Kettle Falls Generating Station
Kettle Falls, WA

Spill Control Plan

September 2014

In the event of a spill call the Spill Phone at 509-998-0996

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Avista Utilities

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Spill Control Plan

Introduction

Avista Utilities has prepared this Spill Control Plan for the Kettle Falls Generating Station (KFGS) facility to minimize the potential for oil and water treatment chemical spills, to prevent accidentally spilled oil and water treatment chemicals from leaving the property, and to provide guidance in the cleanup of spilled oil and water treatment chemicals.

This plan has been prepared pursuant to the specific requirements for a Spill Control Plan and a Spill Prevention and Emergency Cleanup Plan outlined in National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0045217 issued to Avista Corporation Kettle Falls Generating Station by State of Washington Department of Ecology, effective October 1, 2013.

Certification of Plan

I hereby certify and attest that:

1. I or my agent have visited and examined the facility,
2. I am familiar with the provisions of Waste Discharge Permit No. WA0045217;
3. This Spill Control Plan has been prepared in accordance with generally accepted engineering practice, including consideration of applicable industry standards;
4. The procedures for required inspections and testing have been established; and
5. This Spill Control Plan is adequate for the facility.

Name: Antonio Chavez

Date: September 17, 2014

[stamp]

ANTONIO J. CHAVEZ
STATE OF WASHINGTON
37278
REGISTERED
PROFESSIONAL ENGINEER

9/17/2014

1. Facility Conformance

The KFGS is in conformance with the requirements listed in 40 CFR 112.7 and 112.8. In addition, the discharge prevention and containment procedures described in this Spill Control Plan have been prepared in accordance with: 1) the minimal prevention standards listed under 40 CFR 112.7, 2) IEEE Standard General Requirements for Liquid–Immersed Distribution, Power, and Regulating Transformers (Std C57.12.00-1993), 3) IEEE Standard for Containment and Control of Oil Spills in Substations (Std 980-2013), 4) the Avista Specifications for Oil Circuit Breakers and Accessories, and 5) periodic plant inspections of all equipment, which includes oil bearing equipment.

1.2 General Information

FACILITY: Kettle Falls Generating Station

TYPE OF FACILITY: The facility is a biomass fueled electrical generation plant.

LOCATION OF FACILITY: 1151 Hwy. 395 North, Kettle Falls, WA 99141

NAME AND ADDRESS OF OWNER/OPERATOR: Avista Utilities
1411 East Mission
Spokane WA 99220-3727
509-495-4610 (Dispatch)

DESIGNATED PERSON ACCOUNTABLE FOR OIL AND CHEMICAL SPILL PREVENTION AT FACILITY:

Greg Wiggins, Plant Supervisor
Work: (509) 738-1505 **Mobile**: (509) 690-2731

ENVIRONMENTAL CONTACT:

Bryce Robbert, Environmental Scientist
Work: (509) 495-4086 **Mobile**: (509) 227-9722

1.3. Facility Description

The KFGS and Switchyard facilities include the thermal plant, which generates the electric power and the associated switchyard that steps up the voltage and distributes it to the power grid. The facilities are adjacent to and are accessed from Highway 395 to the northwest of Kettle Falls, Washington. See Attachment A, Figure 1-1 for a site vicinity map.

The KFGS is a steam-electric generating station that uses a wood-waste fired spreader stoker boiler to produce steam to drive a single shaft turbine-generator for the production of electricity. The main KFGS turbine-generator is rated at 53.4 megawatts (MW). This facility was placed into service in 1983.

Also on site is a natural gas fired 7.2 MW combustion turbine-generator used for the production of electricity. This unit was placed into operation in 2002.

The KFGS is operated from a control room in the main turbine-generator building. The plant is operated 24 hours per day with at least two operators on duty at all times.

Facility Additions or Modifications:

Modifications to the secondary containment for diesel fuel aboveground storage tanks is planned to increase capacity sufficient for total containment of product plus required precipitation. A groundwater remediation treatment plant is planned for construction adjacent to the water treatment building. This plant will include 500 gallon diesel product recovery tank with secondary containment.

2. Oil And Chemical Inventory, Spill Potential, Containment Structures, And Spill Response

A tabulated inventory of facility oil-containing equipment, including predictions of spill direction, rate of flow and total quantity of oil and water treatment chemicals are presented in Attachment B, Oil and Chemical Inventory and Spill Prediction. Oil and petroleum products at this facility include: lubrication oils used in the lubrication oil systems for the generator set; transformer cooling oils used in the facility substation and switchyard transformers and OCBs; and lubrication greases for maintenance.

Oil storage equipment and containers are described below; see Attachment A, Figures 3-1, 3-1A, and 3-1B for their general location within the facility. The potential for an oil/chemical spill in each area, which is based on experience, and the containment provided are also described.

The discussions on containment below reference both passive and active measures for control of spills and leaks of petroleum and non-petroleum based products. Should spills migrate outside of buildings they will encounter native soils (and in some cases, a mix of native soils and ground wood) that will significantly slow the surface travel of liquid due to high infiltration rates. These soils have been identified by the Natural Resources Conservation Service (NRCS) as primarily loamy sands with little to no ponding or flooding potential. Attachment H has results of the soil survey by NRCS for the facility area.

2.1 Powerhouse (Boiler and Turbine Generator Buildings)

***Description*:**

The **Powerhouse** consists of seven floors: 1-Ground, 2-Mezzanine, 3-Operating, 4-Fuel Distribution, 5-Lower Boiler Level, 6-Upper Boiler Level, and 7-Deaerator.

The boiler is wood waste fired and rated at greater than 400,000 pounds of steam per hour. The steam is supplied to the turbine to produce mechanical energy for driving an AC generator.

The **mezzanine floor** houses the **main turbine lube oil reservoir** with a capacity of 1350 gallons. The operation of this reservoir meets the definition of oil-filled operational equipment. There are also **two 55-gallon drums of turbine oil** stored near the center of the floor.

The **ground floor** houses the **bulk turbine lube oil storage tank**, which is divided into two sections each having a capacity of 1400 gallons for a total of 2800 gallons. Also on the ground floor are the **turbine lube oil conditioner** with a capacity of 250 gallons, **three 55-gallon drums** south of the turbine lube oil storage tank for the collection of oily water, **two boiler feed pump lube oil reservoirs** with capacities of 35 and 55 gallons, and an **emergency diesel generator** holding 150 gallons of fuel.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

Oil leakage from the main turbine lube oil reservoir creates the potential for release of up to 1350 gallons of oil through the steel grating of the mezzanine floor and into the concrete containment structure on the ground floor. Depending upon the type of leak and which side of the reservoir the leak occurs there may be some spillage of lube oil outside of the concrete containment structure and onto the surrounding concrete floor. Loss of lube oil to the turbine would trigger an alarm in the control room.

The most likely cause of leakage from the turbine oil drums on the mezzanine floor would be from a faulty or accidentally ruptured drum. The maximum expected quantity of discharged oil would be 55 gallons. The oil would flow through the steel grating of the mezzanine floor and onto the ground floor.

The most likely cause of leakage from the bulk turbine lube oil storage tank or turbine lube oil conditioner would be from a faulty or accidentally ruptured tank or associated piping. The maximum expected quantity of discharged oil would be 1,400 gallons (the contents of the largest tank), and this would be contained within the associated concrete secondary containment structure.

Leakage from the oily water collection drums would release a maximum of 55 gallons of oily water into the concrete secondary containment structure or if a leaking drum is outside of the concrete secondary containment the release would be onto the concrete floor.

Leakage or rupture of the boiler feed pump lube oil reservoir or fuel tank of the emergency diesel generator creates the potential for the release of up to 55 gallons of oil or 150 gallons of diesel, respectively, onto the concrete floor.

***Containment*:**

Spills from the main turbine lube oil reservoir, the bulk turbine lube oil storage tank, and the turbine lube oil conditioner would be contained within the concrete secondary containment structure on the ground floor. The main turbine lube oil reservoir is directly above the secondary containment structure and the bulk turbine lube oil storage tank and turbine lube oil conditioner are within the secondary containment structure. See Attachment G for calculations of secondary containment capacity of the concrete secondary containment.

Leakage from the turbine oil drums on the mezzanine floor would flow through the steel grating of the mezzanine floor and spread onto the ground floor. Leakage from boiler feed pump lube oil reservoirs and emergency diesel generator tank would flow onto the ground floor surface. The ground floor is sloped in the direction of the embedded trench drains; oil released onto this floor would be captured by the trench drains and eventually end up in the oil water separator outside the southwest corner of the Turbine Generator Building. The feed pump lube oil reservoirs and emergency diesel generator tank are in high visibility locations and leaks would be noticed before the entire contents of the units

are emptied and reach the floor trench drains, allowing time for active containment measures by Avista personnel. The oil water separator diverts oil product to a separate buried 200 gallon waste oil tank. Should the capacity of the buried waste oil tank be exceeded the overflow would report to the two chamber settling basin and then to the retention pond. The retention pond discharges to the facility's industrial wastewater discharge outfall if the water quality meets the discharge limits of the facility's wastewater discharge permit.

2.2 Electrostatic Precipitator Building

***Description*:**

The roof of the Electrostatic Precipitator building houses **four (4) transformer rectifier units** each containing 180 gallons of silicone transformer oil.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, oil leakage from one of the rectifier transformers has the potential for release of up to 180 gallons of oil into the secondary containment surrounding each of the units.

***Containment*:**

There is adequate secondary containment around the transformer rectifiers to contain the contents of each of the transformer rectifiers. Should the secondary containment not function as intended then escaped oil will follow the route of precipitation runoff and spill off the north side of the roof down to pavement or bare ground (depending on which rectifier fails). If the oil reaches bare ground it will be intercepted by the facility's storm water drainage system, and will likely be absorbed by the sandy soil in the facility's drainage ditches. If the oil reaches pavement it will either flow to the nearest drainage ditch or it may encounter the ash load out ramp where it will be flow directly to a concrete sump that has sufficient capacity to contain the full contents of one of the transformers.

2.3 Combustion Turbine Building

***Description*:**

The combustion turbine building houses the natural gas fired 7.2 MW combustion turbine-generator used for the production of electricity. The **turbine-generator lube oil tank** has a capacity of 600 gallons.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, oil leakage from the one lube oil tank or associated piping has the potential for release of up to 600 gallons of oil onto the floor of the Combustion Turbine Building.

Containment:

The floor of the Combustion Turbine Building has floor drains that connect to a concrete sump located outside the southwest corner of the building. The sump is outfitted with a pump with float controls that automatically activate the pump at a prescribed liquid level. The pump discharges to the floor drain within the Boiler and Turbine Generator building, which then reports to the oil water separator #3 at the southwest corner of the building.

2.4 Facility Yard

***Description*:**

The above ground **diesel storage tanks** are east of the fuel pile, outside the perimeter fence. Fuel in the tanks is used for the rolling stock at the facility. The largest tank has a shell capacity of 20,000 gallons, the smaller a capacity of 12,000.

The **main reclaimer control cab oil tank**, just north of the fuel pile has a capacity of 250 gallons of hydraulic oil. Just above the main reclaimer control cab oil tank is the **main reclaim lube oil storage tank** with a capacity of 100 gallons.

