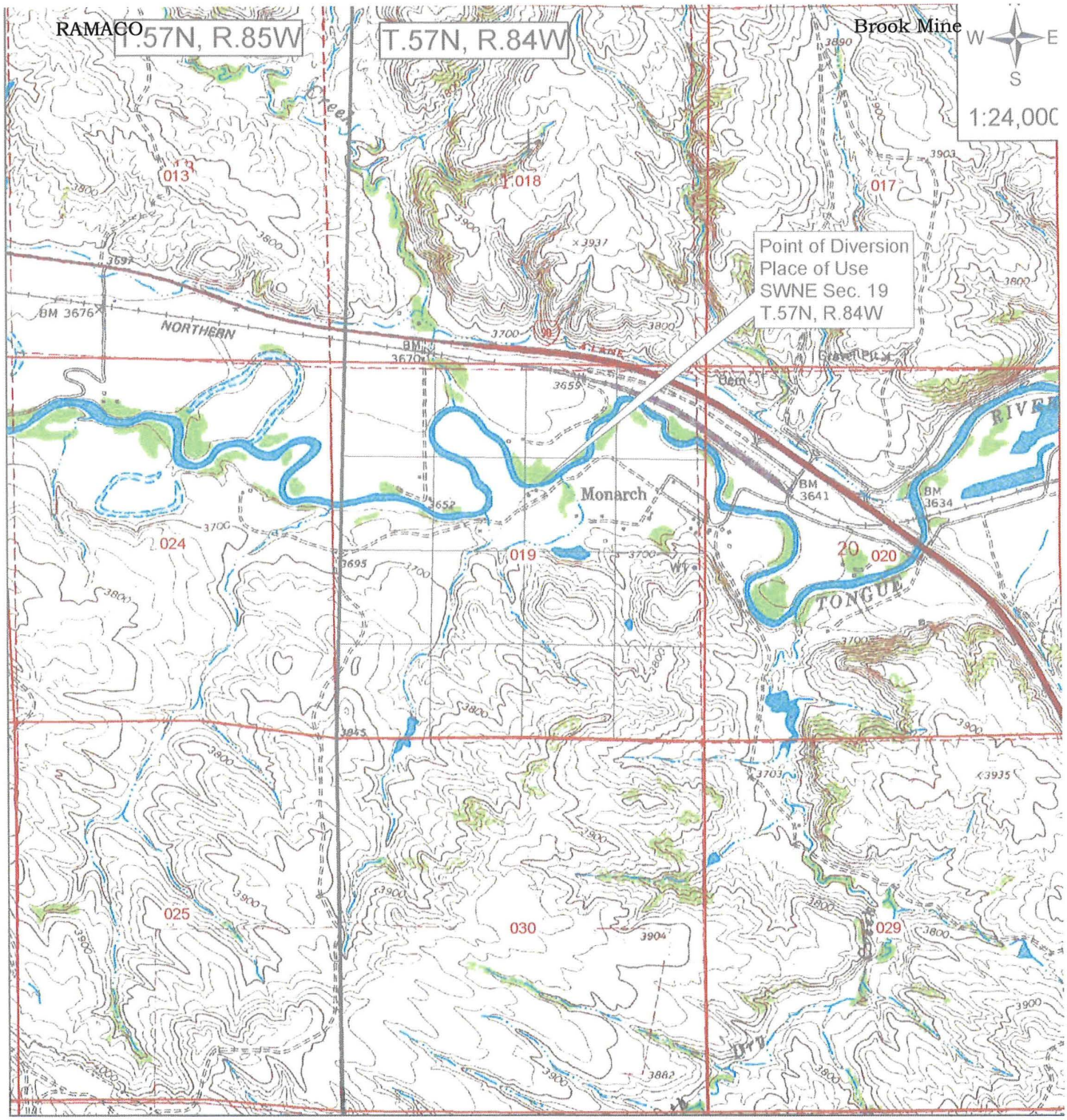
To perfect your water right, your Water Division Superintendent, or his authori□ed representative, will contact you after you have submitted notice to the State Engineer stating that you have applied the water to the beneficial uses described in your permit. After execution of the proof, it will be considered by the State □oard of Control, and, if found to be satisfactory, the □oard will issue to you a Certificate of Appropriation which will constitute a completed water right.

The granting of a permit does not constitute the granting of right□of□way. If any right□of□way is necessary in connection with the application it should be understood that this responsibility is the applicant's.

Item 10 Continuation Page 1 of 1 Permit No. P34570.0D T.F.N. 35 6/132D

TWN	RGE	SEC	NE1/4				NW1/4				SW1/4				SE1/4				TOTAL
			NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	NE1/4	NW1/4	SW1/4	SE1/4	
			Domestic Use for a single family dwelling at the following point of use not to exceed .056 c.f.s. Land Owner: Patented, Applicant - JOHN AND VANESSA BUYOK,																
057N	084W	19			A X														

TFN 6 2/025
RECD NOV 14, 2014



APPROVED:

Patrick T. Tyrrell STATE ENGINEER

MAP TO ACCOMPANY APPLICATION FOR:
Vanessa Domestic Pump

APPLICANT:
John & Vanessa Buyok
86 Monarch Road
Ranchester, WY 82839

TFN 6 2/025
RECD NOV 14, 2014

October 2014

Addendum D11-4-126

DEQ 11-284

WYOMING COAL MINING 8297D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-285

Application for a Permit to Divert and

820 complete

Cert. Record 31 p 316 for 2.5 Cu. ft.

The S. A. Bristol Co., Printers and Binders, Cheyenne

Proof submitted NOV 1 7 1910

Water Division No. 2 District No.

I, Arnold Techirgi, of Sheridan, County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant Wyoming Coal Mining Co.
2. The postoffice address of the applicant Monarch - Wyo.
3. The use to which the water is to be applied is Mining - Power & Town supply
4. The name of the ditch or canal is "Wyoming Coal Mining Co's water supply"
5. The source of the proposed appropriation is Tongue River
6. The headgate of the proposed ditch or canal is located N. 45° 20' E. 820 ft from the East ¼ cor. of Section 10, Township 57 Range 84
7. The said ditch or canal is to be miles long and to pass through the following lands (give route by courses and distances, or by naming legal subdivisions crossed):

The works consists of a pumping plant - Section 6" - and main supply pipe to a pressure reservoir - with distribution of service pipe on the following subdivisions occupied by the Company's plant and Town Site—
SW ¼ NW ¼ Sec. 20 - T. 57 N. R. 84 W.
E ½ NE ¼ " 19 " "

(Reference to map filed herewith)

8. The dimensions of said works are: (a) [At headgate] Width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate:

[At] width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.
[At] width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.
[At] width on top (at water-line) feet; width on bottom feet; depth of water feet; grade feet per mile.

9. Describe the character of proposed works, stating: 1st. The nature of material to be moved. 2nd. Number and length of tunnels, if any. 3rd Amount of fluming, if any.

10. The estimated cost of said ~~ditch~~ works is 6000.00 Dollars.
11. The land to be irrigated has a total area of acres, described as follows:
(Give estimated acreage in fractions of subdivisions)

TFN 6 2/025
RECD NOV 14, 2014

12. Construction will begin on proposed works on or before , 190
13. The time required for the completion of ditches and other distributing works is July 1st 1915 ~~year~~ from , 190
14. The time required to complete the application of water to the beneficial use stated in this application is ~~year~~ from July 1st, 1915
15. A map of the proposed ditch or canal, prepared in accordance with Chapter 14, R. S. 1899, accompanies this application.

Signed: Arnold Techirgi

NOTE.—*The statements in the foregoing application must comply with the requirements of Chapter 14, R. S. 1899.*

Appropriate the Water of the State of Wyoming

THE STATE OF WYOMING, }
COUNTY OF Sheridan } ss.

I hereby certify that the foregoing application was signed in my presence and sworn to before me by Arnold Eschirgi this 13th day of March, 1908

J. F. Todd
Notary Public
My commission expires January 3, 1910
Seal

Notice of completion received June 13, 1908. or June 16, 1908

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

SCANNED APR 2 2010

This is to certify that I have examined the foregoing application and have returned the same without my approval for the following reasons:

Witness my hand this day of , A. D. 190

State Engineer.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

This is to certify that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

Construction of proposed works shall begin within one year from date of approval.

The time for completing the work shall terminate on December 31, 1909

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1909

The amount of the appropriation shall be limited to ~~one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 190 , and~~ the ~~additional~~ volume used for Mining Power & Municipal purposes on or before said date.

