



PETERSEN HYDROLOGIC

11 July 2016

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Manager of Geology and Exploration
PacifiCorp – Interwest Mining Company
15 North Main Street
Huntington, Utah 84528

Chuck,

At your request, we have evaluated hydrologic conditions along PacifiCorp's proposed Deer Creek pipeline location from the Deer Creek Mine 1st Right portals in Rilda Canyon to the Huntington Power Plant near the mouth of Huntington Canyon in Emery County, Utah (Figure 1). My findings in this regard are summarized in this letter report.

Introduction

PacifiCorp proposes to construct a buried pipeline to convey mine water from the closed Deer Creek Mine to the PacifiCorp Huntington Power Plant near Huntington, Utah (Figure 1). The pipeline corridor is situated almost entirely within the Emery County Road 306 and Utah State Highway 31 right-of-way corridors. The water from the pipeline will flow into an existing water storage pond at the power plant facility and subsequently be utilized for operational purposes at the power plant. The purpose of this investigation is to evaluate the hydrologic conditions along the proposed pipeline route as they relate to the proposed Deer Creek Pipeline project.

Methods of Study

- On 22 June 2016 we visited the proposed Deer Creek pipeline location together with personnel from PacifiCorp. As part of the site visit we traversed the entire length of the proposed corridor by vehicle (almost all of the proposed pipeline location is within the existing road right-of-way). During this visit we were also provided information regarding the proposed pipeline construction plans. Additionally, during the performance of numerous hydrologic investigations over the past 25 years in Huntington Canyon, we have become familiar with the groundwater and surface-water hydrology of the Huntington Canyon drainage.
- On 22 June 2016 the length of the proposed pipeline route was photographed by PacifiCorp personnel. The photographs, maps and other documents relating to the proposed Deer Creek Pipeline were provided to Petersen Hydrologic, LLC by PacifiCorp for use in this analysis. Aerial imagery was also obtained and utilized as part of this investigation.
- Information on municipal watersheds, drinking water source areas, impaired stream segments, and TMDL studies were obtained from the Utah Department of Environmental Quality, Division of Water Quality, and Division of Drinking Water.

Pipeline Location

The proposed Deer Creek pipeline route runs from the Deer Creek Mine 1st Right portals in Rilda Canyon in Section 28, Township 16, South, Range 7 East, extending along Emery County Road 306 down Rilda Canyon to State Highway 31 in Huntington Canyon. The proposed pipeline route continues along Highway 31 down Huntington Canyon to a water storage pond at the Huntington Power Plant in Section 36, Township 16 South, Range 7 East (Figure 1).

The proposed pipeline will consist of a nominal 8-inch or 10-inch HDPE pipe that will be buried to a minimum depth of approximately 5 feet. Best management practices will be employed during the pipeline construction to minimize the potential for impacts to the surrounding environment. The proposed pipeline route exists almost entirely within the existing right-of-way corridors for Emery County Road 306 (in Rilda Canyon) and Utah State Highway 31 (in Huntington Canyon).

Areas where the pipeline will be located outside of the right-of-way for these roads include the Deer Creek Mine 1st Right Portals area (within the existing Deer Creek Mine disturbed area boundary), small areas at the two Huntington Creek stream crossings, and where the pipeline traverses PacifiCorp Power Plant property to the pipeline terminus at the water storage pond (Figure 1).

The proposed pipeline location crosses Huntington Creek in two locations (Figure 1). These crossings will be made at both locations by suspending the pipeline beneath existing above-ground structures and thus the stream channel and flood plains beneath the suspended pipeline will not be disturbed. The planned crossing of Bear Creek by the pipeline (Figure 1) will be accomplished by boring beneath the stream channel such that disturbance to the Bear Creek stream channel and its associated riparian vegetation will be minimal to nonexistent (personal communication, Chuck Semborski, 2016).

In some areas where the available construction space is limited, the pipeline will be installed beneath the existing roadway surface to minimize the potential for impacts to adjacent resources. It should also be noted that other buried pipelines are already present within the right-of-way corridor in which the proposed Deer Creek Pipeline is planned to be emplaced, including pipelines owned by NEWUSSD and XTO.

A SWPPP plan will be in place during construction that will include the necessary erosion controls to prevent sediment transport from the project area. Additionally, a Spill

Prevention and Response Plan will be included as part of the SWPP to reduce the risk of pollution.