To the west of the diesel storage tanks are **two (2) truck dumpers** with two hydraulic oil tanks containing 300 and 220 gallons for a total of 520 gallons on each truck dumper.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, leakage from the largest fuel storage tank has the potential for release of up to 20,000 gallons of diesel into the secondary containment structure.

Oil leakage from the main reclaimer control cab oil tank has the potential to release up to 250 gallons of oil onto the floor of the reclaimer control cab. Oil leakage from the main reclaim lube oil storage tank has the potential to release up to 100 gallons of oil into the secondary containment beneath the tank.

Leakage from one of the diesel/water mixture poly tanks has the potential for release of up to 1,500 gallons to unpaved ground.

Oil leakage from the truck dumper hydraulic tanks and associated piping has the potential to release up to 300 gallons of hydraulic fluid onto the surrounding concrete and into the adjacent concrete vault where the truck dumper is mounted.

***Containment*:**

The secondary containment structure surrounding the diesel storage tanks does not currently have the capacity to contain the contents of the largest fuel tank. Modifications will be made to the secondary containment to increase capacity to capture the contents of

the largest fuel tank plus surplus for required precipitation. See Attachment F for calculations of the increase in capacity required. A spill kit is maintained at the diesel storage tanks in the event of a spill during fuel transfer to the tanks or refueling of rolling stock. See Attachment C for the supplies to be maintained in the spill kits. The secondary containment structure is equipped with a gate valve for manually draining accumulated rainwater and preserving containment capacity. The manual gate valve that drains the secondary containment structure is always closed. Any water accumulating within the containment structure is manually drained after confirming that oil is not present.

The reclaimer control cab oil tank has no engineered secondary containment and containment will be provided by active measures. A spill from this unit will exit the control cab through either the west or east access doors. From the west door oil will contact the concrete pad surrounding the cab and either flow west to unpaved ground (that is covered with a ground wood and soil mix) or it will enter the access manway to the subsurface concrete fuel conveyor vault. The unpaved area will be able to absorb the spilled contents sufficiently to allow a cleanup response from onsite personnel. Once inside the vault the oil will drain to concrete sump. The vault/sump has sufficient capacity to contain the entire contents of the reclaimer control cab oil tank. Spilled oil leaving the east door will contact concrete before flowing north to unpaved ground with a similar ground wood and soil mix to the west side. The main reclaim lube oil storage tank has a secondary containment pan beneath the tank, which would hold a portion of the contents of the tank. The infrastructure surrounding this elevated tank does not allow for full volume secondary containment. Overflow from the containment pan would flow down to the concrete pad surrounding the reclaimer control cab and on to unpaved ground where active containment by Avista personnel can be deployed. The nearest spill kit to the reclaimer control cab and main reclaim lube oil storage tank is located in the service building. The absorption qualities of the unpaved area will be sufficient to slow movement of the oil until Avista personnel can respond. A loss of oil in either the reclaimer control cab oil tank or the main reclaim lube oil storage tank will directly affect operation of the fuel reclaimer. This will alert Avista personnel to inspect the units and deploy active containment measures as necessary.

Oil released from a truck dumper hydraulic system failure would either be spread north on concrete and asphalt to a storm drain or would be captured by the adjacent concrete vault, depending upon the location of the hose failure. Oil that is not captured by the concrete vault has the potential to reach the nearest drain that discharges to a drainage ditch that reports to oil water separator #2 to the west of the retention basin. Oil water separator #2 skims off oily material to an adjacent 200 gallon tank. The drainage ditch is unlined and the bottom and sides consist of a sandy soil and ground wood mixture that would slow the flow sufficiently to allow timely response by Avista personnel limiting the quantity of oil reaching the oil water separator. A loss of oil in any of the hydraulic oil tanks will be visible to the operators and will directly affect operation of the truck dumpers. This will alert Avista personnel to inspect the units and deploy active containment measures as necessary.

2.5 Water Treatment Building

***Description*:**

The Water Treatment Building contains an **emergency diesel fire pump fuel storage tank** with a capacity of 100 gallons. There are also four 55-gallon drums of new and used lubricants located in this building.

Non-petroleum products stored and used in this building include sulfuric acid, caustic, and other water treatment chemicals. The sulfuric acid tank and the caustic tank each have a capacity of 7,300 gallons. Other treatment chemicals are contained in 55-gallon drums.

Plans have been completed for design and installation of a treatment plant for extracted diesel-contaminated groundwater. The plant will be located in a building attached to the southwest corner of the Water Treatment Building. The building will contain a number of process tanks for treatment of the groundwater that are not subject to the SPCC rule. A 500 gallon steel tank will be in the building for storage of diesel product separated from the groundwater. See Attachment A, Figure 3-3, for a depiction of the planned treatment plant location.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, diesel leakage from the fuel tank has the potential for release of up to 100 gallons of diesel onto the floor of the Water Treatment Building. Leakage from the 55 gallon oil drums will leak into the drum containment vessels. Leakage from the acid and caustic tanks have the potential to release up to 7,300 gallons within the concrete containment. Releases from the drums of water treatment chemicals can release up to 55 gallons on to the concrete floor.

The diesel product storage tank has the potential to release up to 500 gallons of diesel.

***Containment*:**

There are floor drains in the concrete acid and caustic tanks containment area that report to a concrete sump beneath the concrete floor of the building. The sump is sized to contain the volume from one of the tanks. The floor of the Water Treatment Building is sloped in the direction of the embedded trench drains. Any petroleum product or water treatment chemical released onto the floor would flow into the nearest trench drain and then into a hard pipe connection to the settling basin. The settling basin has the capacity to contain the full contents of the bulk storage containers in the building. The petroleum product drums are positioned inside of containment vessels that are sized to contain the full contents of one 55-gallon drum.

The 500 gallon product storage tank will either be a double-wall unit (with 100% containment capacity) or will sit in a secondary containment unit for full capacity

containment.

2.6 Oil Storage Building

***Description*:**

At the southeast corner of the Powerhouse is the Oil Storage Building, used for storage of 55-gallon drums of hydraulic fluids and lubricants. Between **5-10 drums of hydraulic fluids and lubricants** are typically stored in this building.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

A leak or spill from one of the drums in the oil storage building has the potential to release up to 55 gallons of oil onto the floor of the building.

***Containment*:**

A release of material from the 55-gallon drums of hydraulic fluids and lubricants stored in the oil storage building would be contained in the building due to the elevated sill of the concrete floor of the building (approximately six inches).

2.7 Facility Substation

***Description*:**

The fenced facility substation west of the Powerhouse contains **one (1) 13.8/115kV generator step up transformer** with a capacity of 6,300 gallons and **two (2) 4160v/13.8kV/230 kV transformers** with capacities of 1,009 gallons each.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, oil leakage from the **13.8/115kV transformer** has the potential for release of up to 6,300 gallons of oil into the substation and surrounding yard. From a single incident, oil leakage from the **4160v/13.8kV/230 kV transformers** has the potential for release of up to 1,009 gallons of oil into the substation and surrounding yard.

***Containment*:**

Oil released in the substation will flow west across the unpaved ground on the north side of the combustion turbine building and be captured in an unlined drainage ditch that runs south alongside the west side the building until it discharges into an unlined storm drain ditch that runs north towards oil water separator #1 that is adjacent to the west side of the switchyard. The sandy soils in the yard and storm drain ditch will slow the progress of the spilled oil until Avista personnel can respond with active measures.

2.8 Switchyard

***Description*:**

The fenced switchyard north of the Administrative building contains **one (1) 13.8/115kV transformer** with a capacity of 3,150 gallons, **three (3) 115kV OCBs**, containing three phases each with separate oil tanks with capacities of 657 gallons for a total of 1,971 gallons for each OCB) and **six (6) voltage regulators** for the 12F1 and 12F2 feeders each having a capacity between 95 and 105 gallons.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, oil leakage from the 13.8/115kV transformer has the potential for release of up to 3,150 gallons of oil into the switchyard. From a single incident, oil leakage from one of the 115kV OCB tanks has the potential for release of up to 657 gallons of oil into the switchyard. Oil leakage from one of the voltage regulators has the potential for release of up to 105 gallons of oil into the switchyard.

***Containment*:**

At the switchyard, there is a gravel layer with a 3 to 6-inch depth inside the chain link fence. This gravel layer is expected to absorb and prevent spilled oil from the power transformer, OCBs, or voltage regulators from leaving the switchyard.

For the transformer and oil circuit breakers, the general secondary containment is provided by the gravel surface bed in combination with active containment measures by Avista personnel. This approach is discussed in the text of the U.S. Federal Register on December 26, 2006. In Section V. (Today's Action) B. Qualified Oil-Filled Operational Equipment, page 77275, the discussion describes the use of substation gravel beds and active containment measures to meet the general secondary containment requirements.

Attachment F. Calculations Estimating Distance summarizes the results of the overland flow model used to estimate the distance traveled by oil through the gravel bed. The retention time and travel distance of spilled oil within the gravel yard is dependent, in part, on the volume of oil spilled.

The transformer is more than 150 feet from the west fence line and thus closest to the river. A loss of the entire contents of the transformer would result in the front wave of oil traveling approximately 65 feet in 2 hours. This is sufficient time to allow for active response measures by Avista field personnel to contain the spill. Note that the overland flow model calculation does not take into account the gravel surface of the substation, so the above estimate represents a maximum possible spread; the actual spread of oil from the source will likely be less.

In addition, the surrounding diversion ditch will capture any oil that does move beyond the switchyard. The diversion ditch leads to oil water separator #1 located on the west side of the switchyard. Oil water separator #1 skims off oily material to an adjacent 200

gallon tank. The drainage ditch is unlined and the bottom and sides consist of a sandy soil that would slow the flow sufficiently to allow timely response by Avista personnel limiting the quantity of oil reaching the oil water separator.

2.9 Service Building

***Description*:**

Southeast of the Powerhouse is the Service Building used for storage of 55-gallon drums of hydraulic fluids, lubricants, greases, and antifreeze. Between 40-50 **drums of hydraulic fluids, lubricants, greases, and antifreeze** are typically stored in this building. A portable 250 gallon diesel storage tank is also kept in the building when it is not deployed elsewhere in the facility.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, oil leakage from one of the 55-gallon drums has the potential for release of up to 55 gallons of hydraulic fluid, lubricant, grease, or antifreeze onto the Service Building floor. The portable diesel storage tank has the potential to discharge 250 gallons.

***Containment*:**

The petroleum product drums that are actively being used are positioned on spill pallets for containment of spills or leakage. The pallet is sized to contain the full contents of one 55-gallon drum. The portable diesel AST is surrounded by a steel containment box that has the capacity to contain the full contents of the tank. Spills or leaks from other drums will contact and spread across the concrete floor. Should a leak occur near the access doors the leak will leave the building and flow towards a storm drain that ultimately reports to oil water separator #2 located west of the retention pond. Prior to reaching the oil water separator the drainage will flow through unlined ditches. The sandy soil and ground wood mixture lining the ditches will slow the movement of spilled oil allowing time for Avista personnel to respond. The Service Building is regularly accessed by Avista personnel and a spill would be contained with active measures utilizing the spill kits in the building.

2.10 Spare Transformer

***Description*:**

South of the Switchyard is **one (1) spare 13.8/115kV generator step up transformer** with a capacity of 9,874 gallons. This transformer is not energized.

