INTERWEST MINING COMPANY
A SUBSIDIARY OF PACIFICORP

Interwest Mining Company
Huntington Office
P. O. Box 310
15 North Main Street
Huntington, UT 84528

#5967

August 5, 2019

Utah Coal Program
Utah Division of Oil, Gas, and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Subj: Clean Copies of Amendment to Remove Commitment for Aquatic Species Monitoring in Rilda Canyon, Deer Creek Mine, C/015/0018, Emery County Utah.

PacifiCorp, by and through its wholly-owned subsidiary, Interwest Mining Company, as mine manager, hereby submits clean copies of the conditionally approved amendment to the Deer Creek Mine permit that ends the commitment for macroinvertebrate and fish surveys and reports for the Rilda Canyon drainage.

The commitment to survey aquatic species on a periodic basis was cited in the Deer Creek permit in the following section:

- **Deer Creek Mine MRP, Volume 11, R645-301-300 Biology, Page 25**

A copy of the C-2 form is included indicating the location of the section to be replaced.

If you have any questions or concerns regarding this notification, please contact myself at 435-687-4712 or Dennis Oakley at 435-687-4825.

Sincerely,

Kenneth S. Fleck

Kenneth Fleck
Geology and Environmental Affairs Manager

Cc: Chuck Semborski, IMC
Dennis Oakley, IMC
Scott Child, IMC
file

RECEIVED
AUG 09 2019
DIV OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: PacifiCorp

Mine: Deer Creek Mine **Permit Number:** C/015/0018

Title: Amendment to Remove Commitment for Aquatic Species Monitoring in Rilda Canyon, PacifiCorp, Deer Creek Mine, C/015/0018, Emery County, Utah

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

Add	Replace	Remove	DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐	☒	☐	Volume 11, R645-301-300, Biology, Replace Entire Text Section
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	
☐	☐	☐	

Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	Received by Oil, Gas & Mining
	RECEIVED AUG 09 2019 DIV OF OIL, GAS & MINING

Deer Creek Mine MRP, Volume 11, R645-301-300 Biology

Replace Entire Text Section

RECEIVED
AUG 09 2019
DIV OF OIL, GAS & MINING

R645-301-300 BIOLOGY SECTION

TABLE OF CONTENTS

MAPS

FIGURES

TABLES

APPENDICES (Refer to Volume 11 Appendix Volume - Biology)

Appendix A. NORTH RILDA CANYON PORTAL FACILITIES AREA VEGETATION SURVEY, 2004, MT. NEBO SCIENTIFIC, INC.

Appendix B. VEGETATION PRODUCTIVITY ESTIMATES LETTER, 10/26/04,NATURAL RESOURCES CONSERVATION SERVICE.

Appendix C. COUNTY LISTS OF UTAH'S FEDERALLY LISTED THREATENED, ENDANGERED AND CANDIDATE SPECIES, 5/21/04, UTAH DIVISION OF WILDLIFE RESOURCES.

Appendix D. PRELIMINARY REPORT ON SURVEYS CONDUCTED TO DETERMINE POTENTIAL IMPACTS OF RILDA SURFACE FACILITY DEVELOPMENT IN RILDA CANYON DURING 2004, JULY 2004, BY THE UTAH DEPARTMENT OF NATURAL RESOURCES.

FISH AND MACROINVERTEBRATE SURVEY AT RILDA CREEK, EMERY, UTAH, FALL 2004, PRELIMINARY REPORT, CIRRUS ECOLOGICAL SOLUTIONS, L.C., NOVEMBER 4, 2004.

Appendix E. 2004 VENTILATION FAN SOUND SURVEY.

Appendix F. HABITAT SUITABILITY DETERMINATION REPORT, 10/5/04, EIS ENVIRONMENTAL & ENGINEERING CONSULTING.

Appendix G. AN EVALUATION OF BAT HABITAT: RILDA CANYON, EMERY COUNTY, UTAH, JOEL M. AND GABRIELLE F. DIAMOND, OCTOBER 2004.

Appendix H. GUIDELINES FOR MANAGING BIRDS ON POWERLINES, PACIFICORP, EFFECTIVE DATE: 2/15/99.

R645-301-310 INTRODUCTION

A portion of the following vegetative, fish, and wildlife resource information has been taken from the Data Adequacy document (Data Adequacy L.B.A No. 11, December 1996) and the Environmental Assessment (Mill Fork Federal Coal Lease Tract UTU-71307, Environmental Assessement document, Lease By Application, No. 11) reported by the Manti LaSal National Forest in June, 1997.

R645-301-320 ENVIRONMENTAL DESCRIPTIONS

The following sections of this application contain descriptions, information, and plans to protect the biological, aquatic, and wildlife resources within and in the vicinity of Rilda Canyon.

R645-301-321 Vegetation Information

The North Rilda area is located within an east-west trending canyon that is very steep and narrow with rounded narrow ridge tops. Contour elevations range from approximately 7,400 feet to over 9,600 feet. Vegetative cover and species composition within this elevation range is very diversified. Ecosystems within this portion of East Mountain contain various habitats that are mostly influenced by the steep and broken slopes and their orientations. Distinguishable plant communities within the area are: Pinyon/Juniper, Mountain Brush, Mixed Conifer (upper elevations), Sagebrush/Grass and Riparian. A very narrow band of Riparian community is considered to follow along the stream to the Rilda Canyon Springs. Refer to Map 300-1 of this section for the diverse vegetative communities. Note that Map 300-1 is a vast area map. For more vegetative community details related to the Rilda Canyon North Facilities refer to Volume 11 Appendix Volume - Biology: Appendix A.

Vegetation studies have been conducted within the Deer Creek Mine permit area. The vegetation mapping that was previously conducted for the mine area includes the North Rilda Area, (formerly called the "Future Permit Area" [Volume 4, Map 2-14]). Vegetation studies were conducted for the North Rilda permit area by Mt. Nebo Scientific, 2003 and 2004 (refer to Volume 11 Appendix Volume - Biology: Appendix A), and J.R. Barker in 1982 (refer to Volume 3, Appendix II of the MRP). Quantitative and qualitative data of the major plant communities provided in the 1982 study are also relevant to the North Rilda Area.

Mr. Rick Collins, Mt. Nebo Scientific, identified different vegetation communities in the Rilda Canyon Portal Facilities area and designated reference areas for each community. Of the identified reference areas, only the Sagebrush/Grass (undisturbed), Pinyon Juniper/Mountain Brush (undisturbed), and White Fir/Aspen reference areas have been established. A reference area for the pre-disturbed area (AMR/AML) was identified by Mt. Nebo Scientific; this area is used for topsoil storage to minimize the footprint and to keep all disturbances within the permit boundary. The pre-disturbed areas (AMR/AML) will be seeded with Pinyon-Juniper/Mountain Brush seedmix at final reclamation and be held to the undisturbed reference

area standards for reclamation. Map 300-2 of this section, depicts the location of each reference area.

The most dominant plant community in the facilities area is the Pinyon /Juniper/Mountain Brush Transition. The prominent species identified in this area are: Utah Juniper (*Juniperus osteosperma*), Rocky Mountain Juniper (*Juniperus scopulorum*), Pinyon Pine (*Pinus edulis*), Curlleaf Mountain Mahogany (*Cercocarpus ledifolius*), Ponderosa Pine (*Pinus ponderosa*), Big Sage (*Artemisia tridentata*), Salina Wildrye (*Elymus salina*), Indian Rice Grass (*Oryzopsis hymenoides*), Cutler ephedra (*Ephedra cutleri*), corymbed eriogonum (*Eriogonum corymbosum*), and bluebunch wheatgrass (*Elymus spicatus*).

The Mixed Conifer community, identified in Collin's report (refer to Volme 11 Appendix Volume - Biology: Appendix A) as Douglas Fir/White Fir and White Fir/Aspen communities, are found in the upper elevations of the canyon. The most common plant species of the Mixed Conifer community are: White Fir (Abies concolor), Quaking Aspen (Populus tremuloides, Douglas fir (*Pseudotsuga menziesii*), Saskatoon serviceberry (*Amalanchier alnifolia*), corymbed eriogonum (*Eriogonum corymbosum*) and bluebunch wheatgrass (*Elymus spicatus*).