TFN 6 2/025
RECD NOV 14, 2014

Witness my hand this 7th day of April, A. D. 1908

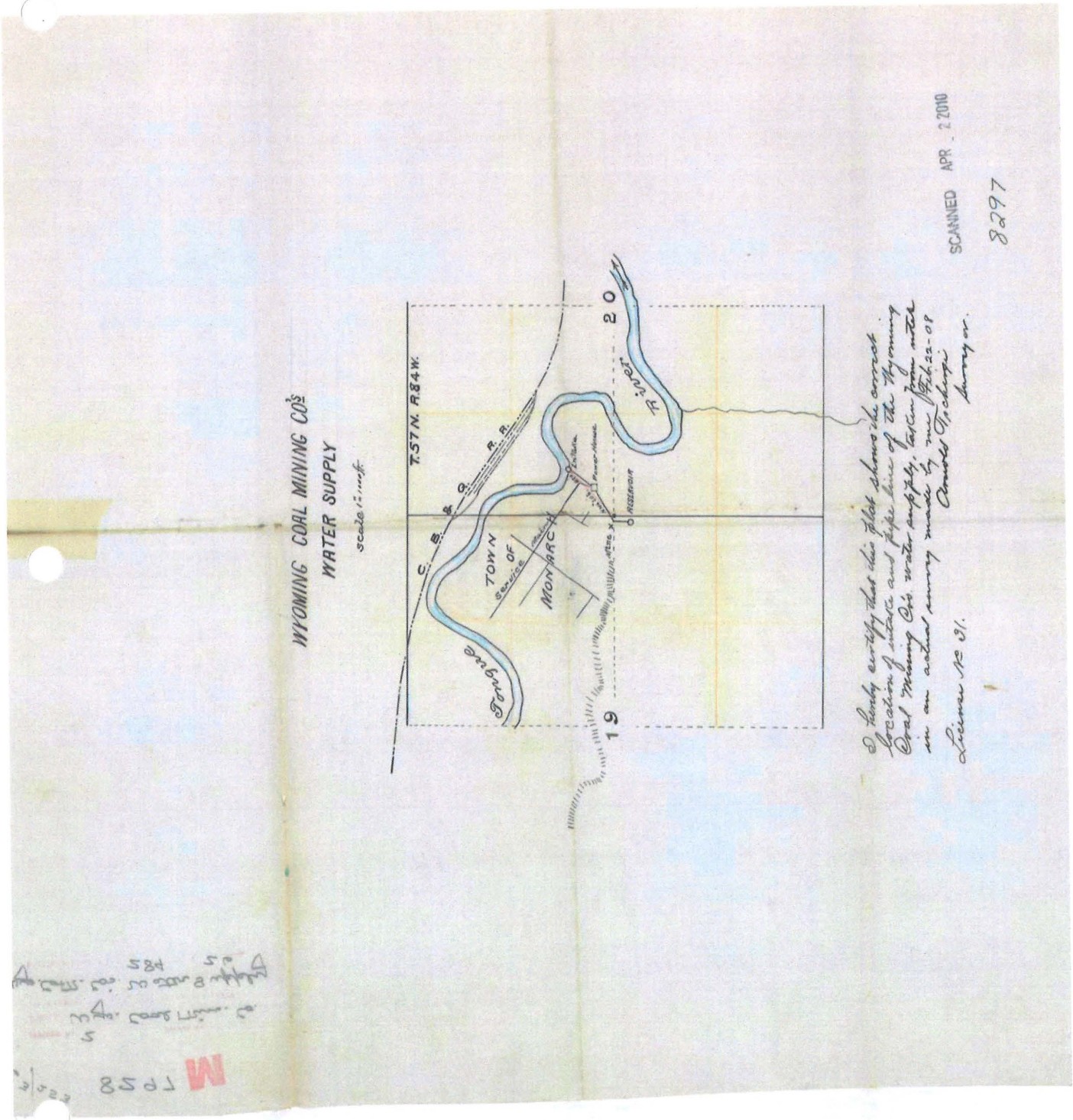
Clarence T. Johnston
State Engineer.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

This instrument was received and filed for record on the 16th day of March, A. D. 1908, at 9 o'clock a. M., and duly recorded in Book 26 of Applications on Page 284

Clarence T. Johnston
State Engineer.

DEQ 11-288



TFN 6 2/025
RECD NOV 14, 2014

YORK DITCH 388D

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-289

ORDER RECORD No. 2 -STATE BOARD OF CONTROL

166 167

Priority No.	Name of Ditch	Name of Appropriator	P.O.Address	Date of Appropriation	Use to Which Water is Applied	Amount Appropriated Cu.Ft.Per Sec.	Amount Previously Appropriated	No.Acres Irrigated	Description of Lands Irrigated
167			Void - see O. B. 2, P. 301						
1973 17	Highline Ditch Co.	J. D. Thorn	Dayton,Wyo.	Nov. 10, 1891	Irrigation				Permit issued. Time for application not expired
			Void - no record of Permit or Adjudication						
18	Huntington 2 App.	C. D. Frisbe	" "	Jan. 26, 1892	"				" " " " " "
1975 19	Ellison	Samuel Ellison	Sheridan"	1892	"	.69		46	Part of NW¼NW¼, Sec. 13; N½NE¼, SE¼NE¼, Sec. 14; SW¼SE¼, Sec. 11, T. 57 N., R. 84 W.
166			Void - see O. B. 2, P. 303						
1974 20	York	Thomas E. Masters	" "	Jan. 6, 1893	"				Permit issued. Time for application not expired.
444			Cancelled - see Permit 444						
1976 21	Eisle	John C. Barr, et al	" "	March 29,1893	"				" " " " " "
59 Enl.			Void - see O. B. 2, P. 375						
1976 22	Huntington	Elisabeth McNutt Simpson	" "	June 2, 1893	"				" " " " " "
1977 22	"	C. N. Ketchum	Dayton "	Season, 1893	"	2.30		160	Part of S½SW¼, Sec. 27; NW¼, Sec. 34, T. 57 N., R. 86 W.
1978 22	"	Mary A. Kueny	" "	" "	"	2.00		140	Part of S½NW¼, W½NE¼, Sec. 33, T. 57 N., R. 86 W.
1979 23	Evans	Simon J. Evans	Sheridan"	Sept. 20,1893	"	1.79		125	Part of SE¼SW¼, S½SE¼, NE¼SE¼, Sec. 2, NW¼SW¼, Sec. 1, T. 57 N., R. 84 W.
1980 24	McCarthy	Patrick McCarthy	" "	Season, 1893	"	1.50		105	Part of NE¼, Sec. 21; NW¼NW¼, Sec. 22, T. 56 N., R. 83 W.

168 169

Priority No.	Name of Ditch	Name of Appropriator	P.O.Address	Date of Appropriation	Use to Which Water is Applied	Amount Appropriated Cu.Ft.Per Sec.	Amount Previously Appropriated	No.Acres Irrigated	Description of Lands Irrigated
1981 24	Walker & Boyle	John W. Boyle	Sheridan, Wyo.	Season, 1893	Irrigation	1.00		70	Part of Lots 1 & 2, SE¼NE¼, Sec. 20; Lot 4, SW¼NW¼, Sec. 21, T. 56 N., R. 83 W.
1982 24	" " "	Mary J. Roland	" "	" "	"	.39		27	Part of SW¼NE¼, Sec. 20, T. 56 N., R. 83 W.
56 Enl.									
1983 25	Adams & Lord	Rollin L. Marohl	" "	Jan. 8, 1894	"				Permit issued. Time not expired.

See Book 3 - Page 165, No. 26

It is therefore ordered by the State Board of Control that the above-named appropriators do have the use of the water of Tongue river and tributaries in the amounts and for the purposes set forth in the above table, and that the order of priority and the rights of the various appropriators to the use of the water of said stream and tributaries be the same as the order of their statement and as limited by the statements in said table.

In Witness Whereof, the President of the said Board has hereunto set his hand this 13th day of March, A. D., 1896.

ELWOOD MEAD
President, State Board of Control

Attested by:

James A. Johnston, Secretary

3-54 In the Matter of the determination of the rights to water from Big Goose creek, in Water Division No. 2, Sheridan County, Wyoming.

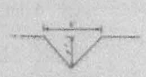
Opinion

The proof submitted by the Division Superintendent to the Board of Control includes only that of parties who were unable to submit proof at the two prior hearings on this stream and had been granted an extension of time to complete the use of the water and to submit proof of such application to beneficial uses. A proper understanding of claimants proof and the right sought to be established by such proof makes it necessary to include their proof and petitions submitted at former hearings of the Board, and to consider in connection with the final proof the former action of the Board relative to these claims.

It appears that at the original taking of proof of appropriation from this stream a number of the owners of, and intending appropriators through, each of the following named ditches, viz: the Grinnell Live Stock Company ditch, the Peralto ditch, the Big Goose and Beaver ditch, the Cross and Cruse Creek ditch, and the Big Goose ditch of the Patrick Bros., submitted petitions each setting forth in substantially the same terms the following facts:

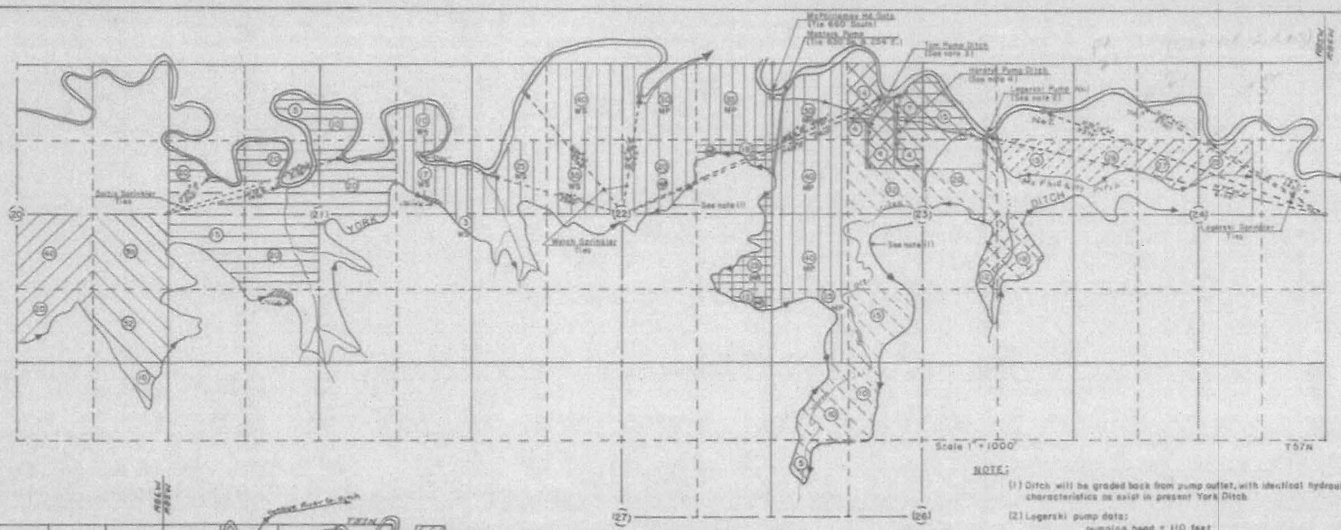
That each of the above-named ditches were of

