Ground Water Discharge Permit

Permit No. UGW15001

HUNTER POWER PLANT

SITE WIDE

CLOSURE PLAN

Revision 2

Revised By
PacifiCorp

02/28/2020

Prepared by:

Water & Environmental Technologies, PC
1485 Continental Drive
Butte, MT 59701
Phone (406) 782-5220
www.wet-llc.com

March 2005

APPROVED:

_____

Laren Huntsman – Managing Director, Hunter Plant

_____

Date

TABLE OF CONTENTS

1.0 Site Description

1.1 Location

The Hunter Power Plant (HPP) is located east of the North Horn Mountain, three miles south of Castle Dale, Utah. The community of Castle Dale is located on Utah State Highway #10, 30 miles southwest of Price, Utah. The plant site is located in the Castle Valley. The HPP property consists of approximately 2,000 acres located at a mean elevation of 5,600 feet above sea level. The latitude and longitude for the HHP is 39° 09' 34" North Latitude; 111° 00" 34" West Longitude.

1.2 Site History

The Hunter Power Plant (HPP), majority owned and operated by PacifiCorp, is a three unit coal-fired electrical generation plant. The baseload for Units 1 and 2 is 480 megawatt (MW) each, while the Unit 3 baseload is 495 net MW. The coal-fired boilers produce steam used to power electricity-producing turbines.

The HPP is required to remove sulfur dioxide from flu gas emissions as mandated by State and Federal Regulations. Exhaust gas from the boilers is routed through scrubbers that remove sulfur dioxide. The scrubbers utilize a calcium hydroxide solution which reacts with the sulfur dioxide in the flue gas to form a calcium sulfate/sulfite solution and precipitate. Presently, the solid precipitate is dewatered in Units 1 and 2 utilizing rotating vacuum drum filters. Unit 3 uses a thickener to separate the water from the solids. The solids are then mixed with fly ash to absorb any free liquids. The solid waste product from all units is transported by truck to the CCR landfill for disposal. The solid waste passes the paint filter test.

Wastewater is generated at the site by normal blowdown from plant processes such as cooling tower circulation water, liquid ash handling systems, boiler blowdown, etc. Water treatment wastes and sewage treatment effluents also contribute to wastewater flow, as do storm drains, building roof and floor drains. These combine as mixed wastewater and are collected in the wastewater storage ponds, also called the Irrigation Ponds. This wastewater is used to irrigate the Plant Research Farms.

1.3 Soil and Climatology

The native soils over which the HPP is sited consist of Chipeta Series soils underlain by Mancos Shale. The Chipeta soils are calcareous, well drained, and moderately fine. They consist of saline, silty, clay loam, approximately 10 to 20 inches deep. The underlying Mancos Shale is a gray, consolidated, fissile, calcareous mudstone with interbeds of thin sandstone and siltstone.

Average precipitation is between six and ten inches per year, mainly in late July through October. Ten to twenty inches of snow can be expected in the winter, representing between one and two inches of the annual precipitation. Skies are clear about 225 days per year. Winds are light to moderate in all seasons. The strongest winds normally blow from the south during the spring. Temperature range is normally from a low of 10° (F) in January to the high 80's in July.

2.0 RECLAMATION WORK

2.1 Removal of Equipment and Facilities

During the final decommissioning of the power plant facilities, buildings, structures, and other ancillary support facilities will be demolished and removed from the surface. The salvageable materials and equipment will be sold and removed from the property. Non-salvageable materials and debris will be disposed of on site or at off-site landfills according to State solid waste regulations.

Other non-hazardous and nonflammable materials, such as concrete, and asphalt will be used as backfill in the ponds. These materials will be incorporated into the backfill in a manner that will not create voids within the backfill or reduce the effective compaction necessary for backfilling. These materials will be intermixed with backfill to ensure voids are filled and compacted. Additionally, the top four feet will be clean and not contain any demolition waste. Concrete slabs or foundations buried in-place will be fractured and covered with a minimum of two feet of fill to ensure adequate root depth and soil moisture retention for vegetation. Whenever possible, steel will be salvaged rather than buried. However, rebar or other steel that is incorporated in the concrete will not be removed from the concrete prior to burial.

Other wastes found during demolition (or other reclamation activities) including, but not limited to grease, lubricants, paints, flammable liquids, garbage, and other combustible materials will be placed and stored in a controlled manner and disposed of appropriately. Any waste defined as "hazardous" under the Resource Conservation and Recovery Act (RCRA) and 40 CFR Part 261 will be handled in accordance with the requirements of Subtitle C of RCRFA and any implementing agency.

2.2 Backfilling and Grading

During the grading process, the following work will be performed:

1. Elimination of berms and temporary diversions,
2. Grading to establish surface overland flow drainage where possible,
3. Removal of operational culverts,
4. Removal of parking and asphalt surfaces prior to the placement of soil,
5. Removal and backfilling of ponds, and

6. Grade to approximate original contours.

The disturbed areas will be graded to approximate the original approximate original contour (AOC) contours by blending the best available soil material into the surrounding area and creating landforms which are stable and resemble the surrounding terrain. The backfill grading topography will be compatible with the land use of grazing and wildlife habitat and will provide adequate drainage and long-term stability.