Plant communities that were impacted the construction of the portal facilities in North Rilda Canyon were quantitatively sampled. Additionally, similar communities chosen outside the disturbed areas were also sampled to determine appropriate reference areas for the disturbed communities (refer to Volume 11 Appendix Volume - Biology: Appendix B). The Similarity Index (SI) of the disturbed vegetation compared to the reference areas was determined using the Motyka's version of the Sorensen's index (Chambers, Jeanne C., Brown, Ray W., Methods for Vegetation Sampling and Analysis on Revegetated Mined Lands, Report INT-151, United States Department of Agriculture, Forest Service, October 1983):

$$SI = \frac{2\,MW}{MA + MB}$$

Where:

MW = Sum of the smaller importance values of the species or life-forms common to both areas.
MA = The sum of the importance values of all species or life-forms in one area.
MB = The sum of the importance values of all species or life-forms in the other area.

The SI results for the three plant communities are:

White fir/Aspen:	93.5
Pinyon-Juniper/Mountain Brush:	70.3
Sagebrush/Grass:	83.9

UDOGM recommends an SI of at least 70 to show an acceptable comparison between the proposed disturbed and reference area vegetation.

Threatened, Endangered and Sensitive Plant Species

Threatened, endangered, and sensitive plant species of interest in Emery County (2004 review) include *Astragalus monti* (Heliotrope milkvetch), *Hedysarum occidentale var. canone* (Western sweetvetch), *Silene petersonii* (Plateau catchfly), and *Aquilegia flavescens* (Yellow columbine). Populations of these species have been found to inhabit the upper areas near the Rilda Canyon Portal Facilities area. Other listed species of concern include *Cycladenia humilis var. jonesii* (Jones Cycladenia), *Erigeron maguirei* (Maguire Daisy), *Townsendia aprica* Last Chance Townsendia), *Schoenocrambe barnebyi* (Barneby Reed-mustard), *Pediocactus dispainii* (San Rafael Cactus), *Pediocactus winkleri* Winkler Pincushion Cactus), *and Sclerocactus wrightiae* (Wright Fishhook Cactus).

Mr. Rick Collins (Mt. Nebo Scientific) conducted an in-depth vegetation analysis of the area related to the Rilda Canyon Facilities, As stated in his report, "There was a potential of the following plants to be present in the study areas: canyon sweetvetch (*Hedysarum occidentale* var. *canone*) and Link Canyon Trail columbine (*Aquilegia flavescens* var. *rubicunda*). These plants have been listed as "sensitive" in the Manti-La Sal National Forest by the USDA Forest Service. These plants, nor their ideal habitats, were not found during the plant surveys". In the 2003 study Collins states, "No threatened, endangered, rare or otherwise sensitive plants were observed within the study areas during the course of the field sampling and surveys" (refer to Volume 11 Appendix Volume - Biology: Appendix A.).

Vegetation productivity analysis was conducted by M. Dean Stacy and Jim Brown of the Natural Resources Conservation Service (NRCS) in October 2004 (refer to Volume 11 Appendix Volume - Biology: Appendix B). The NRCS condition rating is 3 levels (Good, Fair, Poor), with sub-ratings of high and low. Though precipitation totals for the year were slightly below normal (85% of normal, based on East Mountain Weather Station data), the conditions of the reference areas were in the mid range (fair) condition. Productivity values for the communities to be impacted by the facilities are in the report.

R645-301-322 Fish and Wildlife Information

The Rilda Canyon Portal Facilities are all inclusive within the Rilda Canyon drainage, a tributary to Huntington Creek. Water resources within Rilda Canyon provide habitat for a variety of big and small game animals, non-game animals and birds. A complete listing of all theatened and endangered wildlife species that have the potential to be present near and/or within the North Rilda Canyon can be found in the County lists of Utah's Federally Listed Species (UDWR, 8/14/02, at http://www.dwrcdc.nr.utah.gov/ucdc/). Refer to Volume 11 Appendix Volume - Biology: Appendix C for the 5/21/2004 list, by county. A complete listing of all wildlife species that have the potential to be present near and/or within the Rilda Canyon can be found at this same internet address.

The following wildlife information tables includes Threatened and Endangered Species, Sensitive Species, Management Indicator Species, and Priority Migratory Bird Species, listed in Emery County, Utah, and may be present in the Rilda Canyon facilities area. Most data from these tables came from "Wildlife Resources Report for the SITLA - Access on East Mountain Project", Re-revised July 2004, by the Ferron/Price Ranger District, Manti La-Sal National Forest.

Table 300-1: Emery County, Utah Threatened and Endangered Species (Wildlife and Fish) (2004 List)

Species	Species Status	Species Habitat Association	Rilda Habitat Information
Bald Eagle *Haliacetus*	Threatened	Habitat not considered in this area.	May occur incidentally but no nesting is known in the area.
Mexican Spotted Owl *Strix ocidentalis lucida*	Threatened	In Utah, the Mexican spotted owl nests in steep-walled, complex rock canyons at relatively low elevations with mixed conifer stands. Canyons are generally at least 2 kilometers long and less than 2 kilometers wide.	This habitat is in Rilda Canyon, but the elevation is marginal and the canyon does not meet the 2 X 2 rule. The steep-walled outcrops are south facing with conifer habitat generally on the north facing slopes.

Table 300-1: Emery County, Utah Threatened and Endangered Species (Cont.)			
Species	**Species**	**Species**	**Species**
Black-footed Ferret *Mustela negripes*	Endangered	Depends of prairie dog colonies for food. Grass vegetation is normally associated with this habitat.	Prairie dog colonies have not been observed in the facilities area. Sagebrush/Grass vegetation communities are minimal and mostly at lower elevations.
Canada Lynx *Lynx canadensis*	Threatened	Coniferous forests that have cold, snowy winters. Generally not sufficient large tracts of suitable habit	This habitat does exist in Rilda Canyon, but the large suitable habitat is generally not sufficient.
Southwestern Willow Flycatcher *Empidonax trailii extimus*	Endangered	Riparian habitat, nesting in area with high shrub densities interspersed with openings or meadows.	Riparian habitat is present in the canyon, but this vegetation community is down canyon of the facilities and very narrow.
Bonytail *Gila elagans*	Endangered	Warm water reaches of larger rivers in the Colorado River Basin.	Prime habitat not found. The Rilda Canyon stream is feed by cold springs that originate near the joining of the Left and Right Forks. The stream has great differences in flow during the Spring and Fall flows.
Humpbacked Chub *Gila cypha*	Endangered	Deep, swift mainstream and large tributaries in relatively inaccessible canyons of the Colorado River Basin.	Prime habitat not found. The stream in the Rilda Canyon is not considered a large tributary, is not deep or swift.
Razerback Sucker *Xyrauchen texanus*	Endangered	Mainly along the mainstreams of the Colorado, Greenand San Juan Rivers.	Prime habitat not found. The nearest known population occurs approximately 50 miles from the project area, in the lower San Rafael River and green River.
Colorado Pikeminnow *Ptychocheilus lucius*	Endangered	Species exists only in the upper Colorado River system. Adults prefer medium to large rivers. Young prefer slow moving backwaters. Food source is usually other fish.	Prime habitat not found. Rilda Canyon's stream is small and adult feed is limited.
Whooping Crane *Grus Americana*	Endangered	Primarily found in wetlands, but pastures and cultivated fields are also habitats.	Prime habitat not found. Some riparian vegetation is found down stream of the mine site, but it is not the wet, open area preferred.