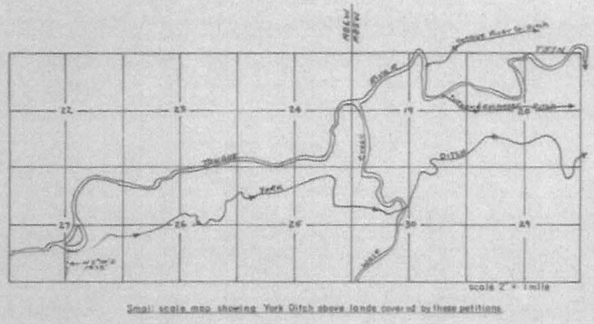
TFN 6 2/025
RECD NOV 14, 2014



TOM PUMP DITCH & HARATYK PUMP DITCH

Q = 6.75 S = 0.002
A = 2 V = 3.4
r = 1.41 n = 0.025
(Note: ditch capacity greater than required)





Small scale map showing York Ditch above lands covered by these petitions

- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by O. Shilling, not covered by these petitions
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by E.R. Williams, not covered by these petitions
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by R. Soltis, covered by listed petition (1)
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by J.,T & J. Legerski, covered by listed petition (6)
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by M. & J. Haratyk, covered by listed petition (7)
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by G. Legerski, covered by listed petition (5)
- Lands under McPhillamey Ditch, permit no. 5016, priority 8-2-1902, owned by G. Legerski, covered by listed petition (4)
- Lands under McPhillamey Ditch, permit no. 1133 enl., priority 11-12-1903, owned by G. Legerski, covered by listed petition (4)
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (2)
- Lands under York Ditch (changed to Masters Pump), permit no. 388, priority 1-6-1893, owned by W. Welch, petition for change of pt. of diversion granted 3-14-1916
- Lands under York Ditch, permit no. 1128 enl., priority 11-9-1903, owned by W. Welch, covered by listed petition (3)
- Lands under York Ditch, permit no. 388, priority 1-6-1893, owned by W. Welch, covered by listed petition (3)
- Lands under York Ditch, permit no. 1129 enl., priority 11-12-1903, owned by G. Legerski, covered by listed petition (5)

NOTE:

(1) Ditch will be graded back from pump outlet, with identical hydraulic characteristics as exist in present York Ditch

(2) Legerski pump data:
pumping head = 110 feet
30 H.P. pump
1445 L.F. 12" discharge pipe

(3) Tom pump ditch data:
pumping head 47 feet
5 H.P. pump
330 L.F. 4" pipe

(4) Haratyk pump ditch data:
pumping head = 22 feet
3 H.P. pump
260 L.F. 3" pipe

(5) Legerski sprinkler data:
1500 L.F. main line pipe (6")
1000 L.F. distr. pipe (4")
max. pumping head = 30 feet

(6) Welch sprinkler data:
3000 L.F. main line pipe (6")
2000 L.F. distr. pipe (4")
max. pumping head = 105 feet

(7) Soltis sprinkler data:
1500 L.F. main line pipe (6")
1100 L.F. distr. pipe (4")
max. pumping head = 110 feet

THIS MAP MAY NOT BE TO SCALE

0 1 2 3 4 5 6

MAP

To Accompany

(1) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO SOLTIS SPRINKLER
(2) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO WELCH SPRINKLER
(3) PETITION FOR CHANGE OF POINT OF DIVERSION OF A PORTION OF YORK DITCH PERMIT NO 388 AND YORK DITCH PERMIT NO.1128enl. TO MASTERS PUMP
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(6) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO TOM PUMP DITCH
(7) PETITION FOR CHANGE OF POINT OF DIVERSION AND MEANS OF CONVEYANCE OF A PORTION OF YORK DITCH TO HARATYK PUMP DITCH

PETITIONERS

(1) Rudolph Soltis	Ranchester, Wyoming
(2 & 3) William Welch	Sheridan, Wyoming
(4 & 5) George Legerski	" "
(6) Joe, Tom, & John Legerski	" "
(7) M. & J. Haratyk	Acme, Wyoming

CERTIFICATE OF SURVEYOR

COUNTY OF SHERIDAN
STATE OF WYOMING ss

I, Walter J. Pilch, of Sheridan, Wyoming, certify that this map was made from records and maps on file in the State Engineers Office and from notes taken during an actual survey made by me on January 11, 23, 24, 1962, and that it correctly represents the irrigation works, the location and area of lands to be irrigated in each subdivision and the location of streams in so far as these petitions are affected.

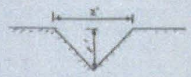
REGISTRATION NO. 537

Engineer & Surveyor

TFN 6 2/025
RECD NOV 14, 2014

Petitions 4 & 6 granted May 9, 1963
Petition 7 granted May 10, 1963

Ex-officio Secretary State Board of Control



TOM PUMP DITCH &
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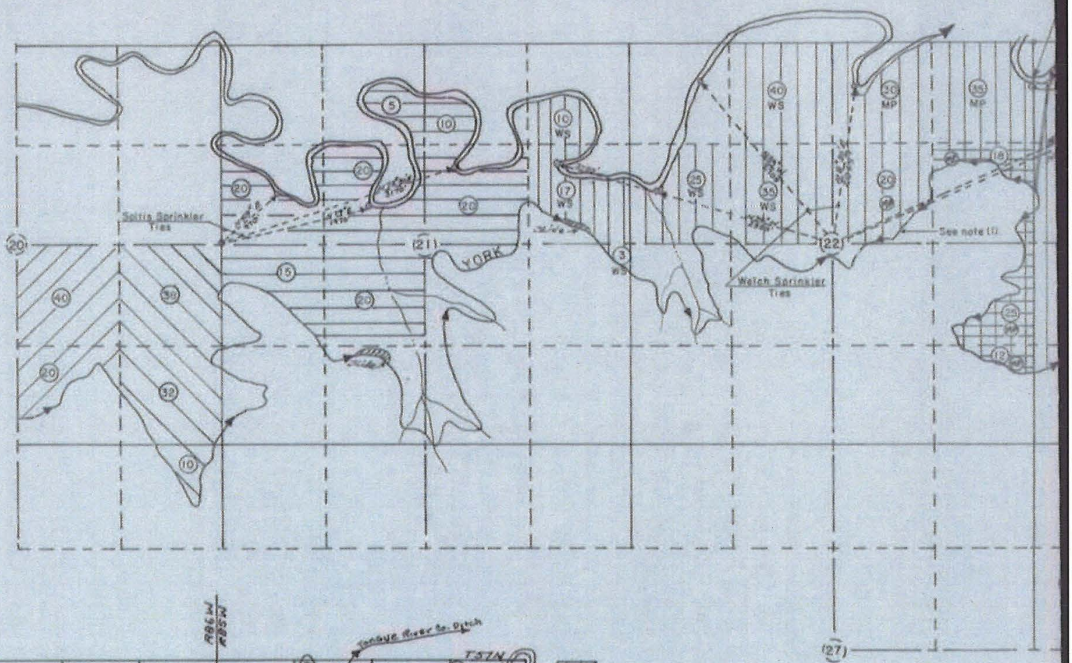

