

2.9 SPILLAGE PREVENTION AND CONTROL

WAC 463-42-205 Proposal – Spillage prevention and control. The applicant shall describe all spillage prevention and control measures to be employed regarding accidental and/or unauthorized discharges or emissions, relating such information to specific facilities, including but not limited to locations, amounts, storage duration, mode of handling, and transport.

2.9.1 Introduction

This section describes measures that will be taken to prevent and mitigate any accidental spills or discharges. Construction of the Project will require the use of diesel fuel for operating construction equipment and vehicles. Measures to prevent and contain any accidental spills resulting from this fuel storage and use are described below in Section 2.9.2.1, 'Construction Spill Prevention'. Operation of the Project will not require the storage or use of significant quantities of fuel or other materials that could cause a spill or other accidental release. Section 4.1.3, 'Releases or Potential Releases of Hazardous Materials to the Environment', contains additional detail on the quantities of materials to be used in construction and operation of the Project and measures to prevent any releases of these materials to the environment.

2.9.2 Spill Prevention Plan

2.9.2.1 Construction Spill Prevention

Fuel and lubricating oils from construction vehicles and equipment and the mineral oil used to fill the substation transformer(s) are the only potential sources for a spill prevention control program during construction activities. The EPC contractor will be responsible for training its personnel in spill prevention and control and, if an incident occurs, will be responsible for containment and cleanup.

During construction, the EPC contractor will utilize fuel trucks for refueling of construction vehicles and equipment on site. There will be no fuel storage tanks used at the Project site. The fuel trucks will be properly licensed and will incorporate features in equipment and operation, such as automatic shut off devices, to prevent accidental spills.

The Project will have a substation with one or two substations transformers which need to be filled with mineral oil on site as they are delivered without oil in the tank. As part of the commissioning process of the main transformers(s), they will be filled and tested. The oil truck will be properly licensed and will incorporate several special features in equipment and operation, such as automatic shut off devices, to prevent accidental spills.

Lubricating oils used during construction will mostly be contained in the vehicles and equipment for which they are used. Small quantities of lubricating oils may also be stored in appropriate containers at the construction staging area located at the site of the O&M facility.

It is anticipated that a Construction Spill Prevention Plan will be submitted and approved by EFSEC prior to commencement of construction.

2.9.2.2 Operations Spill Prevention

Project operations will not require the use of a permanent fuel storage tank, as fuel use during operations is limited to maintenance vehicle fueling which will be done at existing licensed gas stations in nearby communities (Ellensburg or Cle Elum.) The potential for accidental spills during Operations is minimal, as the only materials used during Project operations that present any potential for accidental spills are lubricating oils and hydraulic fluids used in the wind turbine generators and transformers.

2.9.2.2.1 Wind Turbine Generator Fluids

Each turbine model has different specifications for lubricating oil and hydraulic fluid quantities. There are three main types of fluid in a wind turbine generator (WTG): Cooling fluid for the generator (a mix of glycol and water, similar to that used in automobile radiators), lubricating oil for the gearbox (typically a synthetic lubricating oil), and hydraulic oil for operating the blade pitch system, yaw mechanism and brakes. The maximum volumes of fluids contained in any of the turbines being considered for this project are listed below in Table 2.9.2.2.1-1.

Turbine Component	Fluid Type	Quantity per WTG (maximum)
Generator cooling system	Glycol-water mix	50 gallons
Hydraulic systems (blades, brake, yaw, etc.)	Hydraulic oil	85 gallons
Gearbox lubrication	Lubricating oil	105 gallons

All of the WTGs being considered for this Project are equipped with sensors to automatically detect loss in fluid pressure and/or increases in temperature which enable them to be shut down in case of a fluid leak, as well as fluid catch basin and containment systems to prevent any accidental releases from leaving the nacelle. Based on the limited quantities of fluids contained in the WTGs and the leak detection and containment systems engineered into their design, the potential for an accidental spill from WTG malfunction is extremely limited. Furthermore, any accidental gear oil or other fluid leaks from the wind turbines will be contained inside the turbine towers which are sealed around the base.

The fluids described in the table above are checked by Operations staff periodically and must be replenished or replaced on an infrequent basis (generally less than once per year and sometimes only once every five years.) When replacing these fluids, Operations staff will climb up to the nacelle and remove the fluids in small (typically 5 gallon) containers and lower them to the ground using a small maintenance crane built into the nacelle itself. The containers are then transferred to a pickup truck for transport to the O&M facility for temporary storage (typically less than one month) before being picked up by a licensed transporter for recycling. Replacement fluids are added in the same method, only in reverse. Small quantities of replacement fluids,

typically no more than a few 50 gallon drums, of lubricating oil and hydraulic oil may be stored at the O&M facility for replenishing and replacing spent fluids. These fluids will be stored indoors in appropriate containers. All Operations staff will be trained in appropriate handling and spill prevention techniques to avoid any accidental spills. Because only small quantities of fluids are transported, added or removed at any one time and are stored for short periods of time, the potential for an accidental spill during routine maintenance is extremely limited.

2.9.2.2.2 Transformer Mineral Oil Coolant

Pad Mounted Transformers

As described in Section 2.3, 'Construction On Site', each wind turbine generator has a pad mounted transformer located at its base. These transformers contain mineral oil which acts as coolant. Each pad-mounted transformer contains up to 500 gallons of mineral oil. The transformer is designed to meet stringent electrical industry standards, including containment tank weldment and corrosion protection specifications.

Substation Transformer(s)

As described in Section 2.4, 'Energy Transmission Systems', the entire Project will be electrically connected to the grid at the substation which will be equipped with either one or two transformers. Each substation transformer contains up to 12,000 gallons of mineral oil for cooling. The transformer is designed to meet stringent electrical industry standards, including containment tank weldment and corrosion protection specifications. The substation transformers are equipped with an oil level sensor that detects any sudden drop in the oil levels, and sends an alarm message to the central SCADA system. Finally, the substation transformers are surrounded by a concrete berm or trough to ensure that any accidental fluid leak does not result in any discharge to the environment.

It is anticipated that an Operation Spill Prevention Control plan will be submitted and approved by EFSEC prior to operation.