Table 300-2: Sensitive Species (Utah Conservation Data Center and Manti-LaSal Forest) (2004 List)		
Species	**Species Habitat Association**	**Rilda Habitat Information**
Spotted Bat *Euderma maculatum*	Habitat consists of a variety of vegetation types in elevations ranging from 2,500 to 9,500', including riparian, desert shrub, spruce/fir, ponderosa pine, montane forests and meadows.	Habitat in Rilda. Small areas of several of the vegetation communities are present. A bat survey in Rilda Canyon was conducted in October 2004. (Refer to Appendix G)
Townsend's Big-eared Bat *Plecotus townsendii pallescens*	Hibernates in caves and mines. The mixed conifer vegetation communities in the canyon provides suitable habitat for foraging.	Habitat in Rilda. Caves are not found in the area in the area, but the south facing escarpments could be considered habitat. A bat survey in Rilda Canyon was conducted in 2004. (Refer to Appendix G)
Northern Goshawk *Accipiter gentilis*	Mixed Conifer vegetation stands in this elevation.	Habitat in Rilda. Mixed Conifer communities are present in Rilda Canyon, but the stands are on the north facing slopes and away from the facilities' activities.
Three-toed Woodpecker *Picoides tridactylus*	Forests containing spruce, fir, ponderosa pine, tamarack, and lodgepole pine.	Habitat in Rilda. Small, mixed stands of spruce/fir communities are on the north facing slopes. A few ponderosa pines are on the south facing PJ/Mountain Brush communities.
Colorado Cutthroat Trout *Oncorhynchus clarki pleuriticus*	Require cool, clear water in streams with well vegetated banks, which provides cover and bank stability. Deep pools and structures such as boulders and logs provide instream cover.	Habitat in Rilda Canyon. Two fish and invertebrate surveys were conducted during 2004. Flows vary in the stream during the spring and fall. Turbidity increases during spring runoff and summer storm events. (Refer to Appendix D)
Bonneville Cutthroat *Oncorhynchus clarki utah*	Requires a functional stream riparian zone, which provides structure, cover, shade, and bank stability. Found in this habitat ranging from high elevation mountain streams and lakes to low elevation grassland streams.	Habitat in Rilda Canyon. Two fish and invertebrate surveys were conducted during 2004. Species was not identified. (Refer to Appendix D)

Table 300-2: Sensitive Species (Cont.)		
Species	**Species Habitat Association**	**Rilda Habitat Information**
Spotted Frog *Rana luteiventris*	Habitat preference is isolated springs and seeps that have a permanent waster source. Isolated populations exist in the West Desert and along the Wasatch Front.	Habitat in Rilda Canyon
Greater Sage-grouse *Centrocercus urphasianus*	Also known as the Sage-hen and the Sage-chicken. Habitat is sagebrush plains, foothills and mountain valleys. Sagebrush is the predominant plant of quality habitat.	Small sagebrush communities are in Rilda Canyon.
Peregrine Falcon *Falco peregrinus*	The species is distributed very widely, breeding in a variety of habitats.	Rilda Canyon cliffs could be habitat for Peregrine falcon nesting. Annual raptor surveys are conducted in Rilda Canyon.
Flammulated Owl *Otus flammeolus*	Prime habitat is Montane forests, especially ponderosa pine forests. Species is considered widespread in Utah, but breeding occurs primarily in the southwestern and north-central parts of the state.	Habitat in Rilda Canyon. The north facing slopes is mixed conifer community. Some individual Ponderosa pines are present in the bottom of the canyon.

Table 300-3: Other Wildlife Species of Consideration (2004 List)		
Species	**Species Habitat Association**	**Rilda Habitat Information**
Mule Deer *Odocoilus hemionus*	Mixed conifer forest, Pinyon/Juniper/Mountain Brush and sagebrush communities are suitable habitat.	High value winter and critical summer habitat are in Rilda Canyon. Mule Deer are found in the canyon.
Rocky Mountain Elk *Cervus canadensis*	Tend to occupy higher elevation aspen and mixed conifer communities in spring through fall, and move to lower Pinyon/Juniper and sagebrush communities during the winter months.	High value winter, critical summer, and critical winter habitat are in Rilda Canyon. Elk are known to use the area in late spring, summer and fall.
Moose *Alces alces*	Marshy, riparian type communities.	High value winter and critical smmer habitat are in Rilda Canyon. Moose transplants have been seen in canyons near the Rilda Canyon.
Mountain Lion or Cougar *Felis concolor*	Species is fairly common throughout Utah's mountainous areas. Diet is composed of deer, rabbits, rodents and other animals.	Habitat in Rilda Canyon.
Black Bear *Ursus americanus*	Species is common is Utah's large forested areas. Diet is composed of fruits, insects, grubs, some small vertebrates, and carrion.	Habitat in Rilda Canyon.
Wolverine *Gulo gulo*	Prefer alpine tundra and mountain forest habitats. Eats a variety of food, including eggs, roots, carrion and many types of animals.	Habitat in Rilda Canyon.
Golden Eagle *Aquila chrysaetos*	High cliffs are used for nesting. Search for prey in high mountain brush, perennial forb, and high elevations perennial grassland habitat.	One golden eagle nest is known in the canyon. Annual raptor surveys are conducted in the canyon and other areas of East Mountain.
Macroinvertebrates (Aquatic Species)	Stream and riparian habitat	This habitat exists in Rilda Canyon. Two fish and invertebrate studies were conducted in 2004.

Table 300-4: Migratory Birds (2004 List)		
Species	**Species Habitat Association**	**Rilda Habitat Information**
Virginia's Warbler *Vermivora virginae*	Preferred breeding habitat includes chaparral and open stands of pinyon/juniper, ponderosa pine and scrub oak, mountain mahogany thickets on dry mountainsides.	The preferred scrub hillsides, scrub oak, is not present in Rilda Canyon, but small stands of pinyon/juniper and mountain mahogany occur. There have been no known confirmed nesting sites found on the Manti-La Sal National Forest.
Black Rosy-Finch *Leucosticte atrata*	Breeding populations occur as high as 11,000' in Utah. Habitat is crevices or holes in inaccessible vertical cliffs.	High cliff habitats are present in the area. Generally, could only be considered in the area during slight shifts southward, moving south out of Montana and northen Wyoming.
Broad-tailed Hummingbird *Selasphorus platycercus*	Primary breeding habitat is lowland riparian communities, but have also been recorded in aspen, mountain riparian, ponderosa pine, Engelmann spruce, subalpine fir, and Douglas fir. Nesting typically occurs at elevations ranging from 6,000 to 8,000'.	Primary habitat not present in Rilda Canyon. Upper nesting elevation is at the facilities elevation.
Black-throated Gray Warbler *Dendroica nigrescens*	Preferred breeding habitat includes dry oak slopes, pinyon/Juniper, open mixed woods and dry coniferous and mixed conifer habitats, with grassy understories. Elevation is up to 5,400'.	Habitat found in Rilda Canyon, but the canyon elevation is above the upper elevation limit
Gray Vireo *Vireo vicinior*	Species breeds on arid slopes dominated by mature pinyon-juiper and juniper woodlands in southwestern Utah, north to Sevier County.	Habitat found in Rilda Canyon.

Table 300-4: Migratory Birds (Cont.)		
Species	**Species**	**Species**
Brewer's Sparrow *Spizella breweri*	Primary habitat is Utah is the shrub steppe habitat. However, Brewer's sparrows may also be found in high desert scrub (greasewood) habitats. They may also breed in large sagebrush openings in pinyon-juniper or coniferous forest habitats.	Habitat found in Rilda Canyon.
Sage Sparrow *Amphispiza belli*	Species occurs throughout Utah during the spring and summer months, but primarily in the southwestern portion of the state during the winter. Prefers shrubland, grassland and desert habitats.	Habitat exists in small stands of sagebrush/grass communities in the canyon.

Aquatics within the Rilda Canyon Creek corridor were protected during construction and operation activities by placing silt fence or other acceptable best management practice (BMP) along the southern edge of the disturbance. The silt fence or other acceptable BMP will be removed when the UDOGM determines that vegetation is sufficiently established. The surface yard was constructed to slope towards the north. In addition, the topsoil pile will have silt fence or other acceptable BMP installed around the slopes that can drain treated runoff to the stream. Wildlife was protected by conducting construction during months that minimized impacts to breeding and birthing activities.

A rat midden site is located near the facilities area. There was no actual disturbance in this area. It is protected by placing a 6 foot chainlink fence around the base.

I. Aquatic Species

The Utah Division of Wildlife Resources (UDWR) has conducted aquatic surveys of the perennial and intermittent streams in the area. The following information summarizes the representative game species in the Right Fork Rilda Creek.

