4.5 Environmental Health Risks—Rail Transport

This section addresses the potential environmental health risks associated with offsite rail transport along the Puget Sound & Pacific Railroad (PS&P) rail line. This section first describes the environmental health risks that would exist under the no-action alternative to provide context for how risks would change with the addition of the proposed action. It then describes the potential risks related to oil spills, fires, or explosions associated with rail transport under the proposed action. This section then describes the existing planning, preparedness, and response framework in place that is intended to address risks at the terminal and identifies additional applicant mitigation measures. The section concludes with a discussion of potentially unavoidable and significant adverse impacts of the proposed action and an explanation of financial responsibility for emergency response and cleanup activities if an incident occurred during rail transport.

4.5.1 What are the existing risks?

Under the no-action alternative, the environmental health and safety risks during rail transport would include the potential for rail incidents that could harm people or the natural environment, particularly if the incidents resulted in spills of hazardous materials. These risks would be similar to existing conditions because a substantial increase in rail traffic on the PS&P rail line is not likely during the 20-year analysis period (2017 to 2037). Currently, three trains per day on average travel from Centralia to the Port of Grays Harbor carrying grain, autos, mixed freight, and a small number of cars carry hazardous materials. As discussed in Chapter 3, Section 3.15, *Rail Traffic*, train length could increase; however, additional train trips other than those related to the proposed action are not likely.

Under existing conditions, rail traffic consists primarily of grain, auto, and mixed freight trains. Only a few cars on these trains carry oil or hazardous materials. These materials are primarily related to the applicant's existing operations and include methanol and other industrial operations near the project site, such as vegetable oil, sodium methylate, biodiesel, and glycerin.

It is not possible to predict the timing or magnitude of an incident; therefore, the likelihood of each of the following spill scenarios was considered to provide an understanding of risks under the no-action alternative.

- **Small rail transport spill scenario:** derailment resulting in a spill of up 1,000 gallons (24 barrels).
- **Medium rail transport spill scenario:** derailment resulting in a spill of up to 30,000 gallons (714 barrels or the contents of one full tank car).
- **Large rail transport spill scenario:** derailment resulting in a spill of up to 90,000 gallons (2,140 barrels or the contents of three full tank cars).
- **Large rail transport spill scenario:** derailment resulting in a spill of up 900,000 gallons (21,400 barrels or the contents of 30 full tank cars).

The relative risks of these spill scenarios are shown graphically in Figure 4.5-1 and summarized below.

Figure 4.5-1. Environmental Health Risks from Potential Spills during Rail Transport—No-Action Alternative

The spill scenarios have the following likelihood of occurring under the no-action alternative.

- The **small rail transport spill scenario** could occur once in 85 years.
- The **medium rail transport spill scenario** could occur once in 48 years.
- The **large rail transport spill scenario** could occur once in 3,100 years.

The impacts of chemical releases into the environment are addressed in Chapter 3, Section 3.14, *Hazardous Materials*. For additional details about the analysis of risks under the no-action alternative, see Appendix M, *Risk Assessment Technical Report*.

4.5.2 What are the potential risks of the proposed action?

Under the proposed action, the environmental health and safety risks along the PS&P rail line would include the possibility of rail incidents that could harm people or the natural environment, particularly if larger spills of oil or the other proposed bulk liquids occurred. These risks would be greater than under the no-action alternative because more trains would be operating. Additionally, trains traveling to the project site would consist of unit trains (longer trains carrying a single commodity) of oil. Increasing the number of cars carrying high-hazard commodities increases the chance of environmental harm in the event of rail incident.

This section describes factors influencing the potential increase in risks along the PS&P rail line, including the change in the likelihood of a spill occurring under the proposed action. This section also identifies mitigating factors currently in place to reduce the impacts of a spill and describes the potential extent of a spill and the response actions that would occur. This section also describes the

risks of fires or explosions related to the proposed action and the response actions that would occur in the event of a fire or explosion along the PS&P rail line.

On a national level, the number of rail cars carrying crude oil has increased nearly 44 times in the last 6 years, from 9,500 carloads in 2008 to 415,000 carloads in 2013. By the end of 2014, 650,000 carloads carrying 19.5 billion gallons (464 barrels) of crude oil are expected to travel on national rail lines. Following the national trend, Washington State has experienced dramatic changes in the amount and types of oil transported by rail. The new oil types include heavy crude oils such as bitumen from Canada and Bakken crude from North Dakota.