***Potential Spill Occurrence (overflow, leakage, rupture)*:**

From a single incident, oil leakage from the spare **13.8/115kV transformer** has the

potential for release of up to 9,874 gallons of oil into the containment surrounding the transformer.

***Containment*:**

The secondary containment surrounding the transformer has the capacity to contain all of the oil within the transformer along with sufficient freeboard to accommodate precipitation.

The manual gate valve that drains secondary containment for the spare transformer is always closed. Any water accumulating within the dike is manually drained after confirming that oil is not present.

2.11 Spill Response: All Locations

Avista has a defined response procedure to detected oil spills. (See the current version of Avista document titled "Field Guide for Electrical Equipment and Other Spills" for additional details). It is important for Avista personnel to note whether the equipment contains PCBs (as indicated by labeling) in determining appropriate procedures.

At a minimum, three bales of sorbent pads will be kept in the Service Building. A supply of sandbags or other materials for holding the pads in place at the spill site will be kept with the sorbent pads. Drums containing spill control equipment listed in Attachment C will be kept at the facility at the following locations: 1) in the Service Building, 2) in the Turbine and Generator Building, 3) in the Water Treatment Building, 4) in the Switchyard, 5) in the Facility Substation, and 6) at the diesel storage tanks. Other spill containment equipment as Avista Utilities deems necessary will be kept with the minimum spill response equipment. It should be noted that any spills reaching unpaved areas will be slowed by the sandy soils prevalent throughout the facility. This should allow for a timely active containment response by Avista personnel.

Step 1: Determine if a spill has occurred.

Step 2: Secure the area – make the area safe from electrical and other physical hazards.

Step 3: Identify the source or cause of the spill and stop if possible. For example, shut off equipment or pumps or close valves as appropriate. Use the available spill response materials at the site (see Attachments A and D) to contain the spill and prevent the spill from spreading. For small spills, apply absorbent to the surface of the oil and reapply until there is enough to absorb all the liquid. For larger spills, use booms or construct earthen dikes around the spill to prevent the discharge from flowing off-site.

Step 4: Call the **spill phone** at **509-998-0996.** Follow all instructions given by the on call environmental staff person.

Step 5: Coordinating with the field personnel, the on call environmental staff person will determine if a spill response contractor will be called in. If the spill is large or involves a release of oil into water, Spill Contractor A listed in Section 5.3 (NRC Environmental) will be called by the on call environmental staff person. If the spill is small, field personnel or Spill Contractor B listed in Section 5.3 (Able Clean Up) will be called to assist in the cleanup. Field personnel should clean up the spill or assist the spill response contractor, as appropriate. All visible oil must be cleaned up. All contaminated materials (such as soil, rags, disposable personnel protective equipment) must be placed in drums, bags, or super-sacs. Drums and super-sacs are available from the local Avista storekeeper for the site. The on call environmental staff person will determine if additional sampling is necessary and when cleanup is complete.

Label all containers with an Avista "Pink and White" and ship the oil and oily debris back to the Spokane Service Center with a properly filled out shipping paper. As an alternative to shipping back to Spokane, arrangements can be made with the Stevens County Landfill for disposal of the oily debris. All oil and oily debris will be recycled or disposed of in accordance with state and federal regulations.

3. Design and Operating Information

3.1. Avista Utilities Procedures

Spill response will follow procedures described in this SPCC Plan and the current Avista document "Field Guide for Electrical Equipment and other Spills".

All spills are to be reported immediately to the spill phone (509-998-0996). Avista Utilities site personnel will initiate spill control and containment action immediately in the event of a spill.

Spills are recorded on the Avista Spill Report Form and include documentation of the spill response activities. These forms are maintained in the Avista Corp. Environmental Affairs central files.

3.2 Inspection and Records

General inspections of the plant, including oil storage areas and the settling basins, are conducted daily and discrepancies are noted in the plant log; this log is incorporated as part of this plan by reference.

Additionally, general service/maintenance-related equipment inspections are performed monthly in accordance with Operations Manual for the KFGS facility and NPDES inspections are conducted twice annually. A copy of the Operations Manual is maintained at the facility. An inspection of spill response equipment is also performed monthly. See Attachment E – 'Inspection Forms' for examples.

Spills are recorded on the Avista Spill Report Form, which includes documentation of the spill response activities. A sample of this form is included in Attachment E. These forms are maintained in the Avista Corp. Environmental Affairs central files.

The Spill Control Plan is kept on-site. One copy is kept at the Environmental Affairs office in Spokane and a second copy is kept at the Control Room at the facility.

The following records are kept in the Environmental Affairs Office for at least three years:

- documentation of all initial training and annual discharge prevention briefing sessions,
- a record of any spills that occur at the Site, including documentation of telephone notification, copies of confirmation reports, and a complete description of cleanup and prevention activities, and
- logs of personnel attending the annual Spill Control Plan briefing.

3.3 Security

The facility is fenced with 6-foot chainlink fencing topped with barbed wire. A security guard is on duty at the front gate during normal business hours (7:00 am to 5:00 pm) to prevent unauthorized entry. The outside area around the facility is illuminated at night. Security cameras are positioned around the facility (including at the outside diesel ASTs area) to provide additional security. At least two operators are on duty at the plant at all times. The fuel dispensers on the outside diesel ASTs are locked after normal business hours and the fueling area is enclosed by a security fence and gate.

The security measures at this facility are sufficient to

- secure and control access to all oil handling, processing and storage areas;
- secure master flow and drain valves;
- prevent unauthorized access to starter controls on oil pumps;
- secure out-of-service and loading/unloading connections of oil pipelines; and
- prevent acts of vandalism and assist in the discovery of oil discharges.

3.4 Training

Avista Utilities personnel at the KFGS are trained in the operation, maintenance, handling and use of equipment and material to prevent oil and chemical spills. In addition, the training will cover the contents of this Spill Control Plan, where copies of the plan can be found in case of emergencies or other need, locations of the spill cleanup materials and switches for controlling oil-containing equipment, and proper emergency response procedures. Personnel are also trained periodically on the applicable laws and regulations. The site personnel are also provided with a copy of the current version of the document titled “Field Guide for Electrical Equipment and Other Spills”.

Avista personnel who handle oil-filled equipment at the KFGS are trained in the operation, maintenance, handling and use of the equipment to prevent oil spills. In addition, personnel training will cover:

- the contents of this Spill Control Plan,
- the locations of copies of the plan for emergencies or other needs,
- the locations of spill cleanup materials,
- the proper emergency response procedures.

A copy of this Spill Control Plan will be placed in the Control Room at the facility, and in the Avista Utilities Environmental Affairs Department offices in Spokane.

Discharge prevention briefings are scheduled for all Avista oil-handling personnel at least once per year. Topics for presentation should include:

- reviews of any spill events and actions taken;
- malfunctioning components which may cause or contribute to a spill;
- proper maintenance procedures to minimize discharge to trench drains and oil water separators;
- updated spill prevention measures; and,
- any modifications to the Spill Control Plan of significance.

Any new employee whose job will involve handling oil or water treatment chemicals will receive initial Spill Control Plan training prior to assuming their responsibilities. Training records are maintained in the Avista Corporation Environmental Affairs central files.

3.5 Transfer Operations

This facility has no terminal connections for transfer of oil or petroleum products.

Transfer operations at this facility include:

- addition of diesel to the diesel ASTs,
- addition of hydraulic oil to the main reclaim lube oil storage tank,
- bulk oil transfers to/from large transformers,
- bulk oil transfers to/from the turbine lube oil system, and
- bulk acid and caustic transfers to tanks in the Water Treatment Building.

Before any oil or chemical transfer, absorbent pads will be placed under all valves and couplings where a loose connection may drip oil or chemical product. Avista personnel will remain on site during the entire transfer process to monitor for oil leaks and to shut down the oil/chemical transfer if any problems are discovered. Likewise, Avista personnel will remain on site during the acid/caustic transfer process. A spill kit will be kept in close proximity to the oil-transfer, as to be readily available in the case of a discharge.

Oil, fuel, or chemical spilled in the facility will be recovered for waste disposal at a permitted facility or recycled and the affected area thoroughly cleaned.

All delivery drivers shall have U.S. Department of Transportation hazardous material transportation training as required by Federal law. A facility employee will attend product transfers at all times.

Addition of Fuel (Diesel ASTs):

1. Access the spill control supplies in the warehouse to ensure supplies are available and easily accessible in the event of a spill;

2. The Avista representative will determine the available capacity (ullage) of the AST to be filled by reading the fuel gauge. This ullage is communicated to the fuel delivery contractor and marked in the appropriate log form.

3. Block the tank truck wheels.

4. Place drip pans under all pump hose fittings (if applicable) before unloading.

5. The Avista representative and the delivery contractor should ensure the fill nozzle is placed in the appropriate AST appurtenance.

6. Both the Avista representative and the delivery contractor will remain with the vehicle at all times during unloading. Gauges on the truck should be continuously monitored to ensure the ullage is not exceeded. If an overfill situation occurs, the loading or unloading of fuel must be stopped as soon as possible. Do not "top-off" tanks being refueled.

The following procedure should be used after fuel unloading is completed:

7. Record the amount of fuel transferred to the AST in the appropriate log.

8. Drain the fill hose and then ensure that all drain valves are closed (if applicable) before removal of the hose from the tank

9. Pour any fuel in the drip pans or spill container on the fill pipe into the AST (if it has the capacity) or dispose of appropriately.

10. Inspect the tank truck before removing the blocks to ensure the lines have been disconnected from the tank.

11. Remove the blocks from the truck wheels.

Bulk Oil Transfers to/from operating equipment (turbine, large transformers, OCBs)

Follow these steps when making such a transfer:

1. Block the tank truck wheels;

2. Before the oil transfer, absorbent pads should be placed under all valves and couplings where a loose connection may drip oil;

3. Avista personnel need to remain on site during the entire transfer process to monitor for oil leaks and to shut down the oil transfer if any problems are discovered;

4. A spill kit should be kept in close proximity to the oil-transfer, as to be readily available in the case of a release;

5. Place temporary covers on storm water drains that may be impacted by a break in the fill line(s);

6. Confirm that the intended tank is the one being filled or emptied;

7. Verify that the correct valves are opened or closed;

8. Start tanker pump to begin pumping oil, or open valve to gravity feed oil;

The following procedure should be used after oil unloading is completed:

9. Drain the fill hose and then ensure that all drain valves are closed (if applicable) before removal of the hose from the tank;

10. Inspect the tank truck before removing the blocks to ensure the lines have been disconnected from the tank;

11. Remove the blocks from the truck wheels.

Bulk Acid/Caustic Transfers to Tanks in Water Treatment Building

Follow these steps when making such a transfer:

1. Block the tank truck wheels;
2. Before the acid/caustic transfer, absorbent pads should be placed under all valves and couplings where a loose connection may drip product;
3. Avista personnel need to remain on site during the entire transfer process to monitor for leaks and to shut down the oil transfer if any problems are discovered;
4. A spill kit should be kept in close proximity to the transfer, as to be readily available in the case of a release;
5. Place temporary covers on storm water drains that may be impacted by a break in the fill line(s);
6. Confirm that the intended tank is the one being filled or emptied;
7. Verify that the correct valves are opened or closed;
8. Start tanker pump to begin pumping acid or caustic;

The following procedure should be used after acid/caustic unloading is completed:

9. Drain the fill hose and then ensure that all drain valves are closed (if applicable) before removal of the hose from the tank;
10. Inspect the tank truck before removing the blocks to ensure the lines have been disconnected from the tank;
11. Remove the blocks from the truck wheels.