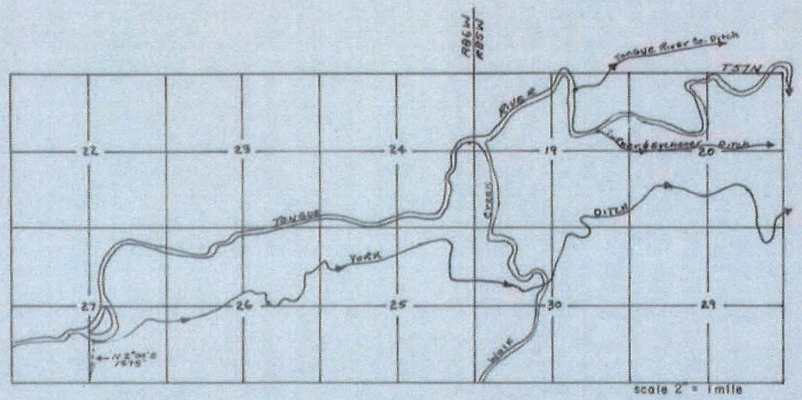

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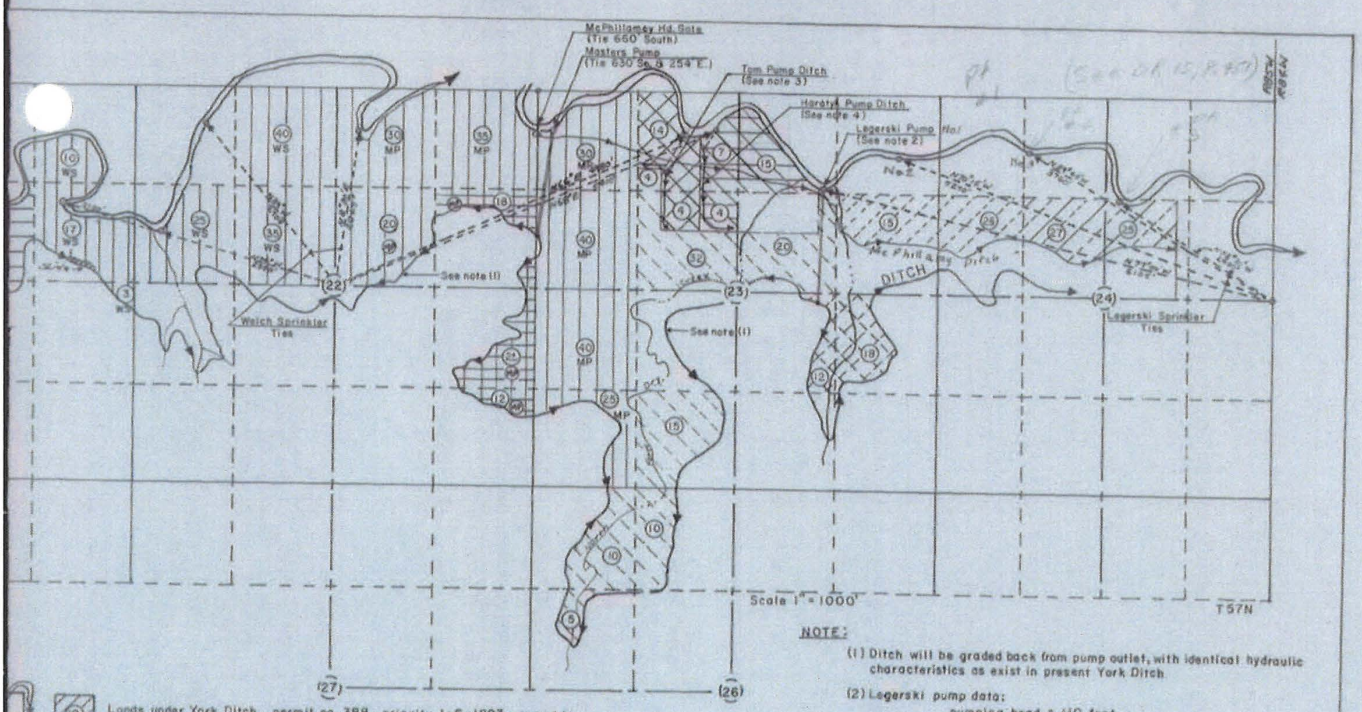
REGISTRATION NO. 537

Walter J. Pilch
Engineer & Surveyor

TFN 6 2/025
RECD NOV 14, 2014

Petition 5 & 6 granted May 9, 19
Petition 4 granted May 10, 1
Petition 1, 2, 3 & 7 granted
George E. Christensen
Ex-officio Secretary State Board o



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max. pumping head = 105 feet

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(2 & 3) William Welch	Sheridan, Wyoming
(4 & 5) George Legerski	" "
(6) Joe, Tom, & John Legerski	" "
(7) M. & J. Haratyk	Acme, Wyoming

Petitions 5 & 6 granted May 9, 1963
Petition 4 granted May 10, 1963
Petitions 1, 2, & 3 granted November 22, 1963
George L. Christopulos
Ex-officio Secretary State Board of Control

Permit 1-388 5016, 1133 enl. 1128 enl. E-3 7

0 1 2 3 4 5 6

THIS MAP MAY NOT BE TO SCALE

TFN 6 2/025
RECD NOV 14, 2014

YORK DITCH ENL 1128E

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-294

10 Q. If for irrigation, give the location and acreage irrigated the first year and the location and acreage irrigated each subsequent year to the present.

A. As land described in Section 8 has been irrigated in 1904

11 Q. What crops were grown on this land in 1904? Give estimated acreage of each crop.

A. Alfalfa 55 Acres

12 Q. During what months is water beneficially used?

A. April to October

13 Q. Give amount of your investment in the construction of ditch and laterals.

A. $250.00

14 Q. Give estimated cost per acre of preparing land for irrigation.

A. $5.00

15 Q. Does the map which accompanies this proof show correctly the location of diverting works and area of land where water is used?

A. Yes

THE STATE OF WYOMING, } ss.
COUNTY OF Sheridan }

I, Asael Masters by Thos. E Masters Agt., being first duly sworn, do depose and say that I have read the above and foregoing proof of appropriation of water; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 3 day of Sept A. D. 1904

Asael Masters
By Thomas E Masters as Agent

Subscribed and sworn to before me at Sheridan Wyo., Wyo., Sept 3 1904

I HEREBY CERTIFY that the foregoing affidavit was read to the affiant in my presence before he signed his name thereto; that said affiant is to me personally known (or has been satisfactorily identified before me by _____), and that I verily believe him to be a credible person and that person he represents himself to be; and that this affidavit was subscribed and sworn to before me at Sheridan Wyo on this _____ day of Sept, 1904

Frank H Stott
Superintendent, Water Division No. 2

NOTE.—This proof is intended to be used only by parties making appropriations under permits issued in accordance with Section 926, Chapter 79, Title 2, Division One, Revised Statutes of Wyoming.

The map referred to in Paragraph 15 must show the entire work in the case of individual ditches. In the case of larger works only one map of the entire canal need be filed. Individual proof must, however, show ditch from point of diversion from main canal, and all laterals on land reclaimed. Where the duplicate map filed in the office of the State Engineer and referred to the applicant gives the necessary details and shows accurately the location of completed work, it may be filed.

The map which accompanies this proof must be an tracing linen, must be accurately drawn on a scale of not less than two inches to the mile, and verified by the party making the measurements.

REPORT OF OFFICIAL EXAMINATION BY SUPERINTENDENT.

I HEREBY CERTIFY AND REPORT that pursuant to the notice of completion of appropriation, filed with the State Engineer, and in accordance with the rules and practice of the Board of Control, I appeared at Sheridan Wyo on the 3 day of Sept, 1904, and took and received the following sworn proof of appropriation of water through the Jack Ewing Ditch from Tongue River under Permit No. 1128 E by Asael Masters, the owner thereof; that I made a personal examination of said ditch, and of the land irrigated thereunder and described in said permit; that I found said ditch had an average width of 5 feet, a depth of 2 and a grade of about 5 feet per mile. I found a sufficient number of laterals of a capacity to fully irrigate the land described herein, and found that of the land described in said permit the following acreage has been irrigated and reclaimed in each forty-acre tract, to-wit:

Same as described in Section 8

On this land the following crops were grown in 1904

Same as described in Section 8

I also certify that after due publication of notice of the time and place, said proof was opened for public inspection on the 7 day of Nov, 1904, at Sheridan Wyo in accordance with the provisions of said notice and the regulations of the Board of Control; that at said time

No parties

appeared in filed any contest or objection to said proof.

TFN 6 2/025
RECD NOV 14, 2014

Wherefore I recommend that said appropriation be ~~~~ allowed and that a certificate of appropriation be issued in accordance with said proof and the tabulation thereof filed herewith.

Dated Nov 17, 1904

Frank H Watts
Superintendent of Water Division No. 2

PERMIT No. 1128 E

PROOF OF APPROPRIATION OF WATER.

(In accordance with the provisions of Section 928, Chapter 14, Title 9, Division One, Revised Statutes of Wyoming, and the regulations of the Board of Control thereunder.)

From Tongue River Division No. 2 District No.

1 Q. State your name.
A. Arad Masters

2 Q. Postoffice address.
A. Dayton Wyo

3 Q. Are you the original applicant for Permit No. 1128?
A. Yes

4 Q. If not, state the date of your securing an interest therein, and the nature of your interest in the works constructed under such permit.
A.

5 Q. When did the construction of the York Enlargement ditch (or other distributing works described in said permit) begin?
A. Spring 1904

6 Q. When was it completed?
A. Spring 1904

7 Q. What are the dimensions of the ditch (or other distributing works) built under said permit?
A. Length 1/4 Mile Width top 5 ft Bottom 4 ft Depth 2½ ft Grade 5 ft to mile

8 Q. Give the legal subdivisions of land owned or controlled by you on which water has been used, and if an appropriation of water for irrigation is claimed, give the acreage which has been irrigated in each legal subdivision.
A. SE NE Sec 22 Tp 57 N R 85 W 18 Acres
NE SE " 22 " " 25 "
SE SE " 22 " " 12 "
55 "

9 Q. Give the date when, under the terms of this permit, water was first beneficially used.
A. 1904

Pmt-1128 En
5183

PROOF OF APPROPRIATION

UNDER

PERMIT No. 1128 E

DIVISION No. 2 DISTRICT No.

Date of Appropriation Nov 9, 1903.

PRIORITIES.
GENERAL. STREAM.