Benthic Invertebrates - The USGS in cooperation with the UDWR and Utah Division of Oil, Gas, and Mining (UDOGM) conducted a comprehensive hydrologic study (from July 1977 through September 1980) of the upper drainages of the Huntington and Cottonwood Creeks ("Hydrology of the Coal-Resource Areas in the Upper Drainages of Huntington and Cottonwood Creeks"). Data on benthic invertebrates were collected from 16 sites in October 1977, July and October 1978, and October 1979. This data is cited and used as a reference source in comparison baseline evaluation conducted during 2004 and 2005 for the North

Rilda Canyon area. (Refer to United States Geological Survey, Water-Resource Investigations, Open-File Report 81-539, Salt Lake City, Utah, 1981)

As written from the report, "...data indicate that there were significant seasonal differences in the benthic invertebrate population at a given site in addition to areal differences...These organisms appeared in their maximum numbers in the July samples collected at sites in the higher altitudes of the study area, but they were not present in any of the October samples. The large numbers found in July, reflected a seasonal cycle rather than an unnatural condition that allowed one species to dominate." The average diversity (Shannon-Weiner diversity index) found between 1977 and 1979 in Rilda Canyon was 2.84.

In addition to the previous studies of Rilda Creek drainage, UDWR conducted biological organism and habitat studies of Rilda Creek in the spring of 2004(refer to Volume 11 Appendix Volume - Biology: Appendix D). As stated in the report entitled "*Preliminary Report on Surveys Conducted to Determine Potential Impacts of Rilda Surface Facility Development in Rilda Canyon During 2004*", representatives of the UDWR, Southeastern Region were asked by the UDOGM to participate in an on-site meeting, discuss the impacts of this project on the biota within Rilda Canyon, and aid in the development of a comprehensive EA. During this and subsequent meetings it was decided that UDWR would conduct pre and post-disturbance evaluations of macroinvertebrate populations and identify resident fish populations in Rilda Creek. This preliminary report, plus the reports that will be generated from the spring and fall 2005 surveys, marks the completion of the pre-disturbance baseline data sampling effort. Details on the methodology employed during macroinvertebrate and fish sampling and a limited results section are included in this report. Refer to Volume 11 Appendix Volume - Biology: Appendix D for a copy of the preliminary report. A copy of the final report will be included upon completion by UDWR. The Preliminary Report, indicates the presents of fish in the Rilda Canyon stream. Brown trout *(Salmo trutta)*, and cutthroat trout *(Oncorhynchus clarki)*, two salmonid species were found. No fish were found above the stream crossing. As suggested, the stream along the disturbed facilities area will be protected to minimize the impacts of sedimentation and reduction of water quality below the side drainage undisturbed bypass culvert installations. Disturbed runoff will be treated as outlined in the Hydrology Section.

An additional study of the area was conducted by Cirrus Ecological Solutions in the fall of 2004. Spring and fall surveys will be conducted in 2005. The results in this Preliminary Report are similar to previous (Walker) survey. Brown trout and cutthroat trout were observed. Refer to Volume 11 Appendix Volume - Biology: Appendix D, for this report. The 2004 -2005 surveys will serve as baseline aquatic data for Rilda Creek.

II. Terrestrial Species

Wildlife studies have been conducted within the Deer Creek Mine permit areas and those areas adjacent to it. The wildlife habitats of the North Rilda Area include Mixed Conifer, Pinyon-Juniper/Mountain Brush, and Sagebrush/Grass communities. Descriptions of these and other habitats that exist within the permit and adjacent boundaries have been given in previous wildlife sections of the MRP. "Species of Special Significance", threatened, endangered, and "Special Status Species" have been described previously. Table 1 of Volume 1, Part 2 of the MRP lists Vertebrate Species of the Wasatch Plateau of which the Deer Creek Mine permit and adjacent area and the North Rilda Area are part. The tables include the species status (common, rare, threatened, etc.), the habitats in which they occur, and the likelihood of their occurrence within the boundaries of the lease area.

Mule Deer, Elk, and Moose habitats have been mapped for the permit and adjacent areas. Refer to Maps 300-3, 300-4, and 300-5 of this section to view the areas. "Critical Summer Range", "Critical Winter Range", and "High Value Winter Range" are shown on the maps. The Utah Division of Wildlife Resources indicate that the entire Rilda Canyon area is habitat for Mountain Lion and Black Bear. UDWR also have records of occurrence for wolverine eight miles northwest and thirteen miles southwest of Rilda Canyon. Habitat for the Canadian Lynx is also found in the Rilda Canyon area. The wolverine and lynx habitat maps, found on the UDWR web site (http://dwrcdc.nr.utah.gov/ucdc/default.asp) are shown as "predicted habitat" and not "known habitat" maps.

Raptor nesting studies and nest mapping have been conducted in the North Rilda Area. Much of the area is raptor nesting habitat. Specific nests have been numbered and mapped in the area (this report has been submitted to the Division of Oil, Gas and Mining only and is found in PacifiCorp's Confidential Files, located at the UDOGM office) The status of the two nests in Rilda Canyon have also been submitted and are part of the Confidential Files. Nest information and locations are based on results from the 2004 annual raptor survey conducted by Energy West Mining Co., in conjunction with the Utah Department of Wildlife Resources. Energy West Mining Co. conducts annual raptor surveys in the area. The results of those surveys are available upon request.

A Ventilation Fan Sound Survey was conducted in November 2004; see Volume 11 Appendix Volume - Biology: Appendix E. Results indicate that the sound frequency and volume of the fans in Rilda Canyon will be near background levels at the perennial stream origination point.

R645-301-322.210 Threatened and Endangered Species

The Environmental Assessment (Mill Fork Federal Coal Lease Tract UTU-71307, Environmental Assessment, LBA Application #11. June, 1997), MRP Volume 12 reports

"No threatened or endangered wildlife species are known to inhabit the proposed lease area. A Bald Eagle (*Haliaeetus leucocephalus)* nest near the Hunter Power Plant is approximately 26 miles southeast of the coal lease. The coal lease area is outside of the foraging area for the Bald Eagles. No roost sites have been found in the lease area ..."

Other TES information applicable to the North Rilda Canyon Portal Facilities:

Mexican Spotted Owls (MSO) have recently become a species of interest since the U.S. Fish and Wildlife Service (USFWS) designated (in January, 2001) 4.6 million acres on federal lands in Arizona, Colorado, New Mexico, and Utah as critical habitat. The designation includes 3.2 million acres in Utah. More specifically, the designation includes areas west of the Colorado River within the West Tavaputs Plateau in Carbon County and the northeast corner of Emery County east of US Highway 6. Other areas in Utah have been designated as critical habitat, however, these areas exist in the southern portion of the state. Typical MSO, habitat according to the 2001 Environment Assessment (Environmental Assessment, Designation of Critical Habitat for the Mexican Sotted Owl, January 2001, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque, New Mexico), consists of "a diverse array of biotic communities. Nesting habitat is typically in areas with a complex forest structure or rocky canyons, and contains uneven-aged, multi-storied mature or old growth stands that have high canopy closure (Ganey and Balda 1989, USDI 1991). In the northern portion of the range (southern Utah and Colorado), most nests are in caves or on cliff ledges in steep-walled canyons....typically characterized by the cooler conditions...frequently contain small clumps or stringers of ponderosa pine, Douglas fir, white fir, and/or pinyon-juniper".

Dr. Dave Willey from Montana State University, known Mexican Spotted Owl expert, modeled representative habitat using the 2000 Willey-Spotskey Mexican Spotted Owl Habitat Model. The model included the Manti-LaSal area. Figure 300-1 includes the North Rilda Canyon area, with the Mill Fork Lease area outlined. Areas identified in black, are areas of potential nesting habitat. The green's are identified as potential foraging areas of steep sloped mixed conifers. However, it is reported in the UDWR's *Inventory of Sensitive Species and Ecosystems in Utah, 1997* that foraging, nesting and roosting habitats are "dominated by Douglas-fir and/or white fir...In the northern portion of the range (southern Utah and Colorado), most nests are in caves or on cliff ledges in steep-walled canyons." Potential steep sloped, mixed conifer foraging habitats of this type are found on the extreme northeastern border, extreme western border, and a small area in the southwest corner of the Mill Fork lease area as illustrated in Figure 300-1. Large ponderosa pines are typically found in lower elevations in the rocky canyons. The Rilda Canyon drainage is depicted in the lower right corner of Figure 300-1. The Rilda Canyon supports both aspen and Douglas fir stands, and has cliff ledges or steep walled canyons recognized as typical foraging habitats.