2.3 Resoiling

The existing soils at the site will be used as re-soiling material.

2.4 Seeding and Mulching

Following placement of the growth media and prior to application of the reclamation seed mix, hay will be incorporated into the growth media at a rate of 2 tons per acre. This will be done to improve soil structure for aeration purposes, increase micro pore space, and improve the water holding capacity of the soil.

No fertilizer will be used during the reseeding activities associated with the reclamation project. When fertilizers are used, it encourages the proliferation of annual weeds that compete initially with the desired vegetation thereby hindering and/or delaying revegetation success.

Following seeding, an additional 1 to 1.5 tons per acre of straw mulch will be spread over the seeded growth media, mostly by mechanical blowers with occasional hand spreading. The straw mulch will then be sprayed with a tackifier and mulch mixture at about 500 lbs per acre following spreading to retain it on the reseeded slopes. The tackifier and mulch methodology provides a better means for retaining the straw mulch onto the reseeded areas than does the crimping methodology. All hay and straw will be certified noxious-weed free.

The planned revegetation practices are specifically designed to provide or promote:

- Rapid vegetative reestablishment following completion of soil replacement,
- Establishment of adequate plant density and cover to effectively control runoff and erosion,
- Establishment of a reclaimed plant community consisting primarily of indigenous plant species with any introduced species having proven adaptability for site conditions,
- Adequate plant species diversity and vigor to assure effective ongoing vegetative propagation and a self-sustaining vegetation community, and
- Palatable wildfire browse and forage species consistent with the land use.

2.5 Hydrology

The power plant disturbed area will be graded and contoured to meet (AOC) and to construct the appropriate overland flow drainages such as swales and channels. Alternative sediment control measures will be used to minimize sediment to the streamflow.

The proposed alternative sediment control measured can be classified into three categories: mechanical treatment, surface protection, and vegetation measures. Mechanical treatment increases surface roughness thereby reducing overland flow velocity, which minimizes the sediment transport capacity. Detaining some of the would-be runoff also improves soil moisture for plant germination. Surface protection measures include mulching, mulch binders, netting, and seeding. These measures are the most effective controls since they minimize the amount of soil detached by raindrop impact, and thus limit soil loss at the source. Surface protection measures also increase the surface roughness and increase water infiltration into the ground. Vegetation sediment filters reduce overland flow velocities, remove fine sediment from overland flow, and control erosion.

3.0 SUPPORT FACILITY

3.1 Coal Combustion Residual Landfill

The coal combustion residual landfill associated with the HPP consists of bottom ash, fly ash, and scrubber slurry. Disposal operations began in 1978 with the expansion in 1997. The construction and operation of the facility is as prescribed by the State of Utah at the time of development and is regulated as a CCR Unit under 40 CFR Part 257. A closure plan is on the Company's CCR website.

3.2 Industrial Waste Landfill

The industrial waste landfill site, presently located within the boundaries of the existing CCR landfill, receives miscellaneous non-hazardous wastes generated on site, including some food scraps, paper products, empty metal containers and other trash. The industrial waste facility is operated in accordance with Utah Division of Solid and Hazardous Waste regulations.

Closure of the industrial waste landfill will be in accordance with Utah's R315 Solid Waste Rules.

3.3 Hunter Research Farm

The Hunter Research Farm, which began operation in 1978, consists of 480 acres of land that surrounds the power plant on the north, west, and east. Operation of the farm is used as a means of disposal for waste water generated by the power plant.

Irrigation water is applied at a rate that minimizes surface runoff and leaching to ground water. Crops grown at the farm have included alfalfa, barley, wheat, oats, grass, and trees.

Closure of the farm will occur when an alternative method for disposal of the waste water produced by the power plant is developed and implemented, possibly with reverse osmosis units. The preferred method of closure will be farming using state appropriated irrigation water. This method of closure will allow the land to continue to yield crops for livestock, or mulch production which is a higher and better use of the land, instead of abandoning the land and allowing it to revert back to undeveloped range land.

4.0 SURFACE AND GROUND WATER MONITORING

Surface and ground water protection would be a major objective of the closure and post-closure activities. The primary objective would be maintenance of ground water quality within permit limits in the compliance monitoring wells and minimize the potential to degrade surface waters.

Surface and ground water monitoring post-closure will be in accordance with the permit compliance set forth under R 317-6-6.3.1.5 and R317-6-6.9. The HPP will do what is necessary to prevent harm to human health and reduce environmental impacts to reasonable levels in compliance with applicable laws and regulations.

4.1 Well Abandonment

When the compliance monitoring wells are no longer required to monitor ground water quality, they will be abandoned in accordance with Utah's R655-4 Water Well Drillers Regulations.