3.6 Facility Drainage

All oil or chemical releases inside the fence line will eventually go into the plant drainage system and end up in either one of three (3) oil water separators or it may go to the settling basin. Should spills migrate outside of buildings they will encounter native soils

(and in some cases, a mix of native soils and ground wood) that will significantly slow the surface travel of liquid due to high infiltration rates. These soils have been identified by the Natural Resources Conservation Service (NRCS) as primarily loamy sands with little to no ponding or flooding potential. Attachment G has results of the soil survey by NRCS for the facility area. See attachment A, Figures 3-1, 3-2, and 3-3 for details on direction of drainage flow.

4. Spill Reporting Requirements

The Revised Code of Washington (RCW) Sections 90.48 and 90.56 regulate reporting of environmental spills in the State of Washington. Spills will be reported to the Washington Department of Ecology (Ecology) 24-hour Oil & Hazardous Materials Spill reporting hotline telephone number given in Section 5.3.

All spill notifications to regulatory agencies will be performed by on call environmental staff. It is critical to the company's environmental compliance effectiveness that the on call environmental staff person be notified as soon as possible using the spill phone, and to then communicate effectively with that person regarding progress of spill response.

4.1 IMMEDIATE AGENCY NOTIFICATION REQUIREMENTS

Notify the Washington Department of Ecology (DOE) **within 1 hour** if any of the following conditions apply:

1. A spill is in progress and out of control; or
2. The quantity of oil spilled presents a threat to human health or the environment.

In addition to the DOE, notify the National Response Center immediately if:

3. The spill is threatening a waterway.

Note: Use instructions on the reverse side of the Avista Spill Report form for PCB reporting guidance.

In order to respond properly, the Avista Utilities person making a report must provide the on call environmental staff person responding to the spill phone with the correct information.

When Avista contacts the National Response Center, the NRC staff person will ask for the following information:

Your name, location, organization, and telephone number.
Name and address of the party responsible for the incident.
Date and time of the incident.
Location of the incident.
Source and cause of the release or spill.
Types of material(s) released or spilled.
Quantity of materials released or spilled.
Danger or threat posed by the release or spill.
Number and types of injuries (if any).
Weather conditions at the incident location.
Any other information that may help emergency personnel respond to the incident.

4.2 POST CLEAN-UP NOTIFICATION REQUIREMENTS

A written report summarizing the spill event and corrective actions taken should be submitted to Washington Department of Ecology within one month of the event by the Avista Utilities Environmental Affairs Department.

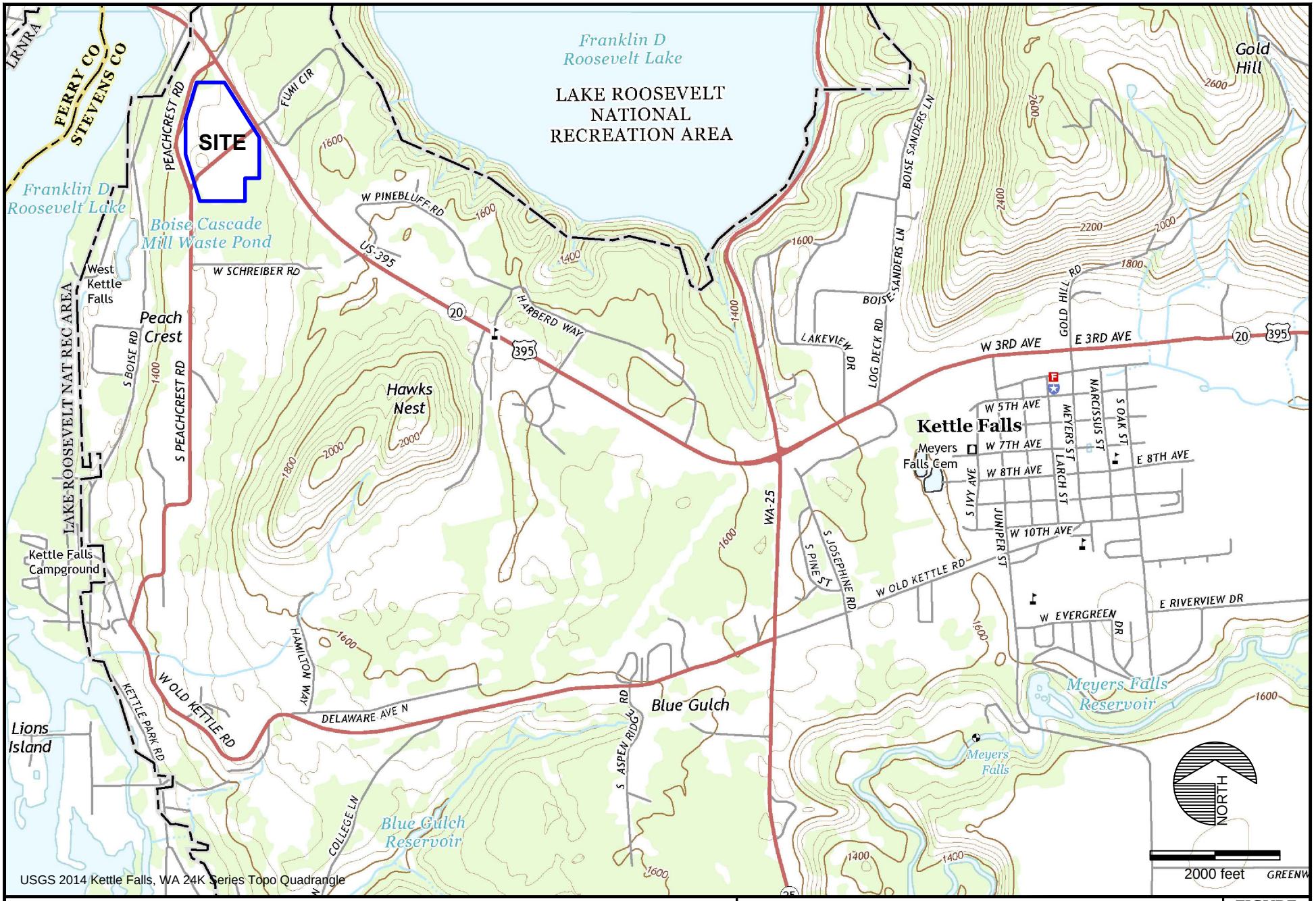
4.3 SPILL RESPONSE EMERGENCY TELEPHONE NUMBERS

RESPONSIBILITY:	NAME:	TELEPHONE NUMBERS:
Avista Spill Response:	**Spill Phone**	**509-998-0996**
Primary Avista Utilities Contact	**Merlin Scacco, Environmental Scientist**	**Off: (509) 738-1510 Mobile: (509) 680-5504**
Avista Utilities Environmental Contact	**Bryce Robbert, Environmental Scientist**	**Off: (509) 495-4086 Mobile: (509) 227-9722**
Avista Corporate Communications	**(Whoever Answers)**	**(509) 495-4174**
Medical Emergency	**Fire, Police, or Ambulance**	**911**
On call environmental staff to make the following notifications, as appropriate:		
Washington DOE (24-hour Spill Reporting)	**(Whoever Answers)**	**Oil Spills: (800) 258-5990**
Washington DOE, Spokane	**(Whoever Answers)**	**(509) 329-3400**
National Response Center	**(Whoever Answers)**	**(800) 424-8802**
Stevens County	**Emergency Management-Stevens County Sheriff**	**911**
Spill Contractor A	**NRC Environmental Services Co.**	**(800) 337-7455**
Spill Contractor B	**Able Clean-up Technologies, Spokane**	**(509) 991-9442**

4.4 CONFORMANCE WITH LOCAL RULES, REGULATIONS AND GUIDELINES

The state of Washington does have a state-specific spill prevention, control, and countermeasure regulation for aboveground tanks that store petroleum. This plan conforms to the applicable requirements of Washington's regulations, (Chapter 9056 RCW).

Attachment A
Vicinity Map/Site Plans

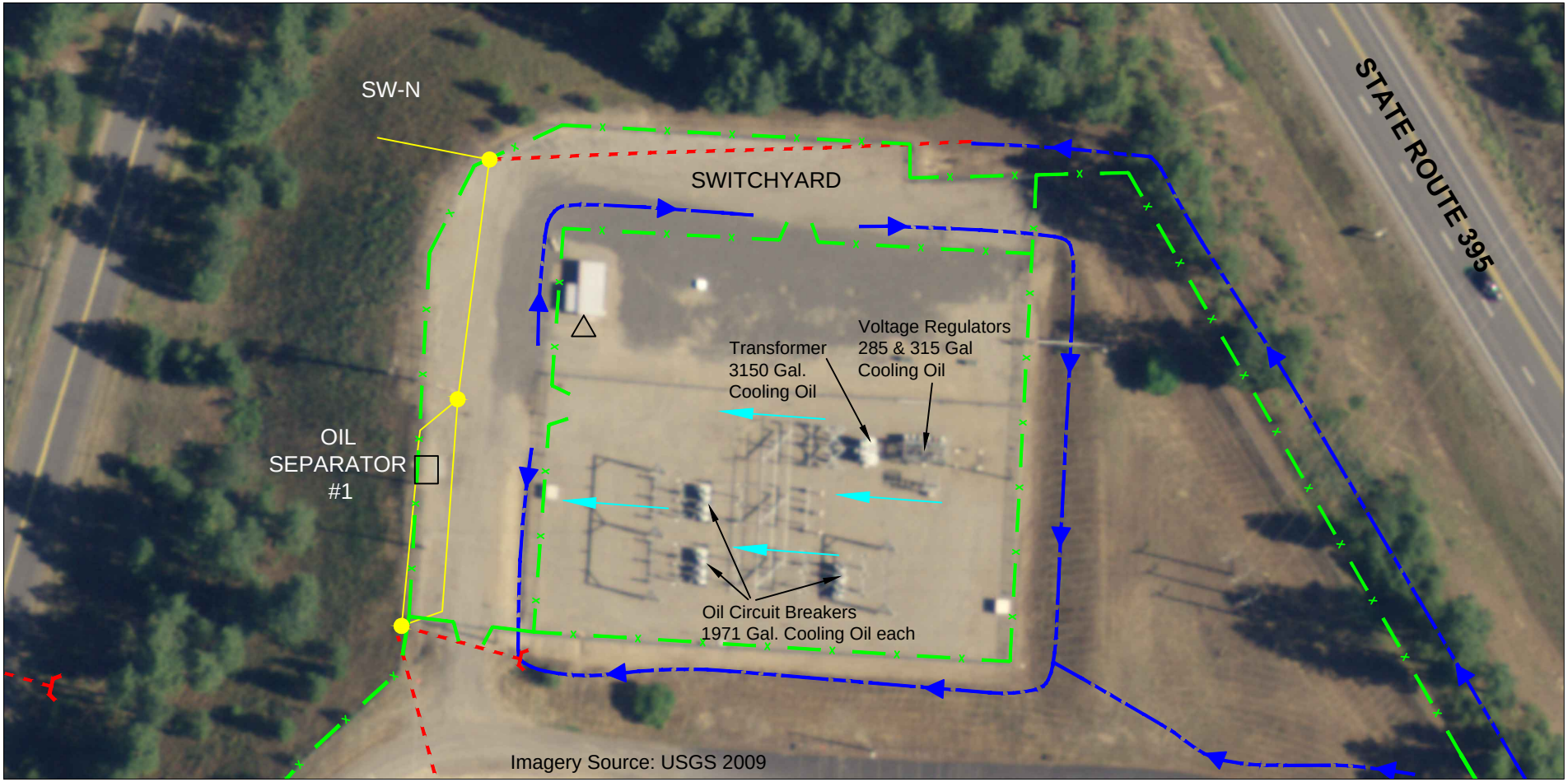


KETTLE FALLS GENERATING STATION **AVISTA UTILITIES**	**SPILL CONTROL PLAN** **VICINITY MAP**

FIGURE **1-1**

Project No.14012.00 8/28/2014

Hydrometrics, Inc.
Consulting Scientists and Engineers



Explanation

- Culvert
- Security Fence & Gates
- Pipe
- Ditch Flow Direction
- Direction of Flow in Yard
- Spill Kit
- Manhole

