3.6 ENVIRONMENTAL HEALTH

This section describes the existing environmental health conditions related to the proposed project, and evaluates potential impacts the proposed project and the alternatives could have on environmental health. Specifically, this section describes the storage and usage of potentially hazardous materials associated with the proposed project and alternatives, and evaluates the potential impacts resulting from the accidental release of these materials into the environment. It also includes a discussion of the potential effects of electromagnetic fields (EMF) resulting from the operation of electrical equipment.

3.6.1 AFFECTED ENVIRONMENT

Existing conditions for the site area are discussed below. Specific plant site and infrastructure corridor conditions are discussed when they vary significantly from the general site area conditions.

3.6.1.1 Site Area

The study area (referred to herein as the site area [see Figure 3.3-1 in Section 3.3 Water]) for this assessment is defined as an area of approximately 546 acres around the plant site. This area extends roughly to Christy Road to the south and includes such features as an existing agricultural property (Plymouth Farm), the lower portion of Fourmile Canyon, the Burlington Northern Santa Fe (BNSF) railway, and the existing Williams Northwest Gas Pipeline Company (Williams Co.) compressor station. A Phase I environmental site assessment was performed in February 2002 on the plant site and site area (URS 2002). Existing conditions information from the environmental site assessment is included as part of this section.

Approximately 179 acres of the site area are currently used as apple and cherry orchards. The property within the site area primarily consists of vacant fields previously used as apple and/or cherry orchards. Structures present in the site area include a maintenance shop, three residences, an equipment storage shed, two well pump sheds, powered windmills for frost control, and two storage silos. Plymouth Farm employees currently live in the onsite residences. Unpaved access roads are present throughout the site area within the perimeter of the orchard fields.

Storage and use of hazardous materials are associated with the onsite agricultural operations and vehicle maintenance. Twenty aboveground storage tanks (ASTs) are present on the agricultural property within the site area. Sixteen of the 20 ASTs are propane and are used to power orchard windmills. The remaining four ASTs contain petroleum products, including diesel fuel, gasoline, and waste oil. Pesticides, fungicides, insecticides, herbicides, and fertilizers are stored at one of the silos at the southwestern portion of the site area.

The Williams Co. compressor station, which was originally developed in the 1950s, is located on an approximately 69-acre site within the site area. The compressor station currently consists of two liquefied natural gas (LNG) storage towers, compressor equipment buildings, and various "refrigerant" ASTs that contain gaseous contents. In addition, six ASTs ranging in size from 150 to 11,000 gallons that contain petroleum products (diesel, gasoline, and used oil) are present at the compressor station. A drum staging dock is present at the northwestern portion of the

compressor station and approximately twenty 55-gallon drums containing motor oil, kerosene, and methanol were observed. Storage of petroleum products at the compressor station is reportedly associated with operation of the compressor equipment and emergency generators, and fueling of the onsite vehicles.

3.6.1.2 Proposed Action

3.6.1.2.1 Plant Site

The plant site portion of the site area is currently undeveloped, and was recently used for orchards. The crop trees have been removed and the land cleared. The plant site is currently fallow land. The use of chemicals or other hazardous materials is not known to occur within the proposed plant site.

3.6.1.2.2 Transmission Interconnection

The proposed transmission interconnection corridor is currently undeveloped and consists of open fallow land. The use of chemicals or other hazardous materials is not known to occur within the proposed transmission corridor.

3.6.1.2.3 Access Road

The proposed access road would include approximately 2,500 feet of Plymouth Industrial Road, which is an existing industrial access road intersecting State Route (SR) 14 approximately 2 miles west of Interstate 82 (I-82). The remainder of the proposed access road between the intersection with Plymouth Industrial Road and the proposed plant site is currently undeveloped and consists of open fallow land.

3.6.1.3 Alternate 230-kV Transmission Interconnection

The existing condition for the 230-kV transmission interconnection would be the same as for the proposed transmission interconnection, because the proposed 500-kV line and the 230-kV line are located in the same physical location.