NAME OF STREAM,
Tongue River
TRIBUTARY OF

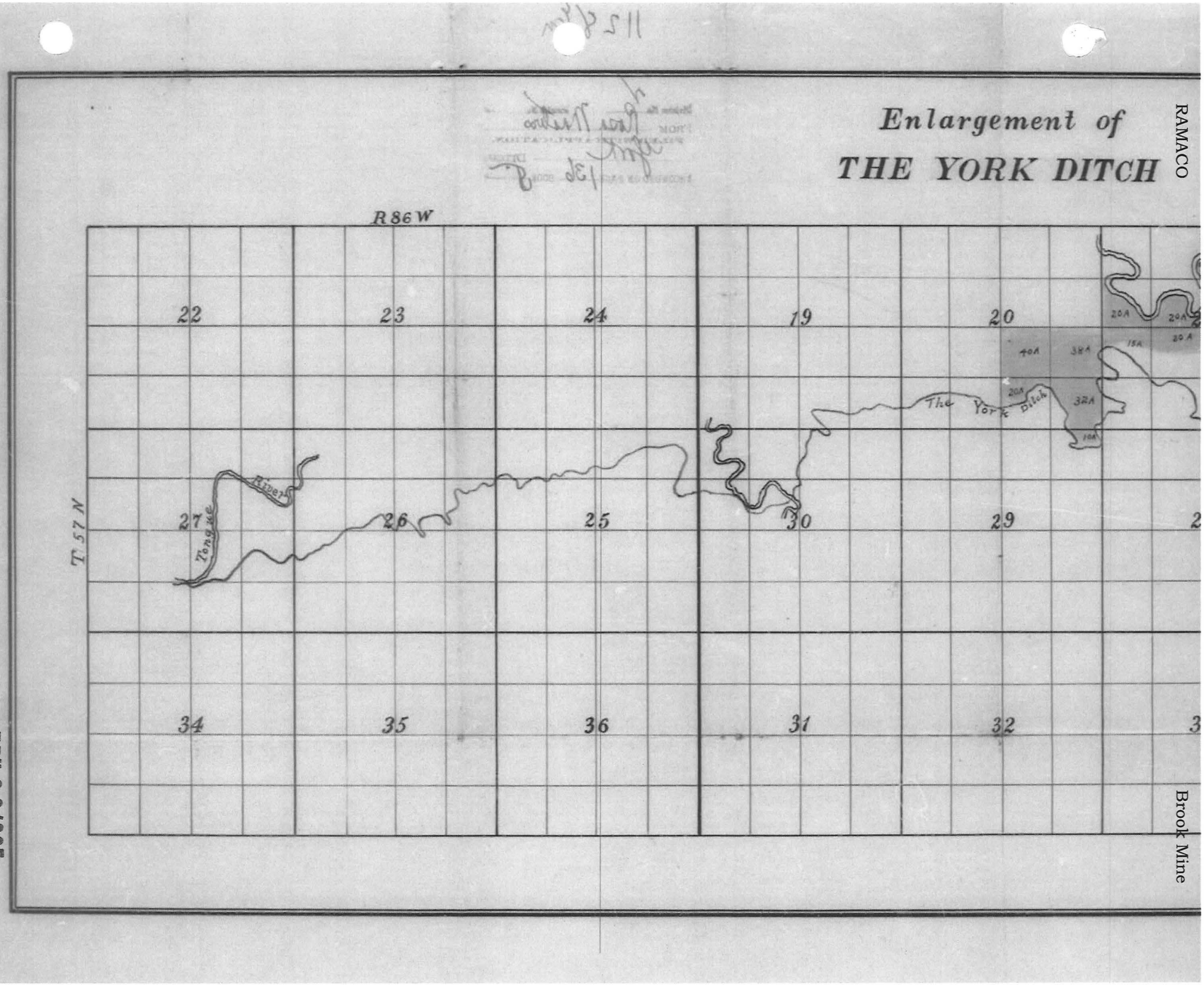
NAME OF CLAIMANT.
Arad Masters

Filed with me this 3 day of Sept, 1904
Frank H Watts
Superintendent 2

Filed in this office this day of , 190

Secretary Board of Control.

TFN 6 2/025
RECD NOV 14, 2014



October 2014

Addendum D11-4-139

TFN 6 2/025
RECD NOV 14, 2014

DEQ 11-297

HALL RESERVOIR 363R

AND

HALL DITCH P5195D

TFN 6 2/025
RECD JUL 30, 2015

DEQ 11-298

10

5195

Rec 363

Permit to Construct the Hall Reservoir and

Water Division No. V District No.

I, C. C. Worthington, of Sheridan County of Sheridan, State of Wyoming, being duly sworn according to law, upon my oath say:

1. The name of the applicant. ~~W. J. M. Hall~~ John R. Bocek, HC 31 Box 221, Ranchester, WY 82839

2. The post-office address of the applicant ~~Ranchester, Wyo~~

3. The name of stream from which reservoir is to be filled and appropriation made is a Draw - tributary to Wolf Creek

4. The location of the proposed reservoir will be in Sec. 11, T. 57 N., R. 85 W., described as follows:

(a) State whether situated in channel of running stream, and give character of material at outlet.

No. earth

(b) If not in channel of running stream state how it is to be filled. If through canal give name and dimensions.

From pond and rain waters

(c) The construction of dam, the material of which it is to be built and the method of protecting from waves are as follows:

Material is earth. Protected by riprapping with rock

5. The area of reservoir is 4 acres with maximum depth of 31 feet and approximate mean depth of water of 6 feet.

6. The dimensions of dam are: Length on top 213 feet. Length on bottom ____ feet. Width on top 10 feet. Width on bottom 169 feet. Depth 31 feet. Slope of front 3:1 Slope of back 2:1. Height of dam above water line when full 7 feet.

7. The outlet and wasteway, with dimensions of each, are as follows:

Outlet 6 in iron pipe with gate valve Wasteway Bottom 10ft wide & 2ft deep

8. The use to which the water is to be applied is Irrigation

9. The name of the ditch or canal is Hall (If such is already constructed give No. of Permit, date of construction)

10. The headgate of the proposed ditch or canal is located 350 ft West and 650 ft South of center of Section 11, Township 57 North, Range 85 West.

11. The said ditch or canal is to be ____ miles long and to pass through the following lands (give route by courses and distances, or by naming legal subdivisions crossed):

SW NE; NW SE; NE SE sec 11 T57N R85W

12. The dimensions of said ditch are (a) [At headgate] Width on top (at water-line) 4 feet; width on bottom 3 feet; depth of water 1 feet; grade 8 feet per mile.

(b) Give dimensions at each point where reduced in size, stating miles from headgate:

[At ____] Width on top (at water-line) ____ ft.; width on bottom ____ ft.; depth of water ____ ft.; grade ____ ft. per mile.

[At ____] Width on top (at water line) ____ ft.; width on bottom ____ ft.; depth of water ____ ft.; grade ____ ft. per mile.

13. Describe the character of proposed ditch, stating: 1st. The nature of material to be moved. 2nd. Number and length of tunnels, if any. 3rd. Amount of fluming, if any.

Earth - No tunnels or fluming

14. The estimated cost of said ditch is $ ____ and of the reservoir is $ 1625.00

TFN 6 2/025

RECD JUL 30, 2015

to Divert and Appropriate the Water of the State of Wyoming.

15. The land to be irrigated has a total area of 77 acres, described as follows:
(Give estimated acreage in fractions of subdivisions)

N ½ ½ SW¼ NE¼ }
5 " SE¼ NE¼ } Sec 11 Twp 57. N 85 W.
30 " NE¼ SE¼ }
22 " NW¼ SW¼ Sec 12 " "

16. Construction will begin on proposed works on or before April 15" , 1903.
17. The time required for the completion of ditches and other distributing works is 1 year from April 15" , 1903.
18. The time required to complete the application of water to the beneficial use stated in this application is 3 year from April 15" , 1903.

Signed: C. E. Worthington

NOTE.—The statements in the foregoing application, together with the maps and plans, must comply with the requirements of Chapter 14, R. S. 1899.

THE STATE OF WYOMING, }
COUNTY OF Sheridan } ss.

I HEREBY CERTIFY that the foregoing application was signed in my presence and sworn to before me by C. E. Worthington this 19 day of November, 1903.

C. B. Holmes
Notary Public

Seal
My Com Expires Nov 4" 1905

Time for completion extended to Dec. 31, 1906
Clarence Johnston
State Engineer - Dec 10, 1904.

Time for completion extended to Dec 31 1908
Clarence Johnston
State Engineer Dec 31-1906

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

THIS IS TO CERTIFY that I have examined the foregoing application and have returned the same without my approval for the following reasons:

Notice of Expiration Mailed November 28, 1906.

Witness my hand this ____ day of ____ A. D. 190__. Notice of Expiration Mailed SEPT. 24. 1910

State Engineer.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

Construction of proposed works shall begin within one year from date of approval.

The time for completing the works shall terminate on December 31, 1904

The time for completing the appropriation of water for beneficial use shall terminate on December 31, 1905

The amount of the appropriation shall be limited to one cubic foot per second of time for each seventy acres of land reclaimed on or before December 31, 1905, and the additional volume used for ____ purposes on or before said date.

Witness my hand this 6 day of December, A. D. 1904.

Fred Bond
State Engineer.

THE STATE OF WYOMING, }
STATE ENGINEER'S OFFICE. } ss.

This instrument was received and filed for record on the 28 day of November, A. D. 1904, at 9 o'clock a. M., and duly recorded in Book 2 of Reservoirs and Water Appropriations on Page 10.

Fred Bond
State Engineer.

Time for completion extended to Dec. 31, 1910.
State Engineer.

Time for completion extended to Dec. 31, 1912.
State Engineer.

TFN 6 2/025
RECD JUL 30, 2015

PERMIT NO. 5195 - 363 Res. Page 10

The following is a chronological account of the activities that have taken place during the life of this permit, relative to its' status. The original endorsements are not effected and remain unchanged in context. This account is solely for the purpose of clarification.

November 23, 1904 Notice of expiration mailed.

December 10, 1904 Time for completion extended to December 31, 1906.
/s/ Clarence T. Johnston
State Engineer

November 28, 1906 Notice of expiration mailed.

December 31, 1906 Time for completion extended to December 31, 1908.
/s/ Clarence T. Johnston
State Engineer

October 13, 1908 Notice of expiration mailed.

November 2, 1908 Time for completion extended to December 31, 1909.
/s/ Clarence T. Johnston
State Engineer

October 16, 1909 Notice of expiration mailed.

November 17, 1909 Time for completion extended to December 31, 1910.
/s/ Clarence T. Johnston
State Engineer

September 24, 1910 Notice of expiration mailed.

November 14, 1910 Time for completion extended to December 31, 1912.
/s/ Clarence T. Johnston
State Engineer

September 6, 1912 Notice of expiration mailed.

