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State of Utah

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August 14, 1996

TO: File

THRU: Joe Helfrich, Supervisor

FROM: Sharon Falvey, Senior Reclamation Hydrologist

Re: Siaperas Ditch Designs, Amendment 96-C, Nevada Electric Investment Company, Wellington Preparation Plant, ACT/007/012, Folder #2, Carbon County, Utah

SYNOPSIS:

The Permittee submitted amendment 96-C which was received at the Price Field Office on June 28, 1996. The submittal of this amendment was prompted by issues raised during site inspection. The Permittee was requested by, DOGM inspector Steve Demczak, to remove vegetation and restore drainage in the Siaperas ditch because it was ponding water. However, the operator did not restore the drainage following removal of the vegetation. Steve was concerned that this was not the purpose of the ditch and because the ditch impounds water it may be required to meet impoundment rules.

The review of this proposal included a site visit on August 7, 1996. The following analysis includes observations from that visit.

ANALYSIS:

HYDROLOGIC INFORMATION

Regulatory Reference: R645-301-742.300.

Diversions

According to the plan, in section 7.42, the Siaperas ditch was an irrigation canal prior to construction of the refuse dikes. The ditch collects runoff from agricultural lands and an undisturbed drainage area adjacent to the slurry impoundments. The Permittee has presented designs which demonstrate the channel can handle the 100 year- 6 hour event. The maximum depth of ponded water in this channel is approximately 3.3 feet. The length of ponding is approximately 400 feet with varying depths. The permittee did not provide engineering certification for the submitted design.

The Siaperas ditch is an ephemeral drainage that is supplemented with flows received through irrigation practices conducted outside of the permit area. The ponding in the channel has created a vegetated channel system. The pool does not appear to be creating instability and may have increased stability rather than an evenly graded channel. In natural systems, generally intermittent and perennial streams, pools are common and occur as part of the system. Therefore, it is not believed that the ponding in the Siaperas ditch should be considered an impoundment and should not be subject to the impoundment requirements. However, R645-742.300 , requires the diversions to be designed to minimize adverse impacts to the hydrologic balance. Because the water is ponding, the water could potentially be moving into the alluvium. This may increase the connection of water with the fine slurry and cause increased contact of groundwater with the slurry cells either through subsurface and capillary flow or through evaporative processes. The applicant must demonstrate that the ditch does minimize adverse impacts to the hydrologic cycle. It is recommended the Permittee collect water quality while the ditch is at it's maximum ponding elevation and at the same time collect water elevation and water quality samples in GW-2 and GW-3 to characterize the water; determine alluvial influences, and the potential for adverse impacts.

Findings:

The Permittee has not met the minimum regulatory requirements for this channel design. The Permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-742.300, the Permittee must demonstrate that the Siaperas ditch does minimize adverse impacts to the hydrologic cycle. It is recommended the Permittee collect water quality while the ditch is at it's maximum ponding elevation and, at the same time collect water elevation and water quality samples in GW-2 and GW-3 to characterize the water; determine alluvial influences and the potential for adverse impacts.

R645-301-512. the Permittee must provide appropriate certification of cross sections.

blb
cc: Steve Demczak, PFO

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