3.6.1.4 Alternate Benton PUD/BPA Transmission Interconnection

The alternative Benton Public Utility District (PUD)/BPA transmission interconnection corridor is currently undeveloped and consists of orchard and pasture between the plant site and Christy Road. At Christy Road, the alternate interconnection would follow an existing Benton PUD transmission line corridor. The use of chemicals or other hazardous materials is not known to occur within the alternate Benton PUD/BPA transmission interconnection corridor.

3.6.1.5 Access Alternative

The alternate construction and operation access roads would include approximately 3.5 miles of the existing Christy Road between SR 14 and the site area. The remainder of the alternate construction access road corridor between Christy Road and the proposed plant site is currently a

combination of unimproved farm access road and undeveloped orchard and pasture. The alternate operation access road would be an improved existing farm road on the Plymouth Farm.

3.6.2 ENVIRONMENTAL CONSEQUENCES

3.6.2.1 Methodology

"Significant" impacts are defined according to State Environmental Policy Act (SEPA) rules (Ecology 1998) as having "a reasonable likelihood of more than a moderate adverse impact on environmental quality." For this section, an impact would be considered significant if a release of hazardous materials posed a threat to the health of the general public or to the surrounding environment. For example, a significant impact would occur if hazardous materials were to migrate offsite in either the air, surface water, or groundwater at concentrations that are considered dangerous. The significance of impacts are discussed below with respect to the duration and intensity of potential impacts.

Impacts to environmental health would be considered high (and significant), moderate, or low depending on the extent to which the proposed project would (1) substantially impair current or future environmental health conditions, (2) result in a change in overall environmental health patterns, or (3) conflict with environmental health regulations.

The discussion of environmental health impacts focuses on storage and use of petroleum products and other chemicals at the plant site. After the discussion of potential impacts, appropriate mitigation measures are identified.

3.6.2.2 No Action Alternative

Significant impacts from the No Action Alternative would not occur. Land use and associated environmental health issues are not expected to change from current conditions. Given the current use of the plant site and site area, minor impacts related to releases of petroleum products and other chemicals could potentially occur. Electromagnetic fields, to the extent that they do occur, would remain the same.

3.6.2.3 Proposed Action

3.6.2.3.1 Site Area

Impacts to the site area would not occur other than specific impacts associated with the Proposed Action and infrastructure corridors, discussed below. In general, land use and associated environmental health issues are not expected to change from current conditions and would be similar to the No Action Alternative.

3.6.2.3.2 Plant Site

Construction Impacts

With the exception of the potential for minor petroleum spills from leakage or onsite fueling of vehicles and equipment, any constructed-related impacts that occur are expected to be minimal.

Due to the types of activities in the construction zone, the most likely contaminant would be petroleum hydrocarbons (e.g., diesel fuel and lubricants). The quantity of the contaminants released is not expected to exceed 55 gallons because 55-gallon drums would be the largest expected container onsite during construction. These potential releases would contaminate soils locally and could, if not cleaned up, degrade groundwater quality locally beneath the site. The general contractor would be responsible for containing and cleaning up spills during construction. General contractor responsibility includes training personnel to avoid spills and how to contain and clean up spills that do occur. Based on the contractor's responsibilities, it is assumed that any spills would be addressed quickly, and the duration and magnitude of any impacts would be minimal.

Operation Impacts

Table 3.6-1 provides a list of the hazardous materials that would be used and stored at the plant site. The listed tank sizes could change during final design.

Table 3.6-1
Hazardous Materials List

Equipment Name	Contents	Estimated Storage Capacity (Gallons)
Oxygen scavenger tank	Proprietary product containing diethylhydroxyl amine (premixed)	275
Aqueous ammonia tank	Ammonia solution (19% by weight)	20,000
Feedwater treatment tank	Proprietary product and phosphate (premixed)	275
Feedwater treatment tank	Sodium nitrate and sodium hydroxide (premixed)	400-550
Acid tank	Sulfuric acid solution (93%)	6,000
Caustic tank	Sodium hydroxide (30-50%)	150
Biocide tank	Sodium hypochlorite (premixed)	1,000
Inhibitor	Proprietary product, K7775 polymer, and phophonate (premixed)	1,000
Lube oil tank steam turbine	Lubricating oil	5,500
Lube oil tank comb. turbine	Lubricating oil	9,800
Steam turbine control fluid	Phosphate ester fluid	300
Diesel generator fuel tank	No. 2 diesel oil	1,000
Diesel fire pump fuel tank	No. 2 diesel oil	500
Combined turbine/control fluid	Mineral oil	100