December 6, 1912 Time for completion extended to December 31, 1914.
/s/ A. J. Parshall
State Engineer

January 28, 1913 (Penciled Note) Lands relinquished by the filing of 9 5/77.
(Permit No. 11695)
20 acres SW¼NE¼
5 acres SE¼NE¼ Section 11, T.57N., R.85W.

Typed and Proofread on May 2, 1972 by MLE - JLA.

TFN 6 2/025
RECD JUL 30, 2015

COMBINATION PERMIT NO. 5195 DITCH AND 363 RESERVOIR
Combination Book 2 Page 10

PERMIT STATUS

August 17, 2005 Affidavit and warranty deed were filed by John R. Bocek claiming ownership of Permit No. 363R. The documents are filed in Miscellaneous Notices under this permit. The permit is being endorsed accordingly.

Affidavits for reservoir reinstatement by Tony J. Bocek and Patricia M. Brantz indicated that the reservoir was constructed prior to 1910 and has stored water since. These affidavits appear to be valid, as filed, but final acceptance will be dependent on a field inspection and written report by the Superintendent of Water Division No. 2 and final action by the Board of Control on any proof submitted for this reservoir.

Affidavits for beneficial use of water by Patricia M. Brantz and Tony J. Bocek for re-instatement of land irrigated in:

T 57 N, R 85 W		
Section 11	NE¼SE¼	30 acres
Section 12	NW¼SW¼	22 acres
	Total	52 acres

These affidavits appear to be valid, as filed, but final acceptance will be dependent on a field inspection and written report by the Superintendent of Water Division No. 2 and final action by the Board of Control on any proof submitted for these lands.

SCANNED DEC 19 2005

MICRO FILMED JAN 13 2005

CERT. REC. 85 P. 41 PROOF NO. 39191
IRR. ✓ STK. ___ DOM. ___ MISC. Sec Sply.
AC. 52 C.F.S. ___

CERT. REC. R-17 P. 74 PROOF NO. 39217
IRR. ✓ STK. ___ DOM. ___ MISC. ___
AC. ___ C.F.S. AF 42.0

June 18, 2007: Affidavits of beneficial use were received from Patricia M. Brantz, (who was 18 years of age in 1959 and has lived in the area for 64 years) and Tony J. Bocek (who was 18 years of age in 1936 and has lived in the area for 87 years) showing beneficial use from their earliest recollection and continuous use through July 2005. These affidavits appear to be valid with the best available evidence, as filed for Secondary Supply the following described lands under Permit No. 5195:

Township 57 North, Range 85 West

Section 11:	NE¼SE¼	30 acres
Section 12:	NW¼SW¼	22 acres
Total:		52 acres

Affidavits of beneficial use were received from Patricia M. Brantz, (who was 18 years of age in 1959 and has lived in the area for 64 years) and Tony J. Bocek (who was 18 years of age in 1936 and has lived in the area for 87 years) showing beneficial use from their earliest recollection and continuous use through July 2005. These affidavits appear to be valid with the best available evidence, as filed for Irrigation. The reservoir is located at the following described lands under Permit No. 363R:

Township 57 North, Range 85 West, NW¼SE¼, Section 11

See copies of the Proof Report of Superintendent and a copy of the warranty deed which is filed with the affidavits of best available evidence in Miscellaneous Notices under Permit No. 5195 and 363R.

SCANNED JUN 19 2007

JOHN R. BARNES, Administrator
Surface Water and Engineering

TFN 6 2/025
RECD JUL 30, 2015

LANDEN DITCH P11695D

TFN 6 2/025
RECD JUL 30,2015

July 2015 Addendum D11-4-145

12,506

THE STATE OF WYOMING

CERTIFICATE OF APPROPRIATION OF WATER CERTIFICATE RECORD NO. 35 PAGE 530

WHEREAS, James Landon has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Slater Creek tributary of Tongue River through the Landon Ditch under Permit No. 11695 for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming,

NOW KNOW YE, That the Board of Control, under the provisions of Chapter 61, Compiled Statutes of Wyoming, 1910, has, by an order duly made and entered on the 22nd day of November, A. D. 1913, in Order Record No. 4, Page 713, determined and established the priority and amount of such appropriation as follows:

Name of Appropriator James Landon; Postoffice Address Monarch, Wyoming; Amount of Appropriation 0.57 cu. ft. per sec.; Date of Appropriation January 29, 1913; Description of land to be irrigated and for which this appropriation is determined and established; Total Acreage Forty (40) acres.

22 A. SW¼ NE¼ Sec. 11, T. 57 N. R. 85 W.
18 A. SE¼ NE¼ Sec. 11, T. 57 N. R. 85 W.
40 A. Total acreage.

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I A. J. Parshall, President of the State Board of Control, have hereunto set my hand this 25th day of February, A. D. 1914, and caused the seal of said Board to be hereunto affixed.

ATTEST: LOUISE JABELMANN, *Secretary.* A. J. Parshall, *President.*

TFN 6 2/025
RECD JUL 30, 2015

WILLIAMS DITCH P1317D

TFN 6 2/025
RECD JUL 30, 2015

July 2015 Addendum D11-4-147

766.

THE STATE OF WYOMING.

CERTIFICATE OF APPROPRIATION OF WATER. CERTIFICATE RECORD No. 27 PAGE 267

WHEREAS, H. H. Williams has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Slater Creek tributary of Tongue River through the Hart Brothers Ditch under Permit No. 1317 for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming.

NOW KNOW YE, That the Board of Control, under the provisions of Division 1, Title 9, Chapters 10 and 14 of the Revised Statutes of Wyoming, 1899, has, by an order duly made and entered on the 5th day of May, A. D. 190 8, in Order Record No. 4 Page 114, determined and established the priority and amount of such apppropriation as follows:

Name of Appropriator H. H. Williams; Postoffice Address Monarch, Wyoming; Amount of Appropriation .91 cu. ft. per sec.; Date of Appropriation June 15, 1896; Description of land to be irrigated and for which this appropriation is determined and established; Total Acreage Sixty-four (64) acres.

30 A. NE¼ SE¼ Sec. 3, Tp. 57 N., R. 85 W.
18 A. SE¼ NE¼ " " " " " " " "
16 A. SW¼ NE¼ " " " " " " " "
64 A. Total acreage.

For am. certificate + change of point of diversion + partial means of conveyance of a portion see O.R. 36, p. 385; C.R. 77, p. 296.

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I, CLARENCE T. JOHNSTON, President of the State Board of Control, have hereunto set my hand this MAY 14 1908 day of ....., A. D. 190..., and caused the seal of said Board to be hereunto affixed.

ATTEST: ....., *Secretary.* ....., *President.*

July 2015

RAMACO

Brook Mine

TFN 6 2/025
RECD JUL 30, 2015

Addendum D11-4-148

DEQ 11-306

11,811

THE STATE OF WYOMING

CERTIFICATE OF APPROPRIATION OF WATER

CERTIFICATE RECORD No. 33 PAGE 478

WHEREAS, Nunzio Gevita has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Slater Creek tributary of Tongue River through the Williams Ditch under Permit No. 8710 for irrigation of the lands herein described, lying and being in Sheridan County, Wyoming;

NOW KNOW YE, That the Board of Control, under the provisions of Division 1, Title 9, Chapters 10 and 14 of the Revised Statutes of Wyoming, 1899, has, by an order duly made and entered on the 17th day of April, A. D. 19 12, in Order Record No. 4 Page 469, determined and established the priority and amount of such appropriation as follows:

Name of Appropriator Nunzio Gevita; Postoffice Address Carneyville, Wyoming; Amount of Appropriation 0.38 cu. ft. per. sec.; Date of Appropriation October 23, 1908; Description of land to be irrigated and for which this appropriation is determined and established; Total Acreage Twenty-seven (27) acres.

12 A. SE¼ NE¼ Sec. 3, Tp. 57 N. R. 85 W.
5 A. SE¼ SE¼ Sec. 3, Tp. 57 N. R. 85 W.
10 A. NW¼ SW¼ Sec. 2, Tp. 57 N. R. 85 W.
27 A. Total acreage.

For amended certificate + change of point of diversion see O.R. 36, p. 380; C.R. 77, p. 289.

The right to water hereby confirmed and established is limited to irrigation and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot per second for each seventy acres of land for which appropriation is herein determined and established.

IN TESTIMONY WHEREOF, I, ~~J~~ A. J. Parshall, President of the State Board of Control, have hereunto set my hand this MAY 22 1912 day of May, A. D. 19 12, and caused the seal of said Board to be hereunto affixed.

ATTEST: LOUISE JARELMANN, *Secretary*. A. J. Parshall, *President*.

July 2015

TFN 6 2/025
RECD JUL 30, 2015

Addendum D11-4-149

RAMACO

Brook Mine

DEQ 11-307

COPY

AMENDED

THE STATE OF WYOMING
Certificate of Appropriation of Water

Proof No. 11811
Certificate Record No. 77, Page 289
Water Division No. 2, District No. 5

WHEREAS, Padlock Ranch Company (successor to Nunzio Gavita, original appropriator) has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Slater Creek, tributary Tongue River, tributary Yellowstone River through the Williams Ditch under Permit No. 8710; --- reservoir supply and for irrigation of lands herein described, lying and being in Sheridan County, Wyoming.

