

# **Appendix 4**

**Oregon DEQ Letter re:  
401 Water Quality Certification  
(Application Question 5)**



# Oregon

Kate Brown, Governor

Department of Environmental Quality  
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June 19, 2018

Erik Steimle  
Vice President  
Rye Development LLC  
220 NW 8<sup>th</sup> Avenue  
Portland, OR 97209

**Re: Proposed Swan Lake Pump Storage Project**

Dear Mr. Steimle:

In a letter dated April 10, 2018 Rye Development LLC (Rye Development) requested the Oregon Department of Environmental Quality send a letter of concurrence that the proposed Swan Lake North Pumped Storage Hydroelectric Project does not require a water quality certification under Section 401 of the Clean Water Act.

Rye Development proposes to develop the Swan Lake North Closed Loop Pumped Storage Project. The Final License Application (dated 10/27/2015) describes the project, summarized below, which forms the basis for the DEQ's determination:

The Swan Lake North Pumped Storage Hydroelectric Project (Project) is a pumped storage hydroelectric project with a total installed capacity of 393.3 megawatts (MWs) in turbine mode, consuming around 300 MW by the end of the pumping cycle. It will be located roughly 11 miles northeast of Klamath Falls in Klamath County, Oregon.

#### Upper Reservoir

The upper reservoir and its associated features are located on Swan Lake Rim, a high desert plateau rising approximately 1,500 feet above the Swan Lake Valley. The reservoir will have a total volume of 3,228-acre feet, and a surface area of 64.21 acres at maximum fill. The bottom and side slopes of the reservoir will be composed of an asphalt concrete facing with a geomembrane liner.

#### Overflow Spillway

Rye Development added an overflow spillway on both reservoirs to comply with Federal Energy Regulatory Commission (FERC) requirements.

#### Drainage System

The drainage system will detect, collect and monitor water leakage through the impervious polyvinyl chloride (PVC) membrane, and release potential uplift pressure below the geomembrane layer in case of quick dewatering of the reservoir. The drainage system consists of perforated pipes network to collect the water from the drainage layer and carry the water out of the reservoir towards measurement stations located at the external toe of the reservoir.

#### Lower Reservoir

The lower reservoir is located on the plateau at the top of the Grizzly Butte, a hill of volcanic origin culminating 295 feet above the bottom of the Swan Lake valley. The reservoir will have a total volume of 3,206 acre-feet,

and a surface area of 60.14 acres at maximum fill. The bottom and side slopes of the reservoir will be composed of an asphalt concrete facing with a geomembrane liner.

#### Bottom Outlet

The bottom outlet structure will dewater gravitationally the lower reservoir in case of emergency. The bottom outlet facility will be installed on the south side of the lower reservoir in order to release the water along Grizzly Butte, away from the powerhouse and access road, and release water into Swan Lake Valley.

#### Groundwater Conveyance

A local groundwater agricultural pumping system will provide the initial fill water and long-term refill for evaporative losses. Three existing groundwater wells in the Project vicinity will supply groundwater to the lower reservoir via an existing underground agricultural irrigation network.

#### DEQ Evaluation

To determine whether a CWA Section 401 water quality certification is required, DEQ must determine whether there is any potential discharge to navigable waters.

#### Surface waterbodies

Rye Development noted that Swan Lake is the nearest surface water feature to the Project's reservoirs and power production infrastructure. It is located approximately 1.4 miles southeast of the Project's lower reservoir. The National Wetland Inventory identifies roughly 7,000 acres of wetlands within a 5-mile radius of the Project Area. However, Rye Development notes that the Project is largely isolated to upland areas so wetlands are not found in the project area aside from those that would be spanned by the Project's transmission line. Road improvements would not involve any in water work.

Construction of access roads for the upper reservoir will involve crossing of intermittent waterbodies. Rye Development notes that construction will occur during the dry season when water would not be present.

The penstock connecting the upper and lower reservoir will be enclosed and is not expected to influence surface water. Rye Development notes normal Project operation and maintenance will not require draining the reservoirs, and spillage from the reservoir is highly unlikely due to the closed nature of the system. The lower reservoir is surrounded by more than 1000 acres of farmland and backed by Grizzly Butte—a volcanic formation.

#### Groundwater

Rye Development notes that near-surface groundwater is not known to occur in the area of the Project reservoirs, penstock, powerhouse, or associated features. DEQ consulted with Water Resources Department and WRD staff advised that if the system operates as designed, to be a closed loop system (with the reservoir lining in place), then there would be no expectation of leakage or groundwater contamination.<sup>1</sup>

#### Spill

The climate of the Project Area and the surrounding region is semi-arid. Average total annual precipitation for the valley floor is about 14 inches, with precipitation in the uplands averaging around 20 inches. As noted by the Rye Development, Project design eliminates surface water runoff into either the lower or the upper reservoirs. If a major rainfall event occurred, including an event as large as the probable maximum precipitation, the embankments for the lower and upper reservoirs have a top elevation that has adequate freeboard to store the design capacity plus the probable maximum precipitation amount of approximately 20 inches.<sup>2</sup> WRD notes that

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<sup>1</sup> Mary Grainey, Oregon Water Resources Department, email dated 6/7/2018.

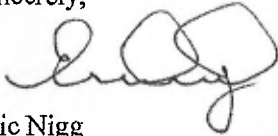
<sup>2</sup> Letter from Rye Development, dated 4/10/2018.

the surrounding area if very flat so that in the event of a catastrophic failure, water would likely spread out over a large surface area and then seep into the ground.<sup>3</sup>

DEQ has determined that given these specific facts the Swan Lake Pump Storage Project will not likely result in any discharge to navigable waters.

Please contact DEQ if the Project proposal is modified in any way. DEQ reserves the right pursuant to federal and state law to require compliance with state water quality standards should any modification potentially result in a discharge to navigable waters. Please Marilyn Fonseca at 503-229-6804 or [fonseca.marilyn@deq.state.or.us](mailto:fonseca.marilyn@deq.state.or.us) if you have questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Nigg", written in a cursive style.

Eric Nigg  
Manager, DEQ Eastern Region Water Quality

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<sup>3</sup> Mary Grainey, Oregon Water Resources Department, email dated 6/7/2018.