Natural gas would be the only fuel for the main combustion gas turbines; a backup fuel would not be used at this facility. The only liquid fuels at the facility would be diesel fuel stored in a 1,000-gallon tank for the emergency generator, diesel fuel stored in a 500-gallon tank for the fire pump, and fuels in vehicles onsite.

The most significant potential spills during operation would be from:

- Diesel fuel stored for the emergency diesel generator and diesel fire pump
- Lubricating oil from turbine or generator lube oil systems reservoirs
- Boiler chemicals stored in chemical feed tanks
- Water treatment chemicals stored in tanks in the water treatment plant
- Aqueous ammonia stored in an AST

Engineered safeguards would be employed to avoid spills into the environment. These safeguards would be designed so that, in the unlikely event spills do occur, they would not discharge onto the ground or into surface water. Spill control measures would vary with the material and would include:

- Dikes around tanks to contain the tank volume
- Tank level indicators
- Controls or alarms to avoid overfilling
- Special truck unloading connections to avoid mixing of chemicals
- Fail-safe controls for valves and pumps
- Tank overflows directed to controlled areas

All liquid storage areas would be above ground in concrete-floored areas with concrete curbing or dikes, sized to contain more than the volume of tanks within the diked area. The concrete containment would be designed so that the spills would drain towards closed sumps, which would allow for recovery of the hazardous materials following a release. The diesel fuel tank would be above ground and double-walled, have a containment dike, and comply with current regulations and codes.

All shipments of hazardous material, except natural gas, to the PGF would be by truck. Engineered safeguards would be in place before the initial deliveries and at all times afterward. Truck unloading stations would be designed to prevent spills, and truck parking would be on a paved area. Facility truck unloading connections would be closed by a valve or removable cap or flange at all times except when the truck is unloading. Truck unloading would be operated and supervised by the driver; unmanned unloading would not be performed. Curbed drip areas under the connections would collect any spills of liquids left in the unloading hoses.

Aqueous ammonia would be used in the gas turbine selective catalytic reduction (SCR) unit to reduce nitrogen oxide compounds from the exhaust and heat recovery steam generator (HRSG) units. Ammonia in high concentration is considered an acutely hazardous material. The aqueous ammonia solution to be used in the SCR would be 19 percent ammonia, and 81 percent water (by

weight), and would be stored onsite in a 20,000-gallon AST. At this dilute concentration, the aqueous ammonia solution is not considered a hazardous material.[1]

Accidental releases of aqueous ammonia could involve spills from the storage tank, spills during the delivery of aqueous ammonia, or the escape of aqueous ammonia during the delivery of aqueous ammonia from the AST to the SCR system. In the event of an aqueous ammonia spill due to a tank rupture or an accident during the filling of the tank, the aqueous solution would be contained within a concrete vault surrounding the AST or within the engineered spill containment in the loading area where the aqueous ammonia deliveries would be made. This containment and recovery of the ammonia would eliminate any immediate impact to the environment directly related to the ammonia solution. Emergency systems would be designed to detect a release of ammonia during the transfer of the ammonia solution between the AST and the SCR system. If a leak is detected, the system would automatically stop the flow of aqueous ammonia and the resulting spill would be quickly cleaned up in accordance with the spill control plan. In the event of a catastrophic failure of the tank or a spill from a tanker truck transporting aqueous ammonia to the site, some of the ammonia may be expected to vaporize and would be recognized as a noxious odor. However, due to the low concentration of ammonia (the material would be 81 percent water), vaporization would be at such a low rate that toxic effects to human health are not expected to occur.

