APPENDIX E

Spillage Prevention and Control

This section discusses the spillage prevention and control measures to be employed during construction, operation, and maintenance of the following facilities associated with the Starbuck Power Project (SPP):

- Generation plant
- Alternative water supply pipeline
- Access roads
- Wastewater facilities

The Applicant will prepare a Spill Prevention Countermeasure and Control Plan (SPCC Plan) in accordance with 40 CFR 112.7 and 173-180D WAC. This plan will be submitted to Washington's Department of Ecology at least 65 calendar days before operation begins. This SPCC Plan will be fully implemented before the SPP begins operation.

E.1 Generation Plant

E.1.1 Construction

The general contractor will be responsible for containing and cleaning up spills during construction. This will include training personnel in spill awareness, prevention, containment, and cleanup.

The following are sources of potential spills during construction:

- Diesel and gasoline leaking from construction equipment
- Diesel and gasoline storage for construction equipment
- Lubricant oil for flushing and preparing turbines
- Transformer oil inside transformers
- Chemicals for treating equipment components

Fuel leaks from construction equipment or releases during refueling represent the primary risk for spills during construction. Construction equipment will be monitored for leaks and receive regular preventive maintenance to ensure proper operation and to reduce the chance of leaks. Heavy equipment refueling will typically be provided by a fuel tanker truck specifically equipped for fueling operations and supplied by a local subcontractor. Refueling operations will be supervised, and topping off of fuel tanks will be discouraged. Spills that occur during refueling will be reported and cleaned up by the general contractor.

There is the potential (to be determined during mobilization) that temporary 500-gallon gasoline and 500-gallon diesel fuel tanks may be used during construction. If used, the fuel tanks will be located within an earthen berm with an oil-proof liner sized to contain the volume that would be released if the largest tank within the bermed area were to fail. During periods of heavy rainfall and after construction equipment tanks have been filled or

emptied, secondary containment areas will be inspected for accumulations of water containing any oil sheen that might indicate the presence of petroleum products. If an oil sheen is not detected, the rainwater may be discharged onsite. If an oil sheen is detected, the contaminated water will be isolated and removed, either with absorbents or by pumping and trucking the contaminated water to an appropriate disposal facility.

Various types of lubrication oil will be used during construction. These oils and anticipated approaches for managing them include the following:

- **Turbine lubrication oil.** Several barrels of turbine lubrication oil will be present at the site during combustion turbine (CT) and steam turbine (ST) lubrication oil flushes. These barrels will be stored in temporary lined bermed areas to contain any leakage or spillage during the lubrication oil flushing process. The bulk of the lubrication oil being used for the flushing process will be contained in the permanent lubrication oil reservoirs provided by the CT and ST manufacturers.
- **Common lubrication oil.** Several gallons of common lubrication oil will be stored onsite for use in construction equipment. These oils will be stored in protected areas of the warehouse/storage yard.
- **Lubrication oil for plant pumps.** Several hundred gallons of lubrication oil will be required to prepare plant pumps (boiler feed pumps, condensate pumps, circulating water pumps, closed cooling water pumps, etc.) for operation. This oil will be stored for a short duration in bermed areas of the storage yard or in temporary warehouses.
- **Transformer oil for step-up transformers.** Several thousand gallons of transformer oil will be pumped into the step-up transformers for the four combustion turbines and the two steam turbines. These transformers will be filled from a truck after the secondary containment is in place. The oil transfer will be supervised by the contractor and driver. Spill containment and clean-up resources will be readily available should a leak develop on the truck or outside the bermed area.

An estimated 280,000 gallons each of alkaline, acid, and passivation solutions will be used for cleaning the heat recovery steam generators (HRSGs) and related process piping prior to plant startup. Special work of this nature will be contracted to firms experienced with the particular process involved. These firms will 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 portions of their work.

Should a leak be detected in the various conveyance systems (pipelines) during construction, the contractor foreman at the site will be notified. This individual will ensure that the response is immediate. This response will include: isolating the leak, closing off the breached pipeline, containing and capturing the spilled product, appropriate disposal of the spilled product and contaminated media, and completion and filing of the appropriate reports.

