

The Black Nubble Wind Farm

Section 15: Groundwater

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1.0 Groundwater Narrative

This section presents information on the locations of significant quantities of groundwater in the project area, any potential threats to existing groundwater resources, and measures to prevent adverse impacts.

1.1 Location & Maps

The hydrogeologic conditions for the project area have been reviewed using the Maine Geological Survey (MGS) Surficial Geology, Bedrock and Sand and Gravel Aquifer Maps.

There are no EPA-designated sole-source aquifers located in the project area (USEPA 1999). No private wells are located within ¼ mile of any proposed turbines, access roads or power lines.

1.2 Quantity

The wind farm itself - turbines, roads and power lines - will not use groundwater. The maintenance facility building will include a private drilled well for drinking, cleaning and restroom water for 2-6 employees, which will not significantly affect the local aquifer.

During the construction phase, concrete required for the turbine foundations will likely be provided from a temporary concrete plant, set up in the project's maintenance lot northwest of Black Nubble mountain. The concrete mix will require small amounts of water. A watering truck may also be used during construction, to reduce dust on the gravel roads. The water will most likely be sourced from an onsite well. The required quantities of water will not be significant to the project area's aquifer. See section 16.0 (Water Supply Narrative) for further details about estimated water use.

1.3 Sources of Potential Contamination

The operation of the wind farm turbines will involve use of common lubricants and chemical products, for transportation vehicles and for the turbines themselves. These products are typically integral to the equipment on site, including oil-lubricated machinery, batteries and other products. Due to limited quantities, these products in the turbines will not present a significant potential for groundwater contamination. The one exception to this is the cooling oil in the

substation primary transformers, whose quantity of oil represents a potential contaminant. Spill prevention measures are described below.

Storage and use of lubricating oils and chemical products in small quantities will occur for vehicle maintenance in the maintenance facility. The building will have a cement slab floor and include a sand / oil separator in the floor drain system, to ensure that all oils and other chemicals used / spilled within the building don't enter the groundwater.

During the construction phase, potential sources of groundwater contamination will be fuel, hydraulic and lubricating oils used by the construction and transportation vehicles and machinery. Spills from these vehicles and machines are typically small, and when properly cleaned up will not pose any risk to groundwater quality.

1.4 Measures to Prevent Degradation

Stormwater runoff is sometimes considered a source for groundwater contamination. The road drainage maintenance and the transmission line corridor clearing and erosion control activities will be performed according to the plans in section 14, Erosion and Sedimentation Control, and section 13, Maintenance, which will ensure no impact to the existing stormwater drainage in the project area. In addition, power line construction will remove the overstory vegetation within the corridors and leave the shrub and brush layers intact, which should improve the soil's ability to absorb runoff within the corridors, and thus enhance the natural absorption and groundwater replenishment.

The Electric Harvest substation will contain 1 or more large oil-cooled transformers, which will be mounted in a retention system designed to contain any accidental oil spills. This retention system will be sized to capture 100% of the cooling oil, and will also include protections to ensure that outside stormwater doesn't enter and overtax the system. The prevention system will be inspected monthly and semi-annually, as described in section 13, "Maintenance."

A project-specific Spill Prevention and Cleanup Plan will be prepared using industry Best Management Practices (BMPs), and given to the project's general contractor for use by all site employees and subcontractors prior to the start of construction. The spill plan will provide directions for safe storage and handling of fuels and oils, spill cleanup guidelines, and definitions and reporting procedures for significant spills, including emergency contact phone numbers.

Requirements for on-board vehicle oil spill kits will be included in the plan. This plan will be updated before the wind farm goes on-line to include the operation and maintenance of the turbines themselves.

2.0 Groundwater Protection Plan

The groundwater protection plan for the Black Nubble Wind Farm will consist of the plans and methods described in section 14, Erosion and Sedimentation Control, the plans for ongoing power line corridor maintenance and the plan for substation transformer oil spill prevention and containment referenced in section 13, Maintenance, and the project-specific Spill Prevention and Cleanup Plan for the construction and operation phases, referenced above.

These plans represent the overall groundwater protection plan for the project.

In summary, the wind farm will not alter the existing groundwater aquifer or surface water drainage, and will not present any undue risk of contamination to groundwater.

3.0 References

For further information – please consult:

- Maine Geological Survey (MGS) Surficial Geology Map
- Maine Geological Survey (MGS) Bedrock Geology Map
- Maine Geological Survey (MGS) Sand and Gravel Aquifer Map