NORTH

80 feet

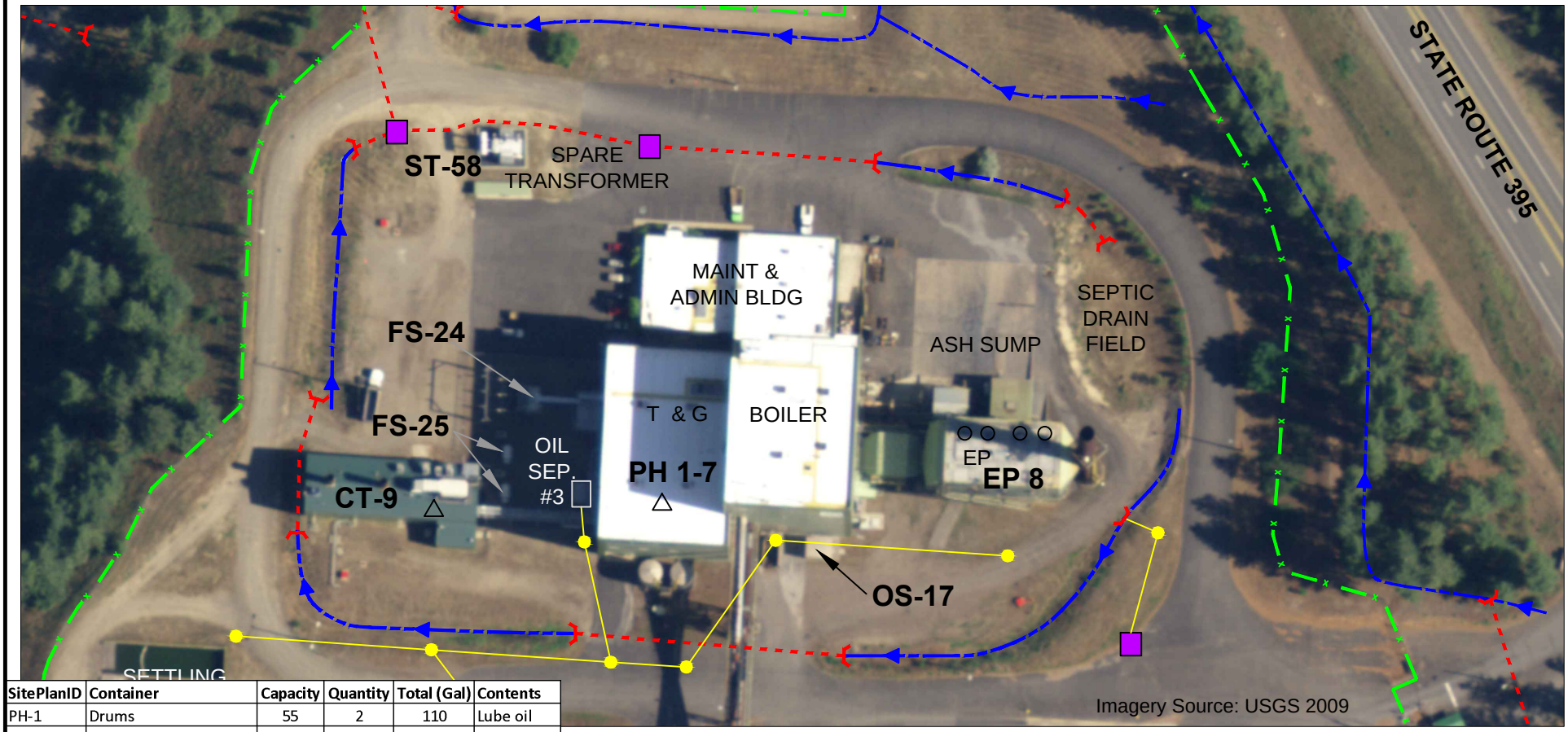
KETTLE FALLS GENERATING STATION
AVISTA UTILITIES

SPILL CONTROL PLAN
SWITCHYARD SITE PLAN

FIGURE
3-1

Project No.14012.00 8/28/2014

Hydrometrics, Inc.
Consulting Scientists and Engineers



SitePlanID	Container	Capacity	Quantity	Total (Gal)	Contents
PH-1	Drums	55	2	110	Lube oil
PH-2	Turbine LO Reservoir	1350	1	1350	Lube oil
PH-3	Turbine LO AST	1400	2	2800	Lube oil
PH-4	Turbine LO Conditioner	250	1	250	Lube oil
PH-5	Drums	55	3	165	Oily water
PH-6	Boil feed pump LO res.	55	1	55	Lube oil
PH-7	Emerg. Diesel Gen.	150	1	150	Diesel
EP-8	Transformer	180	4	720	Cooling Oil
CT-9	Turbine Gen. LO Tank	600	1	600	Lube oil
OS-17	Drums	55	5-10	55	Lube/Hydr. Fluids
FS-24	Transformer	6300	1	6300	Cooling Oil
FS-25	Transformer	1009	2	2018	Cooling Oil
ST-58	Spare Transformer	9874	1	9874	Cooling Oil

Explanation

- Culvert
- Security Fence & Gates
- Pipe
- Ditch Flow Direction
- Spill Kit
- Manhole
- Storm Drain

NORTH

100 feet

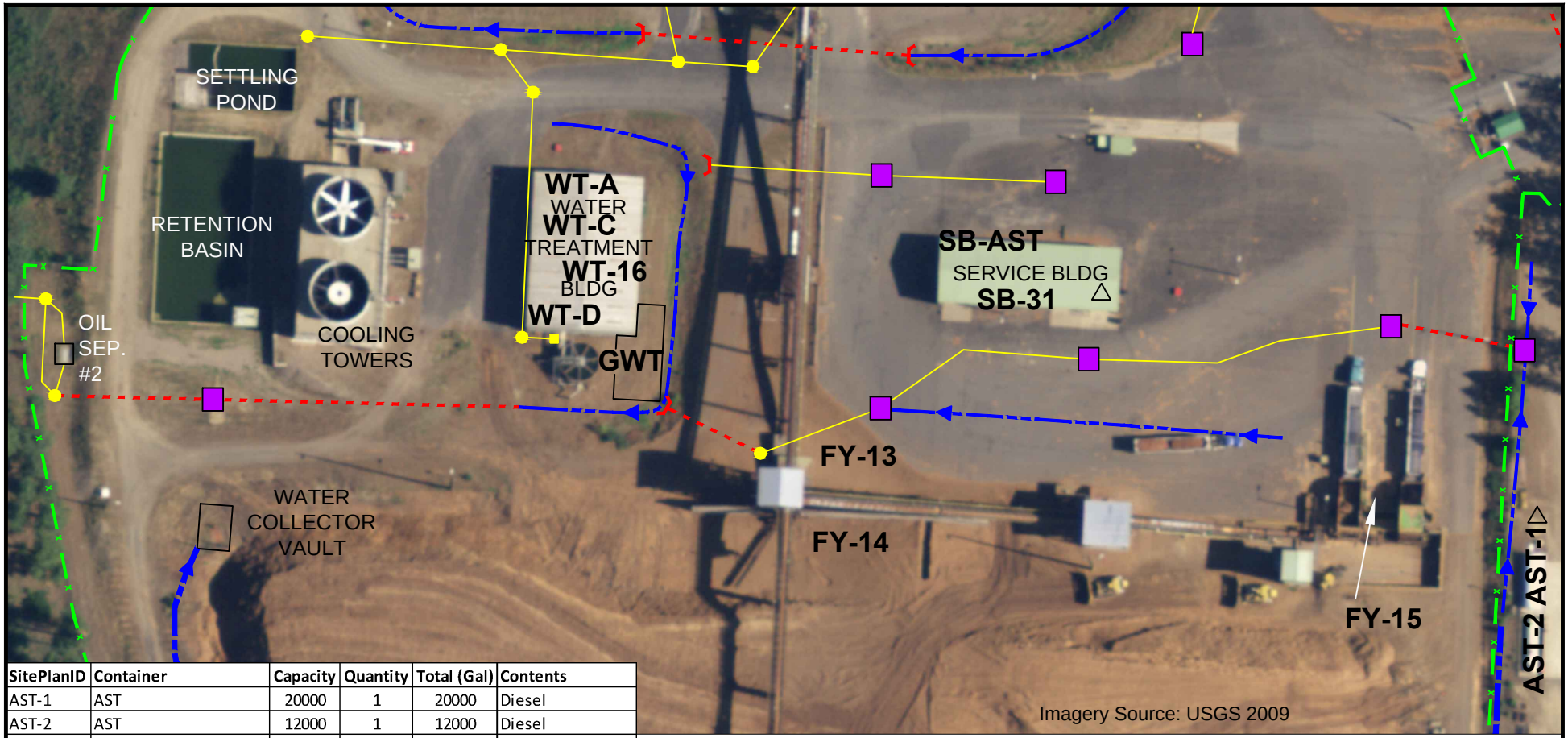
KETTLE FALLS GENERATING STATION
AVISTA UTILITIES

SPILL CONTROL PLAN
FACILITY CENTER SITE PLAN

FIGURE
3-2

Project No.14012.00 8/28/2014

Hydrometrics, Inc.
Consulting Scientists and Engineers



SitePlanID	Container	Capacity	Quantity	Total (Gal)	Contents
AST-1	AST	20000	1	20000	Diesel
AST-2	AST	12000	1	12000	Diesel
FY-13	Reclaim control cab oil tank	250	1	250	Lube oil
FY-14	Reclaim oil storage tank	100	1	100	Lube oil
FY-15	Truck Dumper Reservoirs	1@220 1@300	2	1040	Hydr. Oil
GWT	Product storage tank	500	1	500	Diesel/water
WT-A	Horizontal tank	7300	1	7300	Sulfuric Acid
WT-C	Horizontal tank	7300	1	7300	Caustic
WT-16	Fire pump diesel tank	100	1	100	Diesel
WT-D	Drums	55	4	220	Lube oil
SB-31	Drums	55	40-50	2750	Hydr./Lube oil/ Antifreeze
SB-AST	AST-portable	250	1	250	Diesel