Hydrology

The proposed pipeline location is situated entirely within the Huntington Creek surface-water drainage. Huntington Creek is part of the San Rafael River drainage, which is tributary to the Colorado River.

The pipeline location runs adjacent to Rilda Canyon Creek in its upper extent, and along Huntington Creek in its lower extent (Figure 1). The proposed pipeline location, being within the right-of-way of the roads, does not extend laterally or downward into areas near the adjacent creeks that, in addition to flowing surface water, could potentially contain alluvial groundwaters, springs, and riparian vegetation and habitats (i.e. plant habitats and communities along the river margins and banks associated with surface waters in the creeks or related alluvial groundwater systems).

Based on field observations of geologic and hydrogeologic conditions and the planned depth of burial of the pipeline, it is anticipated that in most or all areas, the underground pipeline will be installed in ground that is likely above the local water table.

Vegetation

The proposed pipeline location is within the existing road right-of-way for Emery County Road 306 and Utah State Highway 31. While riparian vegetation was observed in many locations along both Rilda Canyon Creek and Huntington Creek adjacent to the proposed pipeline location, no appreciable riparian vegetation was observed anywhere within the proposed pipeline route during the 22 June 2016 survey. Thus, no direct impacts to riparian vegetation or related ecosystems within the proposed pipeline corridor are anticipated. The use of best management practices during construction will minimize the potential for off-site impacts to adjacent resources.

In the two locations where the pipeline crosses Huntington Creek (Figure 1), the pipeline will be suspended beneath existing above-ground structures and, consequently, there will be no disturbance to the stream channel or associated flood plains or ecosystem at these crossing locations. Similarly, where the proposed pipeline location crosses Bear Creek, no disturbance of the stream channel and associated vegetation is anticipated because the crossing will be accomplished by boring beneath the stream channel without disturbing the land surface.

Wetlands

It is beyond the scope of this investigation to delineate wetlands in the areas adjacent to the proposed pipeline location. However, it is probable that wetlands are present in both the Rilda Canyon Creek and Huntington Creek stream channels in the project area. However, during the 22 June 2016 reconnaissance survey of the proposed Deer Creek Pipeline route, no areas were identified within the proposed pipeline route that had hydrology characteristics consistent with wetland identification. Additionally, although vegetation types were not identified as part of this investigation, no appreciable quantities of vegetation that appeared to have wetland characteristics were observed within the proposed pipeline route. Consequently, the potential for impacts to wetlands as a result of the installation and presence of the proposed pipeline is considered minimal.

The pipeline construction activities will occur within the road right-of-way areas and thus direct impacts to any wetlands that may be potentially present in adjacent areas outside the right-of-way are not anticipated. The use of best management practices during construction will minimize the potential for off-site impacts to adjacent resources.

Floodplains or flood-prone areas

The proposed Deer Creek Pipeline route, being situated within the right-of-way for the roadways, will be situated outside of the active flood plains in both the Rilda Canyon and Huntington Canyon areas.

While the proposed Deer Creek pipeline route is outside of the active flood plains in both Rilda and Huntington Canyons, intense flooding does periodically occur in the canyon. Notably, as a likely result of a particularly large wild fire that occurred in 2012, Huntington Creek subsequently experienced several large, destructive flash flooding events that caused extensive erosion along the stream channel and in some locations damage to State Highway 31. As a result of the flooding events in the canyon, a mitigation project consisting of the construction of a flood control dam/debris basin just below the U.S. Forest Service boundary was recently completed to minimize damage from potential future flooding events.

Municipal supply watersheds and drinking water source areas

The Huntington Canyon drainage is a municipal supply watershed. Additionally, drinking water source areas are present within the drainage. Protection areas in the vicinity of the Deer Creek Pipeline location include the North Emery Water Users Special Service District (NEWUSSD) spring collection system in Rilda Canyon near the Deer Creek Mine Rilda Canyon Portals, and Birch Spring, which is a bedrock spring owned by the Huntington Cleveland Irrigation Company, which is located just north of Highway 31 in Section 26, Township 16, South, Range 7 East (Figure 1). Both of these spring areas provide drinking water for adjacent municipalities and have drinking water source protection plans on file with the Utah Division of Drinking Water. Three additional springs managed by NEWUSSD (located west of Highway 31 in the area) include Lower (south) Spring, Middle Spring, and Upper (north) Spring.