E.1.2 Operation and Maintenance

Table E-1 shows oil and other substances that are expected to be stored onsite during operation of the generation plant. There are three primary areas of potential spills during the operation and maintenance of the plant:

- Combustion and steam turbines' step-up transformers
- Aqueous ammonia storage tanks
- Water processing chemical trailer

Each step-up transformer will be inside its own secondary containment, sized to hold 110 percent of the transformer's volume. The transformers and bermed areas will be covered, thus negating any accumulation of rainwater. Should oil be detected inside the bermed area, the fluid will be pumped out and disposed of in accordance with all applicable federal, state, and local regulations.

TABLE E-1
Materials to Be Used during Operation and Maintenance

Chemical	Estimated Quantity	Storage	Volume
Lube oil	10,000 gallons	Steam turbine casing	5,000 gallons /steam turbine
Lube oil	18,000 gallons	Combustion turbine mechanical package	4,500 gallons /combustion turbine
Transformer oil	48,000 gallons	Combustion turbine transformers	12,000 gallons /combustion turbine
Transformer oil	30,000 gallons	Steam turbine transformers	15,000 gallons /steam turbine
Transformer oil	6,000 gallons	Auxiliary transformers	3,000 gallons /auxiliary transformer
Aqueous ammonia	60,000 gallons	Above-grade vertical cylindrical tank	60,000 gallons
Diesel	500 gallons	Fire Control Building	500 gallons
Aqueous ammonia	100 gallons	Chemical Feed Area	55 gallons
Hydrazine	55 gallons	Chemical Feed Area	55 gallons
Trisodium phosphate	500 lb. (dry)	Chemical Feed Area	50-lb. bags

Information supplied by Black & Veatch, June 2001.

The 19 percent aqueous ammonia storage tank will be housed inside a secondary containment berm that is sized to hold 110 percent of the tank's 60,000 gallons. The ammonia will be depleted until the empty volume in the tank exceeds the capacity of the delivery truck. A full truck will then refill the tank. This is done to reduce the risk of overfilling the tank. All filling of this tank will be done under the supervision of a plant representative and the truck driver. Emergency response equipment and personal protective equipment will be readily available should a spill or release occur.

The aqueous ammonia storage tank will be a carbon steel, 50-psig, unfired pressure vessel of ASME Section VIII, Division I design. The tank will be placed in concrete containment designed to contain 110 percent of the tank capacity. A nitrogen blanket or pad will be maintained on the storage tank to eliminate air in-leakage and minimize pitting corrosion of

the carbon steel components. Whether the piping and fittings will be constructed of carbon steel or 316 or 317 stainless steel is uncertain at this time.

At this time the specific pumps have not been selected; however, Isochem gear pumps with double seals or magnetic drives will be used to avoid leaks.

The pipelines will be inspected routinely. Any potential leaks will be identified and investigated immediately. Should a breach be confirmed, the line will be shut down and the leak will be repaired by a licensed contractor.

The water processing chemicals will consist of 29 percent aqueous ammonia, hydrazine, and trisodium phosphate. These chemicals will be contained in a trailer that will incorporate its own secondary containment. The encapsulation of these chemicals inside a trailer significantly reduces the potential of a spill or release to the environment.

The 500 gallons of diesel fuel stored in the fire pump building will reside in a tank designed for holding fuels. This tank will have a concrete secondary containment berm that has the capacity to hold 110 percent of the fuel tank's volume.

Lubricating and hydraulic oils used for the turbine and other machinery will be taken from storage to replenish material that is consumed or to provide fresh material during oil and fluid changes. These products will be resupplied as the quantity available declines.

Should a leak be detected in the various conveyance systems (pipelines), the shift foreman and/or environmental manager will be notified. These individuals will ensure that the response is immediate. This response will include: isolating the leak, closing off the breached pipeline, containing and capturing the spilled product, appropriate disposal of the spilled product and contaminated media, and completion and filing of the appropriate reports.

Operating personnel will be trained in the proper handling of all chemicals and other liquids onsite. They will be trained in the proper operation of systems to avoid spills and in measures to keep any spills that do occur within the controlled areas.