Explanation

- Culvert
- Security Fence & Gates
- Pipe
- Ditch Flow Direction
- Spill Kit
- Manhole
- Storm Drain

NORTH

100 feet

KETTLE FALLS GENERATING STATION
AVISTA UTILITIES

SPILL CONTROL PLAN
SOUTH SITE PLAN

FIGURE
3-3

Project No.14012.00 8/28/2014

Hydrometrics, Inc.
Consulting Scientists and Engineers

Attachment B
Oil and Chemical Inventory and Spill Prediction Data

Attachment B
Oil and Chemical Inventory and Spill Prediction Data
Kettle Falls Generating Station

Location	Type of Container	Quantity	Volume Per Container (Gal)	Total Shell Volume (Gal)	Spill Potential (Overflow, Leak, Rupture)	Type of Oil	Containment	Direction of Flow	Potential Flow Rate (Gpm)
Powerhouse	Main turbine lube oil reservoir	1	1350	1350	Piping leak, tank rupture	Lube oil	Secondary containment structure	Oil spill would be contained by secondary containment on main floor and floor drains.	<100
"	Drums	2	55	110	Leak/rupture	Lube oil	Floor drains of Powerhouse	If oil escapes drum, should be contained within Powerhouse floor drains which should prevent release	<2
"	Bulk turbine lube storage tank	2	1400	2800	Piping leak, tank rupture	Lube oil	Secondary containment structure	Oil spill would be contained by secondary containment.	<100
"	Turbine lube oil conditioner	1	250	250	Piping leak, tank rupture	Lube oil	Secondary containment structure	Oil spill would be contained by secondary containment.	<25
"	Drums	3	55	165	Leak/rupture	Oily water	Secondary containment structure	Oil spill would be contained by secondary containment.	<2
"	Boiler feed pump lube oil reservoir	1	55	55	Leak/rupture	Lube oil	Floor drains of Powerhouse	If oil escapes, should be contained within Powerhouse which should prevent release	<5
"	Emergency Diesel Generator	1	150	150	Leak/rupture	Diesel	Floor drains of Powerhouse	If oil escapes, should be contained within Powerhouse which should prevent release	<15
Electrostatic Precipitator Building	Transformer Rectifier	4	180	720	Leak/rupture	Cooling oil-silicone	Secondary containment around each transformer	Oil spill would be contained by secondary containment.	<15
Combustion Turbine Building	Turbine-Generator lube oil tank	1	600	600	Piping leak, tank rupture	Lube oil	Floor drains to sump next to Combustion Turbine Building	If oil escapes tank or piping should be contained sump which would prevent release	<50
Facility Yard	Diesel storage tanks	1	1 @20,000 1 @12,000	32,000	Leak/rupture	Diesel	Secondary containment structure	Oil spill would be contained by secondary containment. If containment is breached, flow would be to the west across yard	<1000
"	Main reclaimer control cab oil tank	1	250	250	Leak/rupture	Lube oil	Active if encounters soil or conveyor sump	Oil spill would be contained by secondary containment in conveyor sump or east/west to unpaved area.	<25
"	Main reclaim lube oil storage tank	1	100	100	Leak/rupture	Lube oil	Secondary containment pan if small spill.	Small oil spill would be contained by secondary containment then unpaved soils.	<10

Attachment B
Oil and Chemical Inventory and Spill Prediction Data
Kettle Falls Generating Station

Location	Type of Container	Quantity	Volume Per Container (Gal)	Total Shell Volume (Gal)	Spill Potential (Overflow, Leak, Rupture)	Type of Product	Containment	Direction of Flow	Potential Flow Rate (Gpm)
"	Truck dumpers	2	2 @300 2 @220	1,040	Leak/rupture	Hydraulic oil	Concrete vault or into yard	Oil spill would be contained by truck dumper vault or would spread across yard to the west and eventually into unlined ditch prior to oil water separator.	<25
Water Treatment Building	Fire pump diesel fuel storage tank	1	100	100	Leak/rupture	Diesel	Settling basin	If fuel escapes tank, will enter floor drains that report to settling basin.	<10
''	Drums	4	55	220	Leak/rupture	New/used lube oils	Secondary containment tub and welded pan	Spills would be contained in secondary features.	<2
"	Horizontal Tank	1	7300	7300	Leak/rupture	Sulfuric Acid	Concrete secondary containment	A spill would enter a floor drain in the containment and flow to a larger floor sump.	
"	Horizontal Tank	1	7300	7300	Leak/rupture	Caustic	Concrete secondary containment	A spill would enter a floor drain in the containment and flow to a larger floor sump.	
GW Remediation Treatment Plant	Steel Tank	1	500	500	Leak/rupture	Diesel product	Secondary containment	A spill would be contained by the dedicated secondary containment.	<25
Oil Storage Building	Drums	5-10	55	550	Leak/rupture	Hydraulic fluids, lubricants	Floor of Oil Storage Building	If oil escapes drum, should be contained within building which would prevent release	<2
Facility Substation	13.8/115kV GSU Transformer #50894-1	1	6,300	6,300	Leak/rupture	Cooling oil-mineral	Active and Oil Water Separator #1	Toward the west - If oil escapes transformers, it will flow west toward and into ditch towards oil water separator #1.	<500
"	4160v/13.8kV 230 kV Transformers #SET2009-0101 #SET2009-0102	2	1,009	2,018	Leak/rupture	Cooling oil-mineral	Active and Oil Water Separator #1	Toward the west - If oil escapes transformers, it will flow west toward and into ditch towards oil water separator #1.	<100
Switchyard	13.8/115kV Transformer #L252927	1	3,150	3,150	Leak/rupture	Cooling oil-mineral	Gravel in yard, dike surrounding switchyard	If oil escapes transformer, would spread out over switchyard and into containment dike.	<300
"	115 kV OCBs #40900-10 #40900-11 #40900-12	3	657 (3 per OCB)	5913	Leak/rupture	Cooling oil-mineral	Gravel in yard, dike surrounding switchyard	If oil escapes transformer, would spread out over switchyard and into containment dike.	<50

Attachment B
Oil and Chemical Inventory and Spill Prediction Data
Kettle Falls Generating Station

Location	Type of Container	Quantity	Volume Per Container (Gal)	Total Shell Volume (Gal)	Spill Potential (Overflow, Leak, Rupture)	Type of Product	Containment	Direction of Flow	Potential Flow Rate (Gpm)
‘’	Voltage Regulators #M-582653 #M-045435 #M-578039 #M-576298 #M-582665 #J-227794	2	3 @95 3 @105	600	Leak/rupture	Cooling oil-mineral	Gravel in yard, dike surrounding switchyard	If oil escapes transformer, would spread out over switchyard and into containment dike.	<50
Service Building	Drums	40-50	55	2,750	Leak/rupture	Hydraulic fluid, lubricants, greases, and antifreeze	Active on floor of Service Building and outside	If oil escapes drum, it may escape building and flow into storm drain to unlined ditch prior to oil water separator.	<2
‘’	Portable Diesel Tank	1	250	250	Leak/rupture	Diesel fuel	Welded metal pan	If fuel leaks, full containment by pan should occur.	<10
Spare Transformer	G892-01	1	9,874	9,874	Leak/rupture	Cooling oil-mineral	Concrete vault	If oil escapes transformer, would spread out into surrounding concrete vault.	<500
Total				**86,415**					

Attachment C
Recommended Inventory for Spill Response Kits

Attachment C
Recommended Inventory for Spill Response Kit(s)

Recommended Inventory for Spill Response Kits in Thermal Facilities

Material	Amount	Use
Absorbent Pads	1 bundle (100 pads)	Place on top of spill material, will absorb oil and not water
Absorbent Socks	2-72", 4-24"	Use to surround spill or block path if flowing
Sandbags (empty)	50 bags minimum	Fill with soil from site and use to create temporary berms to block flowing oil (backup to socks)
Shovels	2 each	Use to fill sandbags, sprinkle absorbent, trenching
Absorbent Powder	2-3 bags	Sprinkle over remaining material to complete cleanup (a little goes a long way)
5-Gallons Buckets w/lids	2	To collect used absorbent powder, only required in spill kit at fueling area(s)

Recommended Inventory for Spill Response Kits in Substation/Switchyard

Material	Amount	Use
Absorbent Pads	2 bundle (100 pads)	Place on top of spill material, will absorb oil and not water
Absorbent Powder	2-3 bags	Sprinkle over remaining material to complete cleanup (a little goes a long way)
Valve Wraps	4 each	Contain leaks from from valves, flanges, and fittings.
6 mil Plastic Bags	4 each	Use to contain spill debris.
Material Waste Labels	4 each	Use to label plastic bags

Note: These 'kits' are usually stored in yellow drums. Some facilities may have additional spill response materials (booms, drain covers).

In addition, the following items are available from the Spokane Service Center Warehouse. To order, use the Material Requirements Requisition Form available on AVAnet under Departments, Supply Chain, Supply Chain Forms & Documents.

Stock Number	Description
620.0016	3" x 4' Absorbent Sock
620.0020	ABSORBENT, OIL SPILL, BULK, 10# BAGS
620.1000	HAZ MAT, PORTABLE VEHICLE KITS
620.1003	HAZ MAT, BUCKET, 5 GAL. YELLOW
620.1004	LIDS, FOR 5 GAL YELLOW BUCKETS
620.1005	HAZ MAT, OIL SORBENT BOOMS, 5" X 10'
620.1006	Oil Nets
620.1010	HAZ MAT, OIL SORBENT BILGE BOOMS, 8" X 18"
620.1015	HAZ MAT, OIL SORBENT PILLOWS, 14" X 25"
620.1020	HAZ MAT, OIL SORBENT PADS, 16" X 20"
620.1023	HAZ MAT, CAUTION YELLOW PADS 16" X 20"
620.1025	HAZ MAT, REPLACEMENT FILTER PILLOW 17"X32"
620.1030	HAZ MAT, SLIKWIK PILLOWS, 18" X 18"
620.1035	HAZ MAT, PASSIVE SKIMMER
620.1050	HAZ MAT, SLIKWIK DRUM COVERS, 55 GAL DRUMS
620.1053	HAZ MAT, 55 GAL DRUM LINERS, 6 MIL, 36" X 63"

Attachment D

Inspection and Reporting Forms

Spill Potential

Inspector(s) _____ Date_____

_____

Industrial Facility _____

Industrial Address _____

_____

_____

Industrial Contact _____ Phone_____

Other Sources _____

of Data

Type of Spill _____

_____

Facility Location _____

_____

Type of Materials _____

_____

Potential Volume _____

_____

Possible Causes _____

_____

_____

Spill Containment _____

_____

Other Comments _____

_____

_____

Facility Runoff

Inspector(s) _____ Date_____

_____

Industrial Facility _____

Industrial Address _____

_____

_____

Industrial Contact _____ Phone_____

Runoff Collection _____

Point _____

Description of _____

Contributing Area _____

_____

_____

Potential Runoff Characteristics

Description of Source	Contamination Potential	Drainage Path
Parking Lots		
Shipping Areas		
Receiving Areas		
Material Storage		
Other Areas		