It is a requirement of 40 Code of Federal Regulations (CFR) 68 that facilities with significant quantities of hazardous materials onsite prepare a Risk Management Plan. Table 1 of Sec. 68.130 (of 40 CFR 68) lists the regulated toxic substances and their associated threshold quantities. Facilities that have more than 20,000 pounds of aqueous ammonia of a concentration of 20 percent or greater would be subject to this program. Although the ammonia tank would contain more than 20,000 pounds of aqueous ammonia, the ammonia concentration would be 19 percent. Thus, the project is exempt from having to prepare a Risk Management Plan.[2] Given the low concentration of ammonia, the potential vapors that could result from a spill would not be considered hazardous, as described above.

Spill prevention to the soil or water would be managed by not bringing operating materials onsite until the concrete floors, tanks, and dikes are complete and ready for the material. As temporary facilities would not be used, the likelihood that hazardous material could be released into the environment during plant operation would be very small. In the unlikely event of a spill reaching an area outside of the concrete containment, the spill would be immediately cleaned-up in accordance with the spill control plan that would be prepared for the project (discussed in Section 3.6.3).

---

[1] Based on the proposed ammonia emission limit (a permit condition) of 5 parts per million (ppm), ammonia emissions (1b/hr) were calculated. U.S. Environmental Protection Agency (EPA)-approved dispersion models were then used to calculate concentrations in the outdoor air at offsite locations. The model-predicted concentration at the worst-case location on the worst-case day of meteorology was 2.2 percent of the Acceptable Source Impact Level (ASIL) established by the Washington Administrative Code (WAC) 173-460. Concentrations less than the ASIL are deemed to have an insignificant health impact.

[2] According to 40 CFR 68.130, concentrations less than 20 percent do not pose sufficient risk to require a Risk Management Plan.

Certain facility systems or construction steps require special treatment of piping or equipment (such as maintenance pressure-washing of the turbines, acid cleaning the HRSG, or pickling lubricating oil piping) to ensure the proper condition of the completed facility. Special work of this nature shall be contracted to firms experienced with the particular process involved. The firms would be required to provide a spill prevention plan together with the required chemicals, perform the work, and provide spill protection and ultimate disposal of the chemicals as part of their work. The type of required chemicals would depend on the type of work performed.

With proper handling, transport, and use of hazardous materials during PGF operation, impacts are expected to be low and therefore less than significant.

3.6.2.3.3 Transmission Interconnection

Impacts from constructing the proposed transmission interconnection would be similar to those discussed for the plant site. No hazardous materials are routinely used in the operation of the transmission line, thus there would be no potential impacts.

The flow of electrical energy through the interconnecting transmission line would generate an EMF around the transmission line. The strength of this field would decrease very rapidly with distance from the line, and its initial strength would be significantly influenced by the separation and configuration of the individual conductors. In addition, operation of electrical transmission lines may cause interference with nearby radio and television signal reception. The proposed interconnecting transmission line would be located at a sufficient distance from any residential structures that exposure to an increase in EMF from the interconnecting transmission line would not be likely to occur; therefore, no potential impacts are expected.

3.6.2.3.4 Access Road

Construction Impacts

Potential construction impacts from the proposed access road would be similar to those discussed for the plant site. In addition, the proposed access road would include a crossing of Fourmile Canyon, which has intermittent surface water flow. Therefore, potential spills of petroleum products by construction equipment could affect surface water quality. The general contractor would be responsible for containing and cleaning up spills during construction. General contractor responsibility includes training personnel to avoid spills and contain and clean up spills that do occur. Provided that the spills are addressed quickly, the duration and magnitude of impacts should be low and therefore less than significant.

Operation Impacts

Use of the proposed access road during operations is not expected to produce any impacts from routine use. Release of materials transported over the road could occur, but is not likely to occur, as a result of a vehicular accident. Such an accident would trigger a cleanup response by the transporter. Because Fourmile Canyon is an intermittent stream that rarely has running water, it is unlikely that a material spill from the roadway would encounter a moving surface water flow and be transported, thereby causing impacts of a measurable aerial extent.