At least annually, facility operators will receive spill response training, training in the applicable pollution control laws and regulations, and training in the specific features of the generation plant that are intended to prevent the releases of petroleum products or other chemicals. Additional support staff will also be trained in the following spill response procedures:

- Recognizing areas that may be affected by a spill and potential drainage routes
- Reporting of spills to appropriate individuals
- Employing appropriate material handling and storage procedures
- Implementing spill response procedures

E.2 Water Pipeline Alternative

E.2.1 Construction

Any spills or releases associated with the water pipeline alternative would most likely occur during construction of the pipeline. Any spills would involve polyvinyl chloride (PVC) pipe

primer or pipe cement (used for pipeline construction) and diesel or gasoline fuel (used in operation of construction equipment). To reduce the risks of solvent or cement spills, safe working practices will be incorporated. These include but are not limited to working with small quantities, tightly closing lids after use, being familiar with the material safety data sheets of the products being used, and employing work crews who are trained in spill prevention, control, and cleanup.

Construction equipment will be monitored for leaks and receive regular preventive maintenance to ensure proper operation and to reduce the chance of leaks. The potential amount of spillage will be small because only working inventories will be present at the pipeline location. Any spillage would be absorbed by the soil at the location of the spill. Should a spill occur, the contractor responsible for the pipeline construction will be required to contain the spill, remove the contaminated soil, and transport it to an approved disposal facility.

The Applicant will provide detailed information concerning spill control during construction of the water pipeline if the Applicant seeks to implement this alternative.

E.2.2 Operation and Maintenance

The water pipeline alternative would be designed, built, and operated in compliance with applicable codes and regulations. In the unlikely event of a rupture, the product released would be groundwater that contains no regulated contaminants. A rupture would result in a detectable drop in water pressure at the generation plant. In the event of a pipeline rupture, the water supply system would be shut down and repaired.

The Applicant will provide detailed information concerning spill control during operation and maintenance of the water pipeline if the Applicant seeks to implement this alternative.

E.3 Access Roads

E.3.1 Construction

Spills or releases along the access roads during construction would most likely involve diesel fuel or gasoline used in operation of construction equipment. Construction equipment will be monitored for leaks and receive regular preventive maintenance to ensure proper operation and reduce the chance of leaks. The potential amount of spillage would be small because only working inventories will be present during construction, use, and maintenance of the access roads. Any spillage would be absorbed by the soil at the location of the spill. The contractor responsible for the road construction, and consequently the spillage, would be required to contain the spill, remove the contaminated soil, and transport it to an approved disposal area.

E.3.2 Operation and Maintenance

All shipments to the generation plant site will be by truck. The plant will take title of the material when the truck is unloaded. The trucking company carrying hazardous material is responsible for any spill or response while the product is in their possession (173-303-145(1) *Washington Administrative Code* [WAC]). The SPP will have spill response equipment onsite

that can be quickly mobilized to assist in containing and removing any potential spills along the site's access roads. Truck unloading stations will be designed as follows to prevent and contain spills:

- Plant truck parking will be on a paved area.
- Facility truck unloading connections will remain closed by a valve or removable cap or flange at all times except when the truck is unloading.
- Truck unloading will be supervised by the driver and plant personnel. No unmanned unloading will be performed.
- Curbed drip areas under the connections will collect any spills of liquids left in the unloading hoses.

E.4 Wastewater Facilities

E.4.1 Construction

The generation plant's wastewater facilities consist of a process water infiltration/ evaporation pond, a stormwater pond, and a sanitary wastewater disposal system consisting of a septic tank and drain field. Any spills occurring during construction would involve diesel fuel or gasoline used in construction equipment. Construction equipment will be monitored for leaks and receive regular preventive maintenance to ensure proper operation and reduce the chance for leaks. The potential amount of spillage would be small because only working inventories will be present at the construction site. Any spillage would be absorbed by the soil at the location of the spill. The construction contractor would be responsible for the spillage and will be required to contain the spill, remove the contaminated soil, and transport it to an approved disposal area.

The general contractor for plant construction will also subcontract a portable latrine company to supply and service latrines during construction.

E.4.2 Operation and Maintenance

Once the generation plant is operational, a number of control measures will be taken to prevent spills or releases from reaching the wastewater facilities. These measures will include the engineering safeguards discussed above, well-maintained tanks, secondary containment, and the use of oil-water separators downstream from plant floor drains. The wastewater septic tank will be cleaned periodically by a licensed subcontractor, and the septage will be hauled offsite and disposed of in accordance with state and local regulations.