NOW KNOW YE, That the State of Board of Control, under the provisions of the Statutes of Wyoming, has, by an order duly made on February 13, 1990 and entered on January 10, 1991, in Order Record 36 Page 380, determined and established the priority and amount of such appropriation as follows: Name and Address of Appropriator(s) Padlock Ranch Company, Ranchester, Wyoming 82839 : Priority October 23, 1908 : Amount of Appropriation -----0.38----- cu. ft. per sec.; Total Acreage Twenty-seven (27.0) Acres : Head Gate SE¼SW¼ Section 34-58-85

DESCRIPTION OF LAND TO BE IRRIGATED AND FOR WHICH THIS APPROPRIATION IS DETERMINED AND ESTABLISHED

TWP.	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
57N	85W	2											5.0	2.0					7.0
57N	85W	11					18.0	2.0											20.0
																	TOTAL		27.0

Reservoir supply for the Hart Brothers Reservoir, Permit No. 60 Res., at a rate of 4.17 c.f.s., not to exceed 26.0 acre-feet in any one (1) year.

THIS AMENDED CERTIFICATE IS ISSUED IN LIEU OF THE ORIGINAL CERTIFICATE OF APPROPRIATION OF RECORD IN CERTIFICATE RECORD 33, PAGE 478, AND AMENDS THE ORDER OF ADJUDICATION OF RECORD IN ORDER RECORD 4, PAGE 569; PROOF NO. 11811.

The right to water hereby confirmed and established is limited to irrigation and reservoir supply ---------- and the use is restricted to the place where acquired and to the purpose for which acquired; rights for irrigation not to exceed one cubic foot of water per second for each seventy acres of land for which the appropriation is herein determined and established; except when there is surplus water available under provisions of Sections 41-4-317 thru 41-4-325, W.S. 1977, and where there is excess water available under provisions of Sections 41-4-329 thru 41-4-331, W.S. 1985.

IN TESTIMONY WHEREOF, I, GORDON W. FASSETT, President of the State Board of Control, have hereunto set my hand this 10th day of January, A.D. 19 91, and caused the seal of said Board to be hereunto affixed.

Attest: Francis Adams Ex-officio Secretary

Gordon W. Fassett President.

Revised 2-87

RAMACO

Brook Mine

July 2015

Addendum DT1-4-150

TFN 6 2/025
RECD JUL 30, 2015

DEQ 11-308

COPY

A M E N D E D

THE STATE OF WYOMING
Certificate of Appropriation of Water

Proof No. 8966
Certificate Record No. 77, Page 290
Water Division No. 2, District No. 5

WHEREAS, Padlock Ranch Company (successor to H. H. Williams, original appropriator) has presented to the Board of Control of the State of Wyoming proof of the appropriation of water from Slater Creek, tributary Tongue River, tributary Yellowstone River through the Hart Bros. Ditch (as changed in part to the Williams Ditch) under Permit No. 1317; ---------- for irrigation of lands herein described, lying and being in Sheridan County, Wyoming.

NOW KNOW YE, That the State of Board of Control, under the provisions of the Statutes of Wyoming, has, by an order duly made on February 13, 1990 and entered on January 10, 1991, in Order Record 36 Page 385, determined and established the priority and amount of such appropriation as follows: Name and Address of Appropriator(s) Padlock Ranch Company, Ranchester, Wyoming 82839; Priority June 15, 1896; Amount of Appropriation -----0.91----- cu. ft. per sec.; Total Acreage Sixty-four (64.0) Acres; Head Gate Hart Bros.-NW¼NE¼ Sec. 3-57-85; Williams-SE¼SW¼ Sec. 34-58-85

DESCRIPTION OF LAND TO BE IRRIGATED AND FOR WHICH THIS APPROPRIATION IS DETERMINED AND ESTABLISHED

TWP.	RANGE	SEC.	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
			Lands irrigated through the Hart Brothers Ditch:																
57N	85W	3		L.2 7.0	4.0	9.0									3.0		Subtotal		23.0
			Lands changed to the Williams Ditch, Permit No. 8710:																
57N	85W	2										9.0	13.0						22.0
57N	85W	3				4.0									15.0				19.0
																	Subtotal		41.0
																	GRAND TOTAL		64.0

THIS AMENDED CERTIFICATE IS ISSUED IN LIEU OF THE ORIGINAL CERTIFICATE OF APPROPRIATION OF RECORD IN CERTIFICATE RECORD 27, PAGE 267, AND AMENDS THE ORDER OF ADJUDICATION OF RECORD IN ORDER RECORD 4, PAGE 114; PROOF NO. 8966.

The right to water hereby confirmed and established is limited to irrigation ---------- and the use is restricted to the place where acquired and to the purpose for which acquired: rights for irrigation not to exceed one cubic foot of water per second for each seventy acres of land for which the appropriation is herein determined and established; except when there is surplus water available under provisions of Sections 41-4-317 thru 41-4-325, W.S. 1977, and where there is excess water available under provisions of Sections 41-4-329 thru 41-4-331, W.S. 1985.

IN TESTIMONY WHEREOF, I, GORDON W. FASSETT, President of the State Board of Control, have hereunto set my hand this 10th day of January, A.D. 19 91, and caused the seal of said Board to be hereunto affixed.

Attest: Nancie Adams Ex-officio Secretary

Gordon W. Fassett President.

Revised 2-87

RAMACO

Brook Mine

July 2015

Addendum DTT-151

TFN 6 2/025

RECD JUL 30, 2015

DEQ 11-309

Print

PERMIT SUMMARY

Instrument: FIRST PERMIT ON A FACILITY FOR A DITCH, PIPELINE OR PUMP

Facility Name :	HART BROTHERS DITCHES (CHANGEDIN PART TO	Water Right Status :	FULLY ADJUDICATED
Application Number :		Date Accepted for Processing :	
Temporary File Number :		Priority Date :	06/15/1896
Permit Number :	P1317.0D	Division : 2	District : 5
Proof Number :		SC Original Expiration Date :	11/15/1899
Docket Number :		SC Extended Expiration Date :	
Order Number :		SC Actual Date :	
Certificate Record Number :		BU Original Expiration Date :	12/31/1897
Auto Cancellation Date :		BU Extended Expiration Date :	
Extended Auto Cancellation Date :		BU Actual Date :	
Last Modified By :		Last Modified Date :	01/01/1800
Created By :			

General Info

Type Of Diversion:	Stream
Supply Type:	Original Supply
Special Cases:	

Prefix	Water Right Number	Suffix

Appropriator(s)

Appropriator	Last Name	First Name	Company	City	State
Applicant	HART BROTHERS			Ranchester	Wyoming

Agent

Top

Beneficial Uses

Beneficial Uses:	

TFN 6 2/025
RECD JUL 30, 2015

	Irrigation-- Surface water

Top

Water Right POD

Principal Meridian	Township	Range	Section	Quarter	Qtr-Qtr	SurveyType	Number	Primary POD
06	057N	085W	03	NE	NWNE	Aliquot Parts	2	Y
06	058N	085W	34	SW	SESW	Aliquot Parts	12	N

Stream Source

Source	Tributary Of	Tributaty Of	Tributary Of	WR Number Type	WR Number
Slater Creek	Tongue River	Yellowstone River	Missouri River	P	1317

Top

Water Right POU

Principal Meridian	Township	Range	Section	Quarter	Q-Q	WR Status	Acres	Use	Sub Use	Supply Type
06	057N	085W	02	SW	NWSW	OTHER	9.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	02	SW	SWSW	OTHER	13.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	02	SW	SWSW	ELIMINATED	32.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	03	NE	NWNE	ADJUDICATED	7.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	03	NE	SENE	OTHER	18.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	03	NE	SENE	ADJUDICATED	9.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	03	NE	SENE	OTHER	4.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	03	NE	SWNE	ADJUDICATED	4.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	03	NE	SWNE	OTHER	16.000	Irrigation-- Surface water		ORIGINAL
06	057N	085W	03	SE	NESE	OTHER	30.000	Irrigation-- Surface water		ORIGINAL

1 2

Supply Type	Acres
Original	195.000

Total acres irrigated : 195.000

Comments

Created Date	Comment Details	Created by
1/1/1800 12:00:00 AM	THIS FACILITY IS MADE UP OF TWO DITCHES. THE WEST DITCH HAVING A POINT OF DIVERSION IN LOT 2 AND THE EAST DITCH HAVING A POINT OF DIVERSION IN THE SENE OF SECTION 3, T57N, R85W. T57N, AND 58N, R85W HAS BEEN DEPENDENTLY RESURVEYED. REQUEST FROM PADLOCK RANCH TO ELIMINATE 67 ACRES AS FOLLOWS: 32 ACRES IN THE SWSW OF SECTION 2 - 30 ACRES IN THE NENW AND 5 ACRES IN THE NWNW OF SECTION 11 ALL IN T57N, R85W, RECEIVED AND GRANTED. REQUEST OF ELIMINATION AND PROOF OF OWNERSHIP FILED IN MISCELLANEOUS NOTICES. ADJUDICATED WITH H.H. WILLIAMS AS APPROPRIATOR. PERMIT RECORD REFLECTS SOURCE AS SLATER CREEK AND WATER STORED IN THE HART BROTHERS RESERVOIR, P60R, XR7825A, HOWEVER CERTIFICATE RECORD REFLECTS .91 CFS FOR THE IRRIGATION OF 64 ACRES. BOC PETITION II 89-4-2 BY PADLOCK RANCH WAS GRANTED TO ISSUE AMENDED CERTIFICATE C77/290A TO REDESCRIBE LANDS WITHOUT CHANGING LAND TOTALS AND TO CHANGE POINT OF DIVERSION FROM THE RECORD POINT IN THE NWNE AND SENE OF SECTION 3, 57N, R85W AND PARTIAL MEANS OF CONVEYANCE FOR 41 ACRES (.59 CFS) TO THE WILLIAMS DITCH, P8710D, C77/289A DIVERTING WATER FROM SLATER CREEK IN THE SESW OF SECTION 34, T58N, R85W AS RECORDED IN ORDER RECORD BOOK 36, PAGES 385-390 AND RECEIVED ON CD3/578A. THIS LEAVES 23 ACRES STILL IRRIGATED UNDER THIS PERMIT. LANDS SHOWN BELOW AS	MIGRATED

TFN 6 2/025
RECD JUL 30, 2015

	"AME" AND "ELI" ARE THOSE ORIGINALLY DESCRIBED UNDER THIS DITCH.	
1/1/1800 12:00:00 AM	Remuna AprAmt,AprUnit,Use :0CFSIRR	MIGRATED
1		

Top

Documents

Document Type	Document Name	Document Date	Document Created by	Document Uploaded by	Uploaded Date	View

Micro film (There are more than 5 documents with this document type, but only latest 5 documents are shown.)