Impacts to the groundwater systems that provide water to these springs are not anticipated as a result of the proposed Deer Creek Pipeline construction.

The proposed pipeline will consist of a nominal 8-inch or 10-inch HDPE pipe that will be buried to a minimum depth of approximately 5 feet. Best management practices will be employed during the pipeline construction to minimize the potential for impacts to the

surrounding environment. It is anticipated that disturbance to the surrounding areas will be minimal.

The relatively shallow depth of excavation for the proposed pipeline construction in Rilda Canyon adjacent to the NEWUSSD spring collection system will likely result in the pipeline being above the water level of the adjacent groundwater system that feeds the springs (the roadway in the vicinity of the spring collection system is elevated relative to the adjacent lower-lying stream alluvium areas). Thus, the presence of the pipeline, being above the local water table, should not impact the quality or quantity of water present in the groundwater system that sustains the NEWUSSD springs.

Groundwater flowing to Birch Spring emanates from a series of fractures in the Star Point Sandstone bedrock. The spring collection system at Birch Spring is topographically above the elevation of the adjacent Highway 31 right-of-way. Additionally, it is apparent upon inspection of the bedrock fractures that the water flowing to Birch Spring most likely comes from the north (opposite the location of the proposed Deer Creek Pipeline). For these reasons, it is considered very unlikely that the construction and existence of the proposed pipeline in the Highway 31 right-of-way will impact water quantity or water quality at Birch Spring.

Extraordinary circumstances

The proposed construction on the Deer Creek Pipeline, which will be performed using the best management practices, is not anticipated to have any significant impact on wetlands, flood plains, or municipal supply watersheds. No extraordinary circumstances are considered likely as a result of this proposed action.

Water quality limited stream segments and TMDL's

Information obtained from the Utah Department of Environmental Quality (DEQ), Division of Water Quality indicates that Huntington Creek and its tributaries (Huntington

Creek assessment areas 2 and 3 which include portions of the Deer Creek Pipeline area) are currently listed as impaired with respect to temperature, pH, and dissolved oxygen by the Utah DEQ (personal communication, Carl Adams, 2016). The cause for these conditions is likely related in part to the effects of a recent large wild fire in the upper portions of Huntington Canyon that significantly impacted the surface-water system in the canyon. Additionally, a TMDL for total dissolved solids (TDS) concentrations has been approved in the Huntington Creek drainage.

It is considered unlikely that the Deer Creek Pipeline construction activities, which will be limited to the burial of an HDPE pipe at relatively shallow (~ 5 foot) depths within the existing road right-of-way, will adversely affect important water quality parameters in the Huntington Creek drainage (including temperature, pH, dissolved oxygen, or TDS concentrations). The use of best management practices during construction will minimize the potential for off-site impacts to adjacent surface-water resources.

E.O. 11988

In compliance with E.O. 11988, no occupancy or modification of flood plains is proposed as part of the proposed Deer Creek Pipeline. Therefore, long-term or short-term adverse impacts are not anticipated.

E.O. 11990

In compliance with E.O. 11990, activities that would result in the destruction or modification of wetlands are not proposed for the construction of the proposed Deer Creek Pipeline. No new construction within wetlands is proposed. Accordingly, long- or short-term impacts to wetlands are not anticipated as part of the proposed action.

Clean Water Act

| The proposed activities are in compliance with the Clean Water Act.

Safe Drinking Water Act

The proposed activities are in compliance with the Safe Drinking Water Act

Forest Plan Management Direction

The proposed activities are in accordance with the Forest Plan Management Direction.

Utah Anti-degradation policy (R317-2-3)

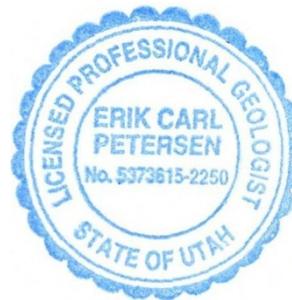
The proposed activities are in compliance with the Utah Anti-degradation policy (R317-2-3).