Correlation of Data

(page 1)

Inspector(s) _____ Date_____

_____

Industrial Facility _____

Industrial Address _____

_____

_____

Industrial Contact _____ Phone_____

Outfall ID _____

Outfall Location _____

_____

Manhole ID _____

Manhole Location _____

_____

Process ID _____

Process Location _____

_____

Process Description _____

_____

_____

Other Comments _____

_____

_____

_____

_____

_____

_____

_____

Correlation of Data

(page 2)

SIMILAR CHARACTERISTICS

	Outfall ID_____	Manhole ID_____	Process ID_____
Physical Observations			
Odor	_____	_____	_____
Color	_____	_____	_____
Turbidity	_____	_____	_____
Floatables	_____	_____	_____
Residue	_____	_____	_____
Vegetation	_____	_____	_____
Structural Damage	_____	_____	_____
Chemical Analysis			
pH	_____	_____	_____
TDS	_____	_____	_____
Conductivity	_____	_____	_____
Other Parameters			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Site Inspection Checklist

SITE:_____ **DATE:**_____

Suggested Areas to Inspect

- Loading and unloading operations
- Outdoor storage areas
- Outdoor manufacturing or processing activities
- Significant dust or particulate generating processes

Visual Inspection Checklist	**Action Required (Y or N)**
Corroded drums or drums with plugs (that could fill up with rain water and overflow)	
Corroded or damaged tanks, tank supports, and tank drain valves	
Torn Bags or bags exposed to rain water	
Corroded or leaking pipes	
Leaking or improperly closed valves and valve fittings	
Leaking pumps and/or hose connections	
Broken or cracked dikes, walls or other physical barriers designed to prevent storm water from reaching stored materials	
Windblown dry chemicals	
Improperly maintained or overloaded dry chemical conveying systems	
Good Housekeeping Checklist	**Action Required (Y or N)**
Are outside areas kept in a neat and orderly condition?	
Is there evidence of drips or leaks from equipment or machinery onsite?	
Is the facility orderly and neat? Is there adequate space in work areas?	
Is garbage removed regularly?	
Are walkways and passageways easily accessible, safe, and free of protruding objects, materials or equipment?	
Is there evidence of dust on the ground from industrial operations or processes?	
Are cleanup procedures used for spilled solids?	
Is good housekeeping included in the employee program?	
Are good housekeeping procedures and reminders posted in appropriate locations around the workplace?	

Are there regular housekeeping inspections?	

Site Inspection Checklist

(continued)

SITE:_____ **DATE:**_____

Site Assessment Checklist	**Action Required (Y or N)**
Are there signs of poor housekeeping (cluttered walkways, upswept floors, uncovered materials, etc.)?	
Are there spots, pools, puddles, or other traces of oil, grease, or other chemicals on the ground?	
Is there discoloration, residue, or corrosion on the roof or around vents that ventilate or drain work areas?	
Do you see leaking equipment, pipes, containers, or lines?	
Are there areas where absorbent materials (kitty litter, saw dust, etc.) are regularly used?	
Do you notice signs such as smoke, dirt, or fumes that indicate material losses?	
Do you smell strange odors, or experience eye, nose, or throat irritation when you first enter the work area? These are indications of equipment leaks.	
Do storage containers show signs of corrosion or leaks?	
Are there open containers, stacked drums, shelving too small to properly handle inventory, or other indications of poor storage procedures?	
Are containers properly labeled?	

Comments:_____

AGENCY SPILL REPORTING FORM

1. GENERAL	
Name of Facility: **Kettle Falls Generating Station**	Address:
Completed By:	Organization:
Position:	Phone:
2. SPILL INFORMATION	
Date:	Time:
Location at Facility:	Total Quantity Discharged:
Substance Spilled:	Estimate of Quantity which reached navigable waters:
Other:	

3. OUTSIDE NOTIFICATIONS:		
Contacts	**Recorder at Outside Agency**	**Date and Time**
Call **9-1-1** (or the local emergency agency), if there is an immediate emergency		
EPA, and/or **National Response Center** and/or **U.S. Coast Guard : (800) 424-8802**		
Washington Department of Ecology: **(800) 258-5990**		

5. INFORMATION ON SOURCE AND CAUSE
6. DESCRIPTION OF ENVIRONMENTAL DAMAGE (description of all affected media and injuries)
7. CLEANUP ACTION(S) TAKEN (was an evacuation necessary?) 112.7(a)(4)
8. CORRECTIVE ACTION(S) TO PREVENT FUTURE SPILLS

Note: All information must be filled in. If something is unknown, write "unknown."

Spill Report

Background

Location Address:

Nearest Avista Facility:

Est. Date/Time of Spill:

Material Spilled:

Quantity (gal.):

Description of Spill:

Spill Reported By:

Electrical Equipment:

Serial/Stencil #:

PCB Oil Content:

Info source: (nameplate, database, test)

Contacts or Property Owners:

Initial Action Taken:

Spill Phone Called? (yes/no/by whom):

Agency Notification Required?

Follow Up

Cleanup Type:

If Avista Staff, # of Crew:

# of Hours On-Site:

Lab Results:

Describe Any Cleanup Actions:

Cleanup Completion Date:

Form Completed By/Title:

Date:

Attachment E

Calculations Estimating Distance Travelled

Attachment E

Calculations Estimating Distance Travelled

KFGS-OVERLAND FLOW MODEL FOR OIL SPILL

Numerical Background

$V = A \times H$	V = Oil volume in cubic feet A = Surface area of oil spread in square feet H= Oil thickness in feet	
$A = (\Theta/2)x(R^2 - Ro^2)$	Θ = Land spill angle in radians R^2 = Final spread radius in feet Ro^2 = Initial spread radius in feet	360 degrees = 6.28 radians 270 degrees = 4.71 radians 180 degrees = 3.14 radians
$U = (gSH^2)/(4\mu)$	U = Average flow velocity in feet per second g = Acceleration via gravity ([32.3 ft/s^2]) S = Ground slope μ = Kinematic oil viscosity in feet^2 per second	
$D = UT$	D = Travel distance in feet T = Travel time in seconds	

Also

$D = R - Ro$

Initial Setup

Ro^2 =	100 ft	Assumption based on volume	
V =	422.1 ft^3	Based on	3150 gallons of spilled fluid
g =	32.2 ft/s^2		
Θ =	4.71 rad	Spill with transformer acting as point source	
S =	0.001	Flat Ground	
μ =	0.0001 ft^2/s	Based on Mineral Transformer Oil properties data sheet (Substech.com)	
T =	2 hour	Assumed travel time	

Calculations

Seed R = 164.4 feet

A =	40099.4328	D =	64.2 feet	via UT
H =	0.01052633	D =	64.4 feet	via R - Ro
U =	0.0089197			

Reference:

Guo, J.C.Y, 2005. "Overland flow model for asphalt oil spills", Journal of Environmental Management May 19, 2005.

Attachment F
Secondary Containment Calculations

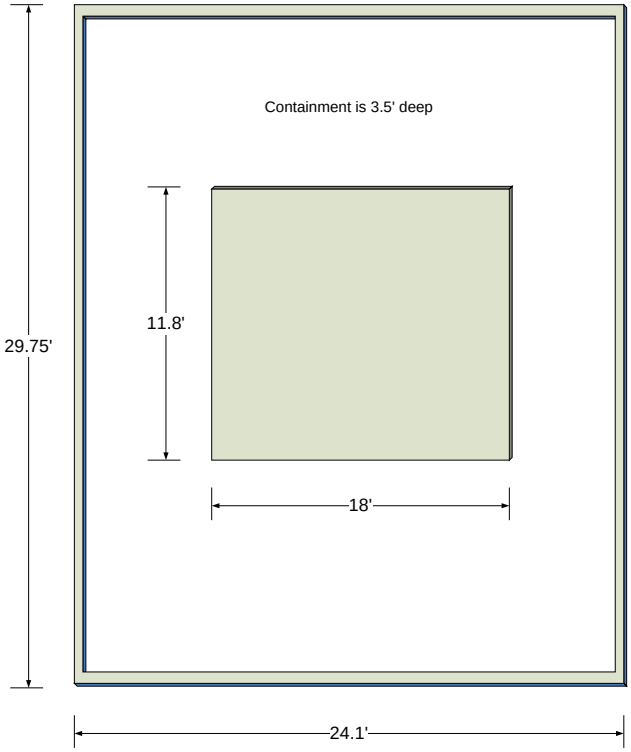
Attachment F
Secondary Containment Calculations

Kettle Falls Generating Station, Spare Transformer-Secondary Containment Calculation

Givens: Conversion: 7.48 pounds of oil = 1 gallon, so 0.1337 ft^3 = 1 gallon of water
Volume of a rectangle: V = l x w x h
Oil Volume of transformer = 9,874 gallons

Assumptions: Use density of oil to determine potential headroom in containment. Assume containment contains water from 25-year, 24-hour precipitation event.

Calculation: Sketch of Secondary Containment



Total Volume of Containment	=	24.1' x 29.75' x 3.5'	=	2,509.4 ft3
Subtract				
Transformer Pad	=	18' x 11.8' x 3.5'	=	734.4 ft3
Remaining Volume, Containment =			=	1,774 ft3
Convert to gallons =		1,774 ft3 x 1 gal/0.1337 ft3	=	13,268 gallons
Subtract Precipitation =		2.2"/12" x 506.9 ft2	=	93 gallons
Remaining capacity =		**13,175 gallons which is sufficient**		