Remarks

Appropriation Amount

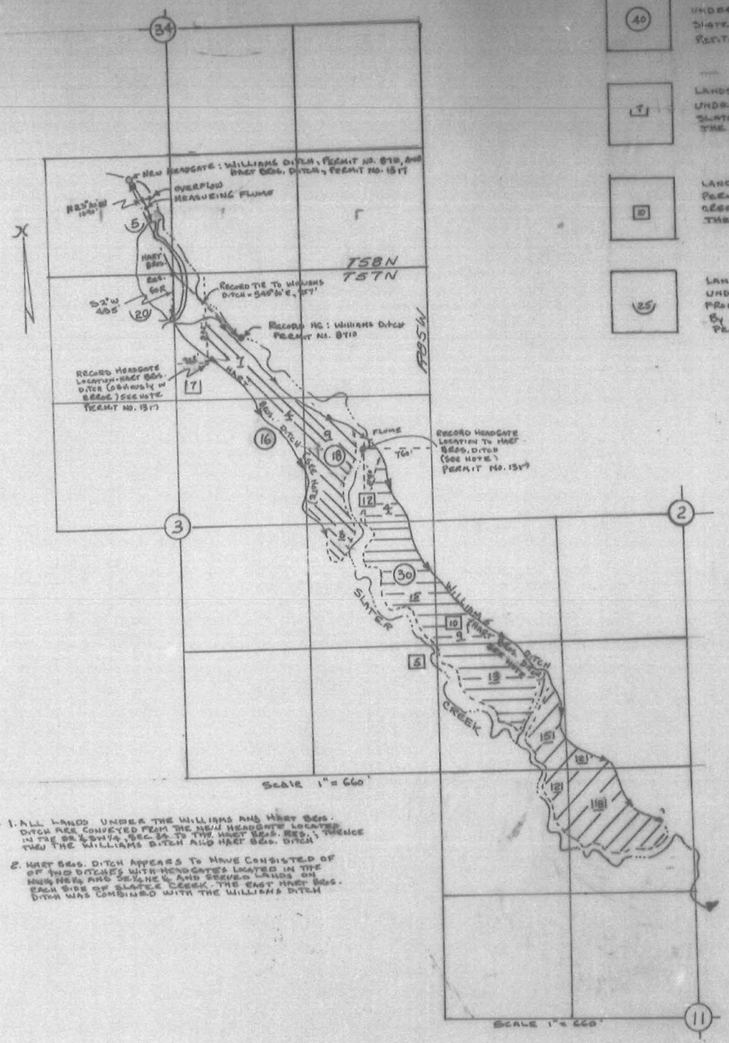
Permitted Amount for Surface Water (Irrigation-- Surface water)	
Permitted Amount:	Total Flow (CFS) =1.870 Total Capacity (AF/Yr) = 0.000 Diversion capacity at the headgate (CFS) =-1.00

Top

Related Transactions

Instrument Type	Instrument Name	Instrument Code	WR Number Type	WR Number

TFN 6 2/025
RECD JUL 30, 2015



NOTE: 1. ALL LANDS UNDER THE WILLIAMS AND HART BROS. DITCH ARE CONVEYED FROM THE NEW HEADGATE LOCATED IN THE SE¼ SW¼, SEC. 34 TO THE HART BROS. RES.; THENCE THRU THE WILLIAMS DITCH AND HART BROS. DITCH

2. HART BROS. DITCH APPEARS TO HAVE CONSISTED OF OF TWO DITCHES WITH HEADGATES LOCATED IN THE NW¼ NE¼ AND SW¼ NE¼ AND SERVED LANDS ON EACH SIDE OF SLATER CREEK. THE EAST HART BROS. DITCH WAS COMBINED WITH THE WILLIAMS DITCH

LEGEND - AS OF RECORD

(40) LANDS COVERED UNDER THE HART BROTHERS D.ITCH; UNDER PERMIT NO. 1311; PRIORITY 6-15-96; FROM SLATER CREEK; 64 ACRES; AFFECTED BY THESE PETITIONS; THE H. H. WILLIAMS APPROPRIATION, PROOF NO. 8966

(7) LANDS COVERED UNDER THE EAST SIDE NO. 2 DITCH; UNDER PERMIT NO. 4077; PRIORITY 7-31-1952; FROM SLATER CREEK; 7 ACRES; NOT AFFECTED BY THESE PETITIONS; THE H. H. WILLIAMS APPROPRIATION, PROOF NO. 7826

(8) LANDS COVERED UNDER THE WILLIAMS DITCH; UNDER PERMIT NO. 8710; PRIORITY 10-23-1908; FROM SLATER CREEK; 27 ACRES; AFFECTED BY THESE PETITIONS; THE NUNZIO GAUTA APPROPRIATION, PROOF NO. 11811

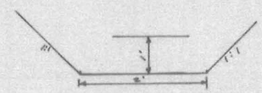
(25) LANDS COVERED UNDER THE WESTSIDE NO. 2 DITCH; UNDER PERMIT NO. 4078; PRIORITY 7-31-1952; FROM SLATER CREEK; 25 ACRES; NOT AFFECTED BY THESE PETITIONS; THE H. H. WILLIAMS APPROPRIATION, PROOF NO. 7827

LEGEND - AS AMENDED

(10) LANDS UNDER THE H. H. WILLIAMS APPROP., PROOF NO. 8966 DIVERTING FROM SLATER CREEK THROUGH THE HART BROS. DITCH, PERMIT NO. 1311, WITH PRIORITY OF JUNE 15, 1896, FOR 23 ACRES, AS AMENDED BY THESE PETITIONS

(10) LANDS UNDER THE NUNZIO GAUTA APPROP., PROOF NO. 11811 DIVERTING FROM SLATER CREEK THROUGH WILLIAMS DITCH, PERMIT NO. 8710, WITH PRIORITY OF OCT. 23, 1908; FOR 27 ACRES, AS AMENDED BY THESE PETITIONS

(10) LANDS UNDER THE H. H. WILLIAMS APPROP., PROOF NO. 8966 DIVERTING FROM SLATER CREEK THROUGH THE HART BROS. DITCH; PERMIT NO. 1311 WITH PRIORITY OF JUNE 15, 1896, FOR 41 ACRES, AS AMENDED AND CHANGED TO WILLIAMS DITCH BY THESE PETITIONS



CROSS-SECTION WILLIAMS DITCH

S = 0.0015 — V = 0.62
n = 0.035 — A = 3.0
V = 1.89 FT/SEC. — Q = 9.17 C.F.S.

NOTE: HART BROS. DITCH SECTION SIMILIAR. BOTH DITCH CAPACITIES ARE LARGER THEN THEIR APPROPRIATIONS

CERTIFICATE OF SURVEYOR

STATE OF WYOMING }
COUNTY OF SHERIDAN } SS

I, WALTER J. PILCH, OF SHERIDAN, WYOMING HEREBY CERTIFY THAT THIS MAP WAS MADE FROM RECORDS FROM THE STATE ENGINEERS OFFICE, AERIAL PHOTOS AND JUNE 26, 1989 FIELD OBSERVATIONS AND THAT IT CORRECTLY DESCRIBES THE IRRIGATION WORKS AS FAR AS THIS PETITION IS CONCERNED

Walter J. Pilch
P.E. & L.S. NO. 557

PETITION GRANTED: FEBRUARY 15, 1990

Thomas A. Davis
EX-OFFICIO SECRETARY
STATE BOARD OF CONTROL

WALTER J. PILCH 557 REGISTERED ENGINEER (CIVIL) & LAND SURVEYOR WYOMING

MAP
TO ACCOMPANY
PETITIONS TO THE STATE BOARD OF CONTROL FOR FOR CHANGE OF POINT OF DIVERSION AND PARTIAL MEANS OF CONVEYANCE AND AN AMENDED CERTIFICATE OF APPROPRIATION FOR THE HART BROS. DITCH, FOR THE H. H. WILLIAMS APPROPRIATION, DIVERTING FROM SLATER CREEK; T.R.B. OF TUNGUS RIVER UNDER PERMIT NO. 1311, WITH PRIORITY OF JUNE 15, 1896; PARTIALLY CHANGED TO THE WILLIAMS DITCH

AND FOR CHANGE OF POINT OF DIVERSION AND AN AMENDED CERTIFICATE OF APPROPRIATION FOR THE WILLIAMS DITCH, FOR THE NUNZIO GAUTA APPROPRIATION, DIVERTING FROM SLATER CREEK; T.R.B. OF TUNGUS RIVER UNDER PERMIT NO. 8710, WITH PRIORITY OF OCTOBER 23, 1908

PETITIONER
PRODUCK RANCH CO. — RANCHESTER, WYOMING

THIS PRINT MAY NOT BE TRUE TO SCALE

E-7; page 50 AUG 1991

TFN 6 2/025

RECD JUL 30, 2015