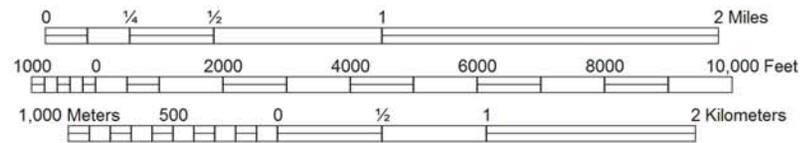
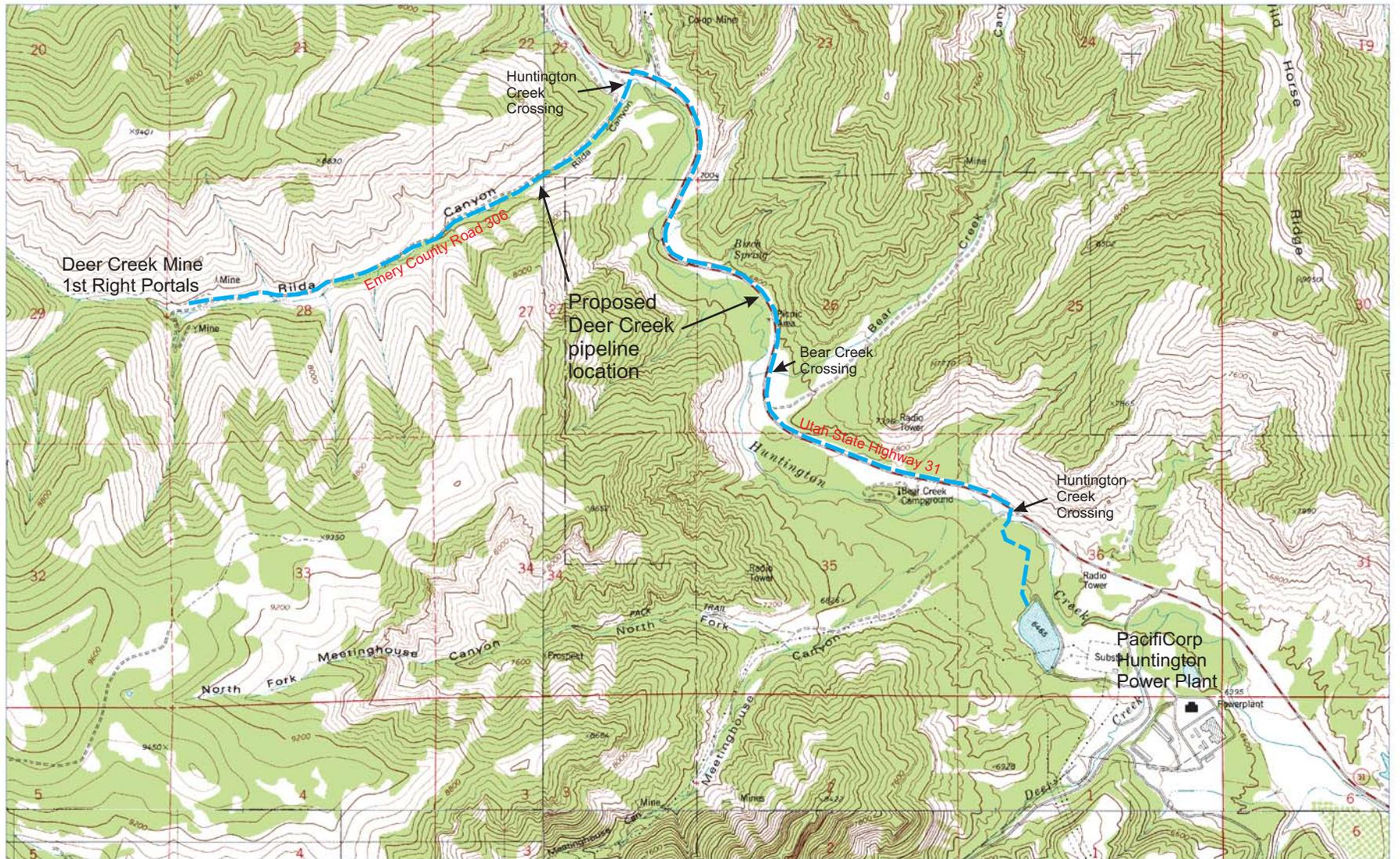
Please feel free to contact me should you have any questions in this regard.

Sincerely,



Erik C. Petersen, P.G.
Principal Hydrogeologist
Utah PG #5373615-2250





 Proposed Deer Creek pipeline location (approximate)

Figure 1 Location of the proposed Deer Creek pipeline.