On October 5, 2004, a habitat suitability determination study was conducted by EIS Environmental & Engineering Consulting. Refer to Volume 11 Appendix Volume - Biology: Appendix F for the report. The summary of this report states that MSO habitat constituents are in Rilda Canyon.

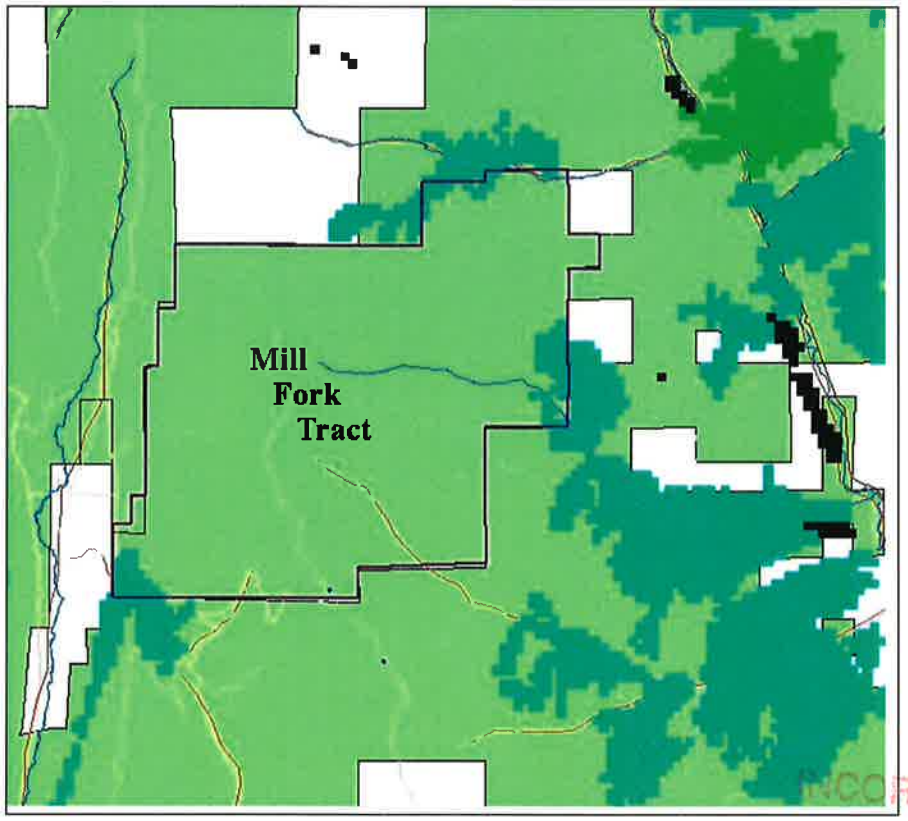

Figure 300 - 1: Mexican Spotted Owl nesting and foraging areas (Dr. Dave Willey, Montana State University, 2000).

The Spotted bat *(Euderma maculatum)* depends on cliffs for roost/hibernation areas. These areas exist in isolated locations in the south facing slopes of Rilda Canyon. Energy West Mining Company and Genwal Resources in 1997, contracted Richard Sherwin, Dr. Duke Rogers, and Carl Johansson to conduct a bat survey in the areas of Huntington Canyon, Straight Canyon, and Cottonwood Canyon. The purpose of this survey was to assess the distribution, abundance, and habitat requirements of the Townsand big-eared and Spotted bats. These parameters were investigated for the following: 1) areas under consideration as potential lease sites for mining (North Rilda Area, Cottonwood Canyon LBA and the Mill Fork lease); 2) sites where subsurface coal mining is onging, and 3) sites (both on and off the Manti-La Sal National Forest) that serve as controls (no mining activties). The results of this surveys (Refer to Volume 12 Appendix A: *Assessment of Spotted Bat (Euderma maculatum) and Towsend's Big-eared Bat (Corynorhinus townsendii) in the Proposed Cottonwood Canyon, North Rilda Area and Mill Fork Lease areas, Manti La Sal National Forest, Emery County, Utah.)* are as follows:

Use assessment for Townsend's big-eared bats in specified areas
No Townsend's big bats were located within the survey areas during the project.

Use assessment for Spotted bats in specified areas
No Spotted bats were mist netted during these studies; refer to Volume 12 Appendix A Table 1 for a summary of results. There is some indication that water source(s) may not be as critical for the Spotted bat as for other species of bats with which it co-occurs. In a study of urine concentrating ability among selected species of bats, the spotted bat could concentrate its urine more effectively than any species of bats evaluated, with the exception of two typically "desert species", the pallid bat (Antrozous pallidus) and the Western pipistrelle (Pipistrellus hesperus - Geluso, 1978). It is likely that the Spotted bats were using water sites specifically to forage rather than drink, making netting extremely difficult.

Spotted bats were observed throughout the eastern (lower elevation) portions of the study areas. The highest concentrations of calls were recorded in Rilda and Huntington Canyons. These canyons seem to best represent "classic" Spotted bat habitat with an abundance of fractured sandstone cliffs, and large areas of suitable foraging habitat.

From three studies, it appears that Spotted bats are using the cliffs as roosting areas and the canyons as flyways to reach the lower elevation foraging areas. The principal Spotted bat foraging areas are located over the lower elevation riparian habitat located near the mouth of Huntington Canyon. Spotted bats concentrated foraging efforts above the upper canopy of intact riparian vegetation, particularly cottonwood trees (Populus ssp.).

Spotted bats were not restricted to the study areas, but rather are widely distributed in low densities throughout the entire area. In fact, Spotted bats were detected in suitable habitat throughout the area (including utilizing the parking lots of the Village Inn Motels in Huntington and Castledale).

There also is evidence that the Spotted bats tolerate at least moderate human disturbance while foraging. Surveys were conducted at several sites near roads with light to moderate vehicular traffic (Crandall Canyon, Huntington Canyon), including tandem trucks used for hauling coal from the Genwal Mine portal located in Crandall Canyon. Spotted bats were observed foraging at low elevations sites off the lease areas, sometimes within 30 meters of the right of way.

Spotted bats are common throughout the Huntington Canyon area. They were identified utilizing the lease areas (North Rilda and Mill Fork), the active mine permit areas and the control sites (refer to Volume 12 Appendix A, Table 2). Based on the number of individuals observed and their habitat use patterns, it does not appear that current mining practices represent a long term threat to the viability of this population. The bat communities in all areas sampled consist of the same suit of species among all areas of similar habitat and complexity (this includes sites in actively mined areas, control sites, and proposed lease areas (North Rilda and Mill Fork).

The fact that Spotted bats are relatively common in active and previously mined areas implies that past cliff failures have not dramatically impacted resident populations. As a cliff roosting species, it is likely that they have adapted to tolerate natural rock falls and subsidence. Mine related cliff failures do not generally result in a net loss of habitat (ie. cliffs), but rather provide replacement habitat which may later be colonized by members of the local population. The results of the study indicate that Spotted bats are "common" enough throughout the area that the localized failure of cliffs (as a result of coal mining within the proposed lease areas [North Rilda Area and Mill Fork]) does not pose a serious threat to the population as a whole.

An additional bat habitat study was conducted in October 2004 by Joel and Gabrielle Diamond, Refer to Volume 11 Appendix Volume - Biology: Appendix G. This study was specific to the Rilda Canyon area. Findings in the 2004 study were similar to the 1997 study.

R645-301-323 Maps and Aerial Photographs

The map for vegetation diversity is located in the Maps Section of R645-301-300: Biology of this volume (Map 300-1). Deer, elk, and moose habitat are located on Maps 300-3, 300-4 and 300-5. The Raptor nest map has been transmitted to the Division of Oil, Gas and Mining, and is part of PacifiCorp's confidential files, located in the UDOGM office. In addition to biologic base maps provided in this section, PacifiCorp conducts annual reconnaissance surveys, including subsidence monitoring (annual aerial photogrammetric surveys), infrared photography (5 year intervals), and hydrologic monitoring.