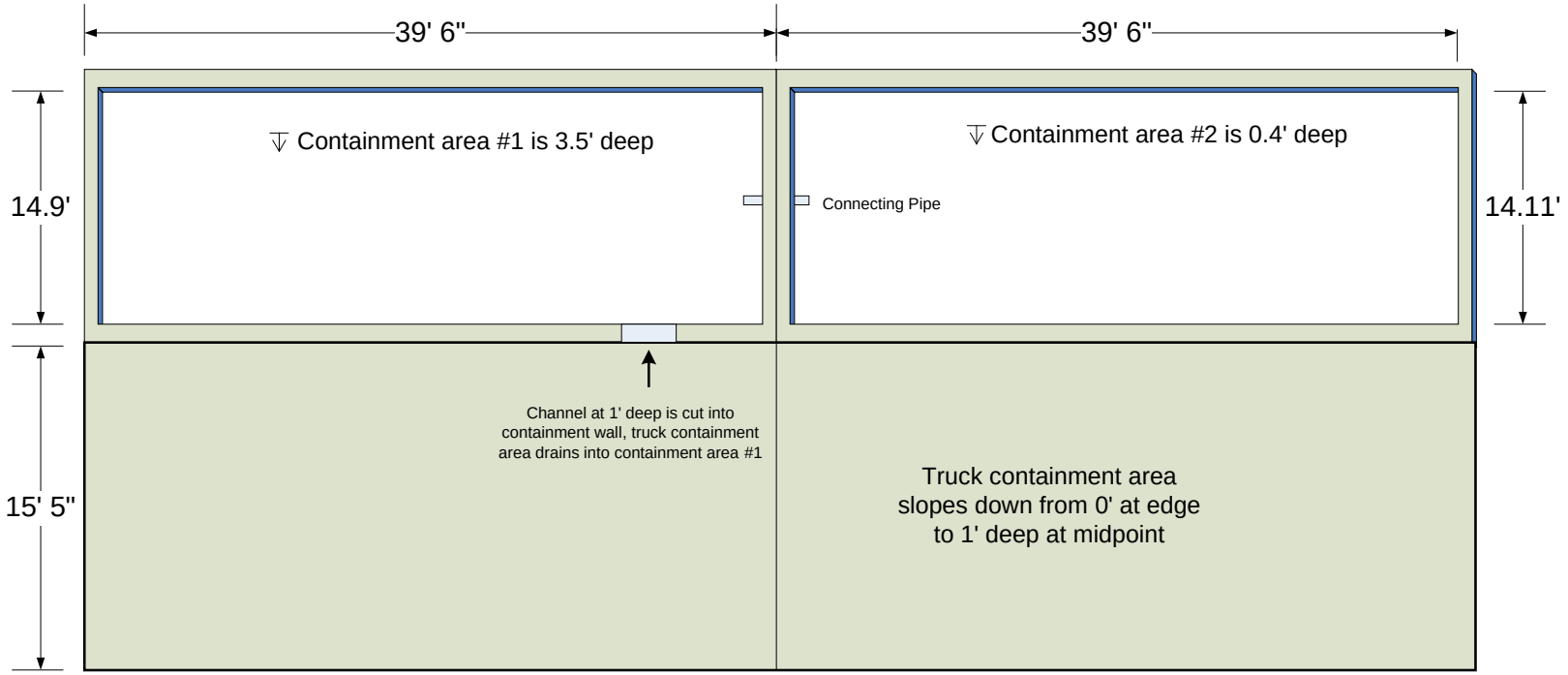
Attachment F
Secondary Containment Calculations

Kettle Falls Generating Station, Diesel Fuel Tanks-Secondary Containment Calculation

Givens:	Conversion:	7.48 pounds of oil = 1 gallon, so 0.1337 ft^3 = 1 gallon of oil
	Volume of a rectangle:	V = l x w x h
	Volume of triangular prism	V = ½ x b x h x l
	Oil Volume of largest tank	**= 20,000 gallons**

Assumptions: Assume containment contains water from 25-year, 24-hour precipitation event. Assume no containment capacity on truck pad.

Calculation: Sketch of Secondary Containment



Attachment F
Secondary Containment Calculations

Kettle Falls Generating Station, Diesel Fuel Tanks-Secondary Containment Calculation

Total Volume of Secondary Containment =	#1	39’ 6” x 14’ 9” x 2’ 5”	=	1,457 ft^3
	#2	Zero due to gap in #1	=	0 ft^3
Volume of Truck Pad =			=	0 ft^3
Total Volume, Secondary Containment Calculation			=	1,457 ft^3
Subtract volume of tank within containment		3,194 gallons (@2.5’)	=	427 ft^3
Subtract volume of 24-hr, 25-yr precipitation		2.2” /12 x (1457 ft^3 /2’5”)	=	107 ft^3
Net containment volume =		923 ft^3	=	6,904 gallons

Conclusion: The secondary containment is not sufficient to contain the entire contents of the 20,000 gallon AST. Modifications will be made to provide the necessary containment capacity.

Attachment F
Secondary Containment Calculations

Kettle Falls Generating Station, Bulk Lube Oil Storage Tank-Secondary Containment Calculation

Total Volume of Secondary Containment	21.5' x 13' x 3'	=	839 ft^3
Subtract volume of tank/pad within containment	7' x 7' x 3'	=	147 ft^3
Subtract volume of lube oil conditioner/pad	5.5' x 5.5' x 3'	=	91 ft^3
Net containment volume =	601 ft^3	=	4,495 gallons
Capacity of Bulk Lube Oil Storage Tank		=	2,800 gallons

Conclusion: The secondary containment is sufficient to contain the entire contents of the lube oil storage tank.

Attachment G

NRCS Soil Survey

Soil Map—Stevens County, Washington
(KFGS Soils)

Map Scale: 1:3,220 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Stevens County, Washington
Survey Area Data: Version 10, Dec 10, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2011—Aug 8, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Stevens County, Washington (WA065)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
60	Dart loamy coarse sand, 0 to 8 percent slopes	1.6	3.4%
77	Donavan-Rock outcrop complex, 30 to 65 percent slopes	0.3	0.6%
88	Hagen sandy loam, 0 to 15 percent slopes	4.7	9.9%
142	Marble loamy sand, 5 to 25 percent slopes	41.3	86.2%
Totals for Area of Interest		**47.9**	**100.0%**

Flooding Frequency Class—Stevens County, Washington
(KFGS Soils)

Map Scale: 1:3,220 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent
- Not rated or not available

Soil Rating Lines
- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent
- Not rated or not available

Soil Rating Points
- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

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Flooding Frequency Class

Flooding Frequency Class— Summary by Map Unit — Stevens County, Washington (WA065)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
60	Dart loamy coarse sand, 0 to 8 percent slopes	None	1.6	3.4%
77	Donavan-Rock outcrop complex, 30 to 65 percent slopes	None	0.3	0.6%
88	Hagen sandy loam, 0 to 15 percent slopes	None	4.7	9.9%
142	Marble loamy sand, 5 to 25 percent slopes	None	41.3	86.2%
Totals for Area of Interest			**47.9**	**100.0%**

Description

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

"None" means that flooding is not probable. The chance of flooding is nearly 0 percent in any year. Flooding occurs less than once in 500 years.

"Very rare" means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1 percent in any year.

"Rare" means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1 to 5 percent in any year.

"Occasional" means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5 to 50 percent in any year.

"Frequent" means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year.

"Very frequent" means that flooding is likely to occur very often under normal weather conditions. The chance of flooding is more than 50 percent in all months of any year.

Rating Options

Aggregation Method: Dominant Condition

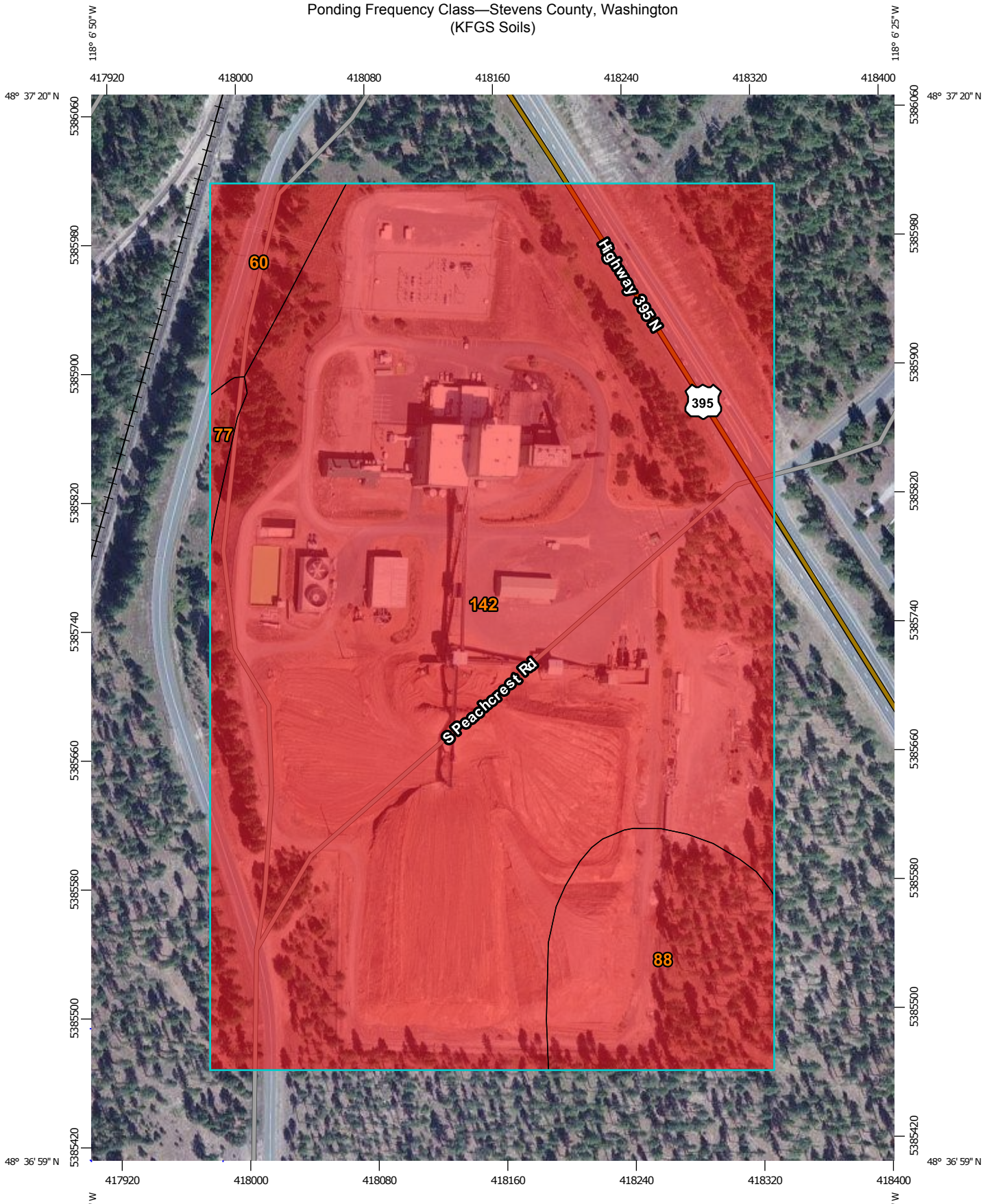
Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December

Ponding Frequency Class—Stevens County, Washington
(KFGS Soils)



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Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
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- Rare
- Occasional
- Frequent
- Not rated or not available

Soil Rating Lines
- None
- Rare
- Occasional
- Frequent
- Not rated or not available

Soil Rating Points
- None
- Rare
- Occasional
- Frequent
- Not rated or not available

Water Features
- Streams and Canals

Transportation
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- Local Roads

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Ponding Frequency Class

Ponding Frequency Class— Summary by Map Unit — Stevens County, Washington (WA065)				
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77	Donavan-Rock outcrop complex, 30 to 65 percent slopes	None	0.3	0.6%
88	Hagen sandy loam, 0 to 15 percent slopes	None	4.7	9.9%
142	Marble loamy sand, 5 to 25 percent slopes	None	41.3	86.2%
Totals for Area of Interest			**47.9**	**100.0%**

Description

Ponding is standing water in a closed depression. The water is removed only by deep percolation, transpiration, or evaporation or by a combination of these processes. Ponding frequency classes are based on the number of times that ponding occurs over a given period. Frequency is expressed as none, rare, occasional, and frequent.

"None" means that ponding is not probable. The chance of ponding is nearly 0 percent in any year.

"Rare" means that ponding is unlikely but possible under unusual weather conditions. The chance of ponding is nearly 0 percent to 5 percent in any year.

"Occasional" means that ponding occurs, on the average, once or less in 2 years. The chance of ponding is 5 to 50 percent in any year.

"Frequent" means that ponding occurs, on the average, more than once in 2 years. The chance of ponding is more than 50 percent in any year.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December