

secondary containment of all identified oils, grease, and lubricants. These measures are discussed in more detail in the Emergency Response Plan in Appendix A.

Table 8.1-1 shows the maximum requirements for oils and fluids in a single offshore wind turbine. The spill containment strategy for each WTG is comprised of preventive, detective and containment measures. These measures include 100 percent leakage-free joints to prevent leaks at the connectors; high pressure and oil level sensors that can detect both water and oil leakage; and appropriate integrated retention reservoirs capable of containing 110 percent of the volume of potential leakages at each WTG.

Tables 8.1-2 through 8.1-3 show the maximum anticipated requirements for a single offshore substation and onshore substation.

Table 8.1-1. Summary of maximum potential volumes oils, fuels, and lubricants per WTG.

WTG System/Component	Oil/Fuel Type	Oil/Fuel Volume
WTG Bearings and yaw pinions	Grease*	187 gallons
Hydraulic Pumping Unit, Hydraulic Pitch Actuators, Hydraulic Pitch Accumulators	Hydraulic Oil	40 gallons
Drive Train Gearbox (if applicable), Yaw Drives Gearbox	Gear Oil	106 gallons
Transformer	Dielectric Fluid	1,585 gallons
Emergency Generator	Diesel Fuel	793 gallons
Switchgear	Sulfur Hexafluoride (SF6)	243 lbs
Transformer and Converter Cooling System	Propylene Glycol	357 gallons
Converter Primary Cooling	Ethylene Glycol	48 gallons

* Approximately 26 gal to 40 gal (100 L to 150 L) per large bearing.

Table 8.1-2. Summary of maximum volumes oils, fuels, and lubricants per offshore substation.

Equipment	Oil/Fuel Type	Oil/Fuel Volume
Transformers and Reactors	Transformer oil	79,252 gallons
Generators	Diesel Fuel	52,834 gallons
High-Voltage & Medium-Voltage Gas-insulated Switchgear	Sulfur Hexafluoride (SF6)	4,950 lbs
Crane	Hydraulic Oil	317 gallons

Table 8.1-3. Summary of maximum volumes oils, fuels, and lubricants per onshore substation.

Parameter	Oil/Fuel Volume
Transformer oil substation	38,170 gallons
Fixed shunt reactor 1 oil	15,500 gallons
Fixed shunt reactor 2 oil	7,350 gallons
Variable shunt reactor oil	18,300 gallons
SF6 substation	6,603 lbs
Batteries (lead acid gel)	4,034 lbs