R645-301-330 OPERATION PLAN

Protection and Enhancement:
Methods, devices, and procedures to protect fish, wildlife and stream degradation during construction, operation and reclamation activities are:

1. Reduced disturbed footprint.
   As depicted in Volume 11 - Engineering, Maps Section, Map 500-1, the Rilda Canyon Portal Facilities are located in an area disturbed by historical coal mining. This disturbed land is part of the historic coal developments known as the Helco, Leroy, Rominger, and Jeppson mines. All of the mines were reclaimed by AML in 1988. The historic mine sites disturbed a total of 10.67 acres. Of the 7.28 total disturbed acres, 1.79 acres are on land pre-disturbed by the historical mine sites. The pre-disturbed land is 24.6% of the total disturbed at the Rilda Canyon Portal Facilities. PacifiCorp commits to enhancing the previously disturbed area to revegetation standards relative to the non-disturbed reference areas. In addition to the designing the facilities utilizing the previously disturbed area, PacifiCorp negotiated with Andalex Resources to acquire a right-of-way within the existing Genwal Mine disturbed area for a future breakout associated the Deer Creek Mine. Originally, PacifiCorp included a potential breakout for the Deer Creek Mine within the Mill Fork Lease ML-48258 located in Crandall Canyon upstream from the existing Genwal Mine. The ventilation breakout in Crandall Canyon would have required access road and pad disturbing approximately 1.0 acre near Crandall Creek. As a result of the right-of-way acquisition, overall the disturbance associated with the Deer Creek Mine will be reduced.
2. The surface yard has been constructed such that all surface runoff flows to the north, away from the stream, to a disturbed culvert system. (Refer to Engineering and Hydrology Sections for plan to treat disturbed runoff).
3. A Barrier has been installed along the surface yard's southern disturbed boundary (closest disturbance near the stream).
4. Interim vegetation on slopes and topsoil piles.

5. Buffer Zones markers placed along the south disturbed border to make construction workers aware of the location of the stream.
6. Reduced speed limit on the mine access road (Emery County Road #306).
7. Compliance with a Spill, Prevention, Control and Countermeasures (SPCC) Plan for the mine facility. The SPCC Plan is required under 40 CFR 112. It's primary use is prevention, reporting and clean-up of spills.
8. Compliance with and Air Quality Approval Order for the mine facility.
9. Annual raptor survey
10. To limit the impact on wildlife, the facility disturbance is located below the stream crossing at the forks of Rilda Canyon. Wildlife can continue to use the area for access from one fork to the other.
11. Raptor safe power poles have been installed in the facilities following PacifiCorp's "Guidelines For Managing Birds on Powerlines", refer to Volume 11 Appendix Volume - Biology: Appendix H.
12. Startup construction (commenced April 15, 2006) and startup of reclamation activities will not take place between December 1st and April 15th, an exclusionary time for wintering and calving periods. All access prior to April 15, 2006 to the Rilda Canyon Facilities was approved by the Division on a case-by-case basis.

In addition to the protection and enhancement methods, devices and procedures listed above, PacifiCorp in cooperation with the regulatory agencies has developed a series of mitigation commitments to enhance and mitigate potential impacts associated with the Rilda Canyon development related to big game species, raptors, riparian habitat (aquatic species, bats and migratory birds) and noxious weed control. The list details the mitigation commitments:

Wildlife Mitigation Commitments:

Table 300-5: Rilda Canyon Wildlife Mitigation

Wildlife	Project	Project Summary	Overseeing Agency(s)	General Objective	Date of Implementation	Required Reporting
Big Game Species	Leroy Mine Area; Buried Coal Removal and Landscape Enhancement	Leroy Coal Mine operated during the 1940's through the 1950's. Development included a narrow access road, two portals and coal storage and haulage area. Soil/geotechnical surveys delineated an area containing approximately 4,000 tons of buried coal. In addition, these surveys also documented that the depth of soil was limited in this area and ultimately affected the success and diversity of the revegetation. PacifiCorp proposes as part of the development of Rilda Canyon to remove the buried coal within the proposed disturbed area. During final reclamation, PacifiCorp commits to reclaiming this area to the same standards as areas previously not disturbed, including committing the revegetation standards to non-disturbed reference areas.	DOGM	To achieve reclamation of the Leroy Mine buried coal area with vegetation success similar to the non-disturbed reference area.	Project will be initiated and be completed during the development of the facilities, approximately two years.	Certified as-built drawings after the construction of the Rilda Canyon facilities. This project was completed August 2006, Refer to Map 300-6 in the Maps Section

Table 300-5: Rilda Canyon Wildlife Mitigation						
Wildlife	**Project**	**Project Summary**	**Overseeing Agency(s)**	**General Objective**	**Date of Implementation**	**Required Reporting**
Big Game Species	Abandoned Mine Areas Outside of the Proposed Disturbance	Cooperate with Abandon Mine Lands (AML), United States Forest Service (USFS) to reclaim and enhance the Leroy Mine access road and portal site, including access road, buried coal, historic coal spills and portal highwalls.	DOGM, USFS	To achieve reclamation success of the Leroy Mine disturbed area outside the proposed Rilda Canyon facilities boundaries with vegetation success similar to the non-disturbed reference area. PacifiCorp will utilize available soil resources to backfill the portal bench and access road. The entire area will be recontoured to approximate original contour to the extent possible. After completion of the backfill and grading process, the entire area will be pocked and seeded as outlined in the Biology and Engineering Sections for areas within the proposed disturbed area.	Project will be initiated and completed during the development of the facilities, approximately two years.	Upon completion of the project, PacifiCorp will develop a report documenting the restoration project. This project was completed August 2006, Refer to Map 300-6 in the Maps Section

Table 300-5: Rilda Canyon Wildlife Mitigation						
Wildlife	**Project**	**Project Summary**	**Overseeing Agency(s)**	**General Objective**	**Date of Implementation**	**Required Reporting**
Big Game Species Small Game Species Migratory Birds	Habitat Protection on East Mountain Private Land	"PacifiCorp owns and controls approximately 4,440 acres of private lands on East Mountain within the Manti-LaSal National Forest boundary in Emery County, Utah. These private fee lands are located amongst federal lands and have unrestricted open range access to the southern and eastern portions of East Mountain together with open range on 440 acres of fee lands in the northern area in Rilda Canyon. PacifiCorp manages these private lands for multiple use and has no plans for development which would impair wildlife habitat, seasonal livestock grazing or recreation."	NA	Maintain ownership and control of East Mountain properties throughout the life of the Rilda Canyon facilities. These lands will be managed for multiple use. Use which would impair wildlife habitat, such as seasonal livestock grazing or recreation will be limited.	NA	NA

Table 300-5: Rilda Canyon Wildlife Mitigation						
Wildlife	**Project**	**Project Summary**	**Overseeing Agency(s)**	**General Objective**	**Date of Implementation**	**Required Reporting**
Raptor Species	Company News Letter	Periodically include in the company newsletter awareness of highway deer kill and the impacts to raptors.	NA	Increase awareness of the potential impacts associated with traffic and raptors. PacifiCorp will periodically make available to employees special newsletters outlining the potential impacts of raptor mortality and corrective measures to reduce these impacts. Coordinate with Emery County Road Department to install warning signs along Emery County road #306.	Upon issuance of the Rilda Canyon permit, PacifiCorp will initiate the educational newsletters to mine employees and contact Emery County Road Department.	NA

Table 300-5: Rilda Canyon Wildlife Mitigation

Wildlife	Project	Project Summary	Overseeing Agency(s)	General Objective	Date of Implementation	Required Reporting
Riparian Habitat Big/Small Game Species Migratory Birds Aquatic Habitat	Rilda Creek Sediment Loading Reduction Project	Rehabilitate through sediment and erosion control activities the perennial portion of Rilda Creek, from Rilda Canyon Springs to the mouth of the canyon. Coordinate with government agencies to facilitate the project. Project would involve approximately two miles of stream corridor.	DWR, USFS, DOGM	Install best management practices (BMP's) to control erosion and reduce sediment loading throughout the perennial reach (approximately two miles) of the Rilda Creek. Sediment and erosion control will involve a systematic approach: identify the problems and opportunities, develop project goals and objectives, select and design BMP alternatives, implement selected designs, monitor results and modify designs if necessary.	Upon issuance of the Rilda Canyon permit, PacifiCorp will coordinate initial meeting with governmental agencies necessary funding to complete all work within one year after the completion of the reconstruction of EC#306.	N/A This project was completed November 2008

Table 300-5: Rilda Canyon Wildlife Mitigation						
Wildlife	**Project**	**Project Summary**	**Overseeing Agency(s)**	**General Objective**	**Date of Implementation**	**Required Reporting**
General	Noxious weed program	PacifiCorp will monitor Rilda and Mill Fork Canyons annually for noxious weeds. Manually/chemically treating methods will be used to control noxious weeds.	DOGM and USFS	Control noxious weeds in Rilda and Mill Fork canyons. PacifiCorp will use manual methods and if necssary institute chemical treatment program to eradicate noxious weeds. If chemical treatment is necessary, PacifiCorp will follow a DOGM/USFS approved application plan and apply for necessary permits and approvals from the USFS.		NA

A brief summary of the facilities that have been constructed are: side drainage, undisturbed by-pass ditches, and culverts, disturbed ditches and culverts, fueling area, trash bunker, rock dust silo, non-coal waste storage, sediment pond, fan, generator, and some designated storage areas. Steep slopes (retaining walls), created during construction of the facilities were supported using geotechnical design criteria.