3.6.2.4 Alternate 230-kV Transmission Interconnection

Impacts attributable to the alternate 230-kV transmission interconnection would be the same as those for the proposed transmission interconnection because the proposed 500-kV line and the 230-kV line are located in the same physical location.

3.6.2.5 Alternate Benton PUD/BPA Transmission Interconnection

Construction impacts from the alternate Benton PUD/BPA transmission interconnection would be similar to those discussed for the plant site and could include minor releases of petroleum products. However, this alternate interconnection would also include a crossing of Fourmile Canyon and the Columbia River. Therefore, potential spills into surface water, if present, by construction equipment, while unlikely, could affect surface water quality. The general contractor would be responsible for containing and cleaning up spills during construction. General contractor responsibility includes training personnel to avoid spills and how to contain and clean up any spills that do occur. Provided that the spills are addressed quickly, the duration and magnitude of any impacts would be low and therefore less than significant.

Upgrade of the existing Benton PUD line along Christy Road could increase the existing EMF generated by the existing line. However, based on the specific configuration of the upgraded line (i.e., the spatial relationship of the individual phases to each other), this increase may not be significant. In addition, the residential structures along Christy Road and in proximity to the transmission line have been constructed approximately 100 to 150 or more feet back from the road and transmission line right-of-way. At this distance, any increase in EMF would be significantly diminished, to the extent that they do occur, and no impacts are expected to occur.

3.6.2.6 Access Alternative

Potential impacts from improvements and use of the alternate access roads would be similar to those discussed for the proposed access road to the plant site (Section 3.6.2.3.4) except that neither of the alternate access construction or operation roads would cross any surface drainages (i.e., Fourmile Canyon).

3.6.3 SUMMARY OF IMPACTS

Where construction for the proposed or alternative infrastructure corridors occurs over a surface water body (i.e., Fourmile Canyon, if it contains water at the time of construction, or the Columbia River), engineered spill control measures, such as contaminant and recovery equipment, would be available and used as needed to minimize or eliminate the potential for hazardous materials spills. Completing construction during times when water is not present in the drainage would reduce impacts. Any hazardous material spill to surface water would be quickly controlled and cleaned up.

In general, impacts attributable to the PGF on environmental health would be low and therefore less than significant. Design measures included in the proposed project that would reduce impacts include the following spill control:

- A Spill Control Plan would be prepared, and spill control measures would be used to minimize or eliminate the potential for hazardous materials spills during PGF construction and operation. The plan would be prepared in accordance with Washington State Department of Ecology (Ecology) requirements (Ecology 1991). Any hazardous material spill to soil or surface water would be quickly controlled and cleaned up.

- Tanks would be enclosed in curbs or dikes with volume adequate to contain the spill. Potential spill areas would have concrete floors. In the unlikely event of a double failure of tank and dike, the spill would still be contained on a concrete floor. Floor drains of equipment buildings that are a potential source of lubricating oil spills would pass through an API oil separator before discharging to the wastewater storage pond. Floor drains in the water treatment area would flow to the wastewater storage pond. Spills to the concrete floors would be contained and cleaned up by absorbent materials. These resulting solid (and possibly hazardous) waste materials would be disposed of in an approved landfill.

- As part of the Spill Control Plan, operating personnel would be trained in the proper handling of all chemicals and other liquids onsite. They would be trained in the proper operation of systems to avoid spills and how to keep spills, should they occur, within the controlled areas. With engineered spill control measures and proper training, any spilled material would be unlikely to discharge into soil or surface water.

3.6.4 MITIGATION MEASURES

Impacts attributable to the PGF would be less than significant; therefore, no mitigation measures would be required.

3.6.5 REFERENCES

URS. 2002. *Phase I Environmental Site Assessment A/B Hops Farms Properties, Prosser, Washington.* March 11.

Washington Department of Ecology (Ecology). 1991. Facility Contingency Plan and Response Contractor Standards (Chapter 173-181 WAC). Updated November 5.

———. 1992. Facility Oil Spill Prevention Plan Standards (Chapter 173-180D WAC). Updated July 8.

———. 1998. SEPA Rules (Chapter 197-11 WAC). Updated March 4.