Buffer zones along the stream have been established and marked with "Buffer Zone" signs to minimize potential impacts to the stream.

To protect the vegetative growth media, the topsoil was removed prior to construction of the facilities (Refer to the Soils Section of this permit). The top soil storage area is designated on Map 200-1 in R645-301-200: Soils. Erosion protection includes deep pocking, interim vegetation and silt fence or other acceptable BMP until the vegetation is established. A "Topsoil" signs has been placed at the foot of the pile for location awareness.

Erosion control is discussed in the Engineering and Hydrology sections of this volume.

Baseline data for aquatic species included spring and fall surveys in 2004 and 2005 prior to facilities construction. Post construction surveys were conducted in the spring and fall of 2008. A spring survey was conducted once every 3 years, using the same protocol and sampling sites as the 2004 surveys. These operational surveys were conducted in 2011, 2014, and 2017. Due to the burning of most of the Rilda Canyon drainage area by the Trail Mountain wildfire in June, 2018, and the resulting changes in sediment load and damage to the stream bed due to the post-fire sediment control construction, the surveys have been discontinued.

Second mining (ie. longwall extraction) of the North Rilda area was limited to the ridge separating Rilda and Mill Fork canyons. Second-mining full extraction did not occur beneath the stream channels of these canyons. First mining (i.e. mainline development) occurred below the Right Fork of Rilda Canyon. For a complete analysis of the proposed "no subsidence" design of the 4th North Mains development within the Right Fork of Rilda and the long-term stability analysis refer to the Volume 11, Appendix Volume - Engineering: Appendix A.

To protect the alluvial/colluvial system of the Right Fork of Rilda Canyon a stream buffer zone was established based on the extent of the stream corridor and the angle of draw from the Hiawatha Seam, the lowest seam to be mined. The stream corridor within the Right Fork of Rilda Canyon was delineated by field observation, aerial photography, and map contour analysis. The extent of the identified zone is based on the contact of the alluvial/colluvial fill with the canyon's side slopes. The angle of draw was calculated from the Hiawatha Seam horizon/elevation @ 15 degrees to the point of intersection on the surface. The stream buffer zone delineates the area restricted to full extraction mining. The referenced 15 degree angle of draw is an industry/agency accepted standard used for delineation of surface influence protection from mining areas considered for full extraction mining. Mining experience at PacifiCorp's Deer Creek, Cottonwood, and Trail

Mountain mines has provided a sound, scientific basis for using the 15° angle of draw mentioned above (refer to Annual Subsidence Reports of the Deer Creek MPR).

R645-301-340 RECLAMATION PLAN

The following sections contain plans for final reclamation and revegetation of the Rilda Canyon Facilities. All disturbed lands will be reclaimed as part of the post mining land use stipulations for grazing, wildlife and recreation. The plan complies with the biological protection performance standards of the State Program. The reclamation plan for the Left Fork facilities is found in Volume 2, Part 4, of the Deer Creek Mine permit.

R645-301-341 Revegetation

Table 300-6 discloses the timetable in which reclamation will be conducted on the North Rilda Canyon portal facilities. Much of the operations will be conducted simultaneously. The main emphasis of reclamation will work from the top of the canyon to the bottom.

Table 300-7 establishes a monitoring program that extends through the responsibility period of the bond.

Table 300-6: Rilda Canyon Portal Facilities Reclamation Schedule: Initial Reclamation for mine facilities

#	Project	Estimated Scheduling *											
	Months	1	2	3	4	5	6	7	8	9	10	11	12
1	Soil Sampling	Sampling conducted.											
2	Structure Removal												
3	Closures - Portals & Ventilation												
4	Hauling, Backfilling, Compaction & Grading												
5	Seed Bed Preparation												
6	Fertilization & Mulching												
7	Seeding & Planting												
8	Sediment Control Structure Removal *												

* The sediment pond will be removed at the completion of all other reclamation activities above the pond.

Notice in the table above that backfill and grading activities and seeding activities are occurring simultaneously. This will occur as work progresses down canyon. Seeding is planned for the fall season. Seeding will occur contemporaneously with backfilling and

grading. Mulching, hydromulching, and tackifing will occur as successive processes. Access with mulching equipment will be achieved by the use of the reconstructed Emery County road #306.

Table 300-7: Rilda Canyon Portal Facilities Reclamation Schedule: 1st thru 10th Year

#	10 Year Revegetation & Monitoring	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
1	Plant Monitoring Disease & Pest Control *		★	★	★	★	★	★	★	★	★
2	Soil Stabilization Rills & Gullies		★	★	★	★	★	★	★	★	★
3	Contingent Seeding		★		★						
4	Revegetation Inventory for Bond Release				★				★	★	★

* Monitoring is conducted twice per year during the spring and fall.

Description of Revegetation Operations

Tables 300-8 through 300-10 are the vegetation seed mixes to be used during interim and final reclamation. Pinyon Juniper/Mountain brush habitats are those areas that have a high exposure to sunlight. These areas are typically drier and need grass growth early on for moisture retention and soil stabilization.

Table 300-8: Seed Mixture (Pinyon-Juniper/Mountain Brush)		
Common Name	**Scientific Name**	**Lbs/Acre Equivalent PLS***
Grasses		
Bluebunch Wheatgrass	Agropyron spicatum	2.0
Sandberg Bluegrass	Poa secunda	1.0
Great Basin Wild Rye	Leymus cinereus	2.0
Indian Ricegrass	Oryzopsis hymenoides var. Paloma	1.0
Western Wheatgrass	Agropyron smithii var. Rosanna	3.0
Forbes		
Blueleaf Aster	Aster glaucodes	0.25
Blue Flax	Linum lewisii	0.25
Louisiana Sage	Artemisia ludoviciana	0.2
Northern Sweetvetch	Hedysarum boreale	1.0
Palmer Penstemon	Penstemon palmeri	0.5
Shrubs		
Snowberry	Symphoricarpus oreophilus	0.5
Curleaf Mahogany	Cercocarpus ledifolius	1.0
Fourwing Saltbush	Atriplex canescens	2.0
Saskatoon Serviceberry	Amelanchier alnifolia	1.0
True Mountain Mahogany	Cercocarpus montanus	1.0

* Pure Live Seed

Table 300-9: Seed Mixture (Sagebrush/Grass)		
Common Name	**Scientific Name**	**Lbs/Acre Equivalent PLS***
Grasses		
Salina Wildrye	Elymus salinus	2.0
Needle and Thread Grass	Stipa comata	3.0
Sandberg Bluegrass	Poa secunda	2.0
Indian Ricegrass	Oryzopsis hymenoides var. Paloma	3.0
Western Wheatgrass	Agropyron smithii var. Rosanna	2.0
Forbes		
Blueleaf Aster	Aster glaucodes	0.5
Blue Flax	Linum lewisii	1.0
Louisiana Sage	Artemisia ludoviciana	0.2
Northern Sweetvetch	Hedysarum boreale	1.0
Palmer Penstemon	Penstemon palmeri	0.5
Shrubs		
Bitterbrush	Purshia tridentate	1.0
Fourwing Saltbush	Atriplex canescens	2.0
Snowberry	Symphoricarpos oreophilus	1.2

* Pure Live Seed

Table 300-10: Seed Mixture (White Fir/Aspen)		
Common Name	**Scientific Name**	**Lbs/Acre Equivalent PLS***
Grasses		
Bluebunch Wheatgrass	Agropyron spicatum	1.0
Indian Ricegrass	Oryzopisi hymenoides var. Paloma	2.0
Western Wheatgrass	Agropyron smithii var. Rosanna	3.0
Kentucky Bluegrass	Poa pretenses	1.0
Mountain Brome	Bromus marginatus	2.0
Slender Wheatgrass	Elymus trachycaulus ssp. trachycaulus	2.0
Forbs		
Louisiana Sage	Artemisia ludoviciana	0.2
Northern Sweetvetch	Hedysarum boreale	1.0
Pacific Aster	Aster chilensis	0.2
Rocky Mountain Penstemon	Penstemon strictus	1.0
Silky Lupine	Lupinus sericeus	1.0
Shrubs		
Snowberry	Symphoricarpos oreophilus	1.0
Saskatoon Serviceberry	Amelanchier alnifolia	0.5
Skunkbush Sumac	Rhus trilobata	0.5

* Pure Live Seed

Though several reference areas were designated and sampled, (see Volume 11 Appendix Volume - Biology: Appendix A), the disturbed area will only impact four vegetation communities. As indicated in the vegetation map, of this appendix, the sagebrush/grass seed mix will be used in the upper part of the disturbance. The topsoil storage area will be seeded with the White Fir/Aspen seed mix (Table 300-10) for interim and final vegetation. Disturbances to the White Fir/Aspen Community, near the Rilda Canyon stream, will be seeded with the White Fir/Aspen seed mix. All other areas will be seeded with the Pinyon-Juniper/Mountain Brush seed mix. Within the disturbed area is a small community of Douglas Fir/White Fir, approximately 0.25 acres. Because of the small size, this area will be seeded with the Pinyon-Juniper/Mountain Brush seed mix. This seed mix will be used for both the previously undisturbed (AMR/AML) and previously disturbed Pinyon Juniper (AML) areas.

No Riparian vegetation areas will be disturbed.

Seeding Techniques

Seeding will take place as contemporaneously as practical following soil placement and contouring/pocking of the area being reclaimed. Certified noxious weed free alfalfa hay will be incorporated into the soil following contouring at a rate of 2000 lbs/acre. The mulch will be applied using a tub grinder or similar blower. Pocking techniques will mix the alfalfa hay into the upper portion of the soil.

The seed mixture will be broadcast using a "hurricane spreader" or applied using a hydroseeder. If the seed mixture is hydroseeded, a small amount of wood fiber mulch will be added to mark the area of coverage during application.

After the seed is applied, the entire area will be hydromulched with a wood fiber or other acceptable mulch and applied at a rate of at least 1500 lbs./acre for cover and protection. A tackifier (plantago or other similar tackifier) will be added to the mulch and applied at a rate recommended by the manufacturer. Tackifier may only be used on slopes greater than 2:1. Mulch and tackifier will be applied simultaneously.

Measures to determine success of revegetation are those included in R645-301-350 of the Utah Coal Rules and as detailed later in this section.

R645-301-342 Fish and Wildlife

To minimize impact of the stream area and to make the operator aware of the presents of the stream, "Buffer Zone" signs will be placed along the stream side of the disturbed area.

To limit the impact on wildlife, the facility disturbance is located below the stream crossing at the forks of Rilda Canyon. Wildlife can continue to use the area for access from one fork to the other. In addition, material haulage to the existing Rilda Canyon fan in the Left Fork will be discontinued. Materials will be hauled underground via the facility's portal.

Measures taken during reclamation and liability period to reduce impact to environment and wildlife:

1. Rock piles will be formed to create habitat for small mammals.
2. Vegetation pocking to create micro-niches for vegetation to control and limit erosion.
3. Mulch and tackifier will be used to promote vegetation and control and limit erosion.

R645-301-350 PERFORMANCE STANDARDS

Construction/reclamation activities will not take place between December 1st and April 15th.

Signs will be placed around the planted slopes for their protection. The area will be entered only to provide maintenance (as needed) and/or monitoring duties.

Standards for successful revegetation includes weed species not more than 10% and no noxious weeds. Weed control will not be undertaken unless it is determined necessary due to weed dominance and delayed rate of succession. All noxious weeds will be eradicated either chemically or physically if they become established on the site. Chemical applications will be approved by UDOGM in consultation with the Forest Service.

Rodent damage on revegetated areas will be assessed during monitoring periods. Species specific control measures will be implemented as necessary. Control measures must be approved by the Division in consultation with the Utah Division of Wildlife Resources prior to application.

Annual monitoring will also include inspection for rills and gullies. Should these be present, they will be filled and the soil reseeded. Rill and gully repair will follow the regulations set forth in the Coal Rules R645-301-357.360 through R645-301-357.365. As repairs are recognized, the Division will be notified and the affected area will be reported in the annual vegetation report.

All vegetation sampling will be undertaken in the late summer for maximum plant growth. The line intercept or ocular estimation methods will be used to measure cover and species composition. The point-center quarter method will be used to measure shrub and tree density.

Productivity measurements will be a double sampling procedure of clipped plots and ocular estimates. Rectangular plots (6.27 in. x 100 in.) will be randomly located in reference areas and revegetation sites. Sampling will be at the 90% confidence level.

The reference area will be checked to detect any change from natural or man-induced activities and to verify they are in fair or better condition. Sampling of the reference sites at the time of bond

release will be conducted concurrently with final reclamation sampling, using the same methodology used to sample the reclaimed areas.

The standards for success to be applied for ground cover and production of living plants on the reclaimed areas at the Rilda Canyon Portal Facilities will be at least equal to 90% (with a 90% confidence level) to that of the corresponding reference area at the time of bond release. Cover in the reclaimed areas will not be less than that required to achieve the approved post-mining land use outlined in R645-301-400: Land Use and Air Quality.

At the time of bond release or after the 10 year responsibility period has passed, similarity between the reclaimed area and corresponding reference area will compare life forms and/or species present in each community by the use of similarity indices. Indices of similarity provide the means of mathematically comparing the plant communities in the two areas. One of, or a combination of the three indices found in the Vegetation Guidelines, February 1992, will be used to determine the similarity between the reclaimed and reference area. If another index (or combination thereof) is used, Division approval will be required. Similarity will be considered successful when the index value is at least 70% of the reference area.

All vegetation monitoring data will be reported annually. This report will contain a narrative of the actual monitoring methods used, results, and a discussion of the overall success or failure of each area. Raw data sheets will also be included in the annual reports. Standards attained at the time of bond release will be approved by the Utah Division of Oil, Gas and Mining (UDOGM).

REFERENCES:

North Rilda Canyon Portal Facilities Area Vegetation Survey, 2004, Mt. Nebo Scientific, Inc.

Chambers, Jeanne C., Brown, Ray W., Methods for Vegetation Sampling and Analysis on Revegetated Mined Lands, Report INT-151, United States Department of Agriculture, Forest Service, October 1983.

Danielson, T.W.; Remillard, M.D.; Fuller, R.H., Hydrology of the Coal- Resource areas in the Upper Drainages of Huntington and Cottonwood Creeks, Central Utah; U.S. Geological Survey-Water Resource Investigations, Open-File Report 81-539.

Doelling, H.H., 1972, Wasatch Plateau Coal Fields, in Doelling, H.H. (ed.), Central Utah Coal Fields; Sevier-Sanpete, Wasatch Plateau, Book Cliffs and Emery, Utah Geological and Mineralogical Survey Monograph Series No. 3, Salt Lake City, Utah.

Walker, Craig A., Preliminary Report on Surveys Conducted to Determine Potential Impacts of Rilda Surface Facility Development in Rilda Canyon During 2004; Utah Department of Natural Resources, Division of Wildlife Resources, 1594 West North Temple, Suite 2110, Salt Lake City, Utah 84114.

Environmental Assessment, Designation of Critical Habitat for the Mexican Spotted Owl, January 2001, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque, New Mexico.

Wildlife Resources Report for the State of Utah School and Institutional Trust Lands Administration (SITLA) Access Route on East Mountain Project; USDA Forest Service, Intermountain Region,, Ferron/Price Ranger District, Manti-La Sal National Forest, Emery County, Utah, Re-re-revised July 2004.