Rail incidents involving crude oil or other harmful materials typically result in small releases. For example the average petroleum release size of 738 gallons (17.6 barrels), from 2001 to 2012, is based on nationwide spills as reported in the *Rail Transportation Impact Analysis for Imperium* (WorleyParsons 2014:146) using Association of American Railroads data. However, recent incidents in Lac-Mégantic, Québec; Casselton, North Dakota; Aliceville, Alabama; and Lynchburg, Virginia have been more significant.

According to the Rail Transportation and Engineering Center at the University of Illinois (Lui et al. 2012), for rail operations under 10 miles per hour (mph), the main causes of derailments are track and human factors such as improper train handling, braking operations, and improper use of switches. For rail operations above 25 mph, equipment issues were the main cause for derailments. For speeds between 11 and 25 mph, track, miscellaneous, equipment, and human factors all contributed. The PS&P rail line maximum speed is 25 mph and slower for certain areas as described below. A separate study (Anderson and Barkan 2004) identified speed as the critical factor in predicting the severity of a derailment. The length of the train is also an important factor. In general, the greater the mass and speed, the greater the force and potential impacts.

A May 2014 emergency order issued by the U.S. Department of Transportation required railroads to notify the state of the frequency and oil volumes for trains carrying 1 million gallons (23,800 barrels) or more of Bakken crude. The Washington State Department of Ecology (Ecology) report on marine and rail oil transportation identified concerns about oil transportation in the state (Washington State Department of Ecology 2015). The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration's (PHMSA) final rule (80 *Federal Register* [FR] 26643) sets requirements for routing assessments and notifications (Section 4.2.1.2, *Rail*).

The PS&P rail line in the study area covers 59 miles of Track Class 2 lines. Per the Federal Railroad Administration (2007), the track must meet all the requirements for its designated track class. These standards, discussed in Chapter 3, Section 3.15, *Rail Traffic,* apply to the following elements.

- Track surface (the evenness or uniformity of track).
- Track alignment (the variation in curvature of each rail of the track).
- Required number of cross ties.
- Alignment of the rail ends at joints.
- Frequencies of inspections for different components.

Nationwide, historic incident rates are higher on Class 2 track than they are on Class 3 track, primarily because of the different design and maintenance standards for these tracks. All traffic in the study area moves at 25 mile per hour or less, as per Track Class 2 standards (Chapter 3, Section 3.15, *Rail Traffic*). Some bridges have lower speed limits: 10 mph over Devonshire Bridge (Wynoochee River) and 5 miles per hour over the moveable bridges over the Wishkah and Hoquiam Rivers.

Operation of the proposed action at maximum throughput would add approximately one unit train trip[1] per day on average (458 per year maximum) along the PS&P rail line to the existing average of three train trips per day (1,235 per year) under the no-action alternative (Section 3.15, *Rail Traffic*). This would increase the potential for incidental releases of oil and hazardous substances, pollutants, and contaminants during offsite transport.

4.5.2.1 Oil Spills

Oil Spill Risk

There were four recent derailments on the PS&P rail line, all in April and May 2014. These derailments did not involve oil spills.

- On April 29, two cars derailed at 5 mph at South Washington Street in Aberdeen due to wide gauge (track separation).
- On May 9, seven cars derailed at 6 mph at Heron Street in Aberdeen due to wide gauge.
- On May 15, 10 cars derailed at 10 mph near Montesano due to thermal track misalignment.
- On May 21, 11 cars derailed at 5 mph at Blakeslee Junction due to a combination of train make-up and track geometry design.

The risk of an oil spill from train operations typically relates to the risk of derailment. A derailment does not mean a spill will happen; a train can derail with no spill resulting. A leak could occur during transport of the rail car but the spill quantity at a single point along the rail would likely be small because the leak could occur over several miles of track.

Because of the increased number of rail trips to and from the project site, the proposed action would result in the potential for more frequent spills of bulk liquids relative to the no-action alternative, although the orders of magnitude are very similar. The likelihood of very large releases would remain low. As noted previously, it is not possible to predict the timing or magnitude of an incident; therefore, the following spill scenarios were considered to provide an understanding of risks under the proposed action.

- **Small rail transport spill scenario:** derailment resulting in a spill of up 1,000 gallons (24 barrels).
- **Medium rail transport spill scenario:** derailment resulting in a spill of up to 30,000 gallons (714 barrels or the contents of one full tank car).

[1] A trip represents one-way travel; in other words, an inbound trip and an outbound trip are counted as two trips.

- **Large rail transport spill scenario:** derailment resulting in a spill of up to 90,000 gallons (2,140 barrels or the contents of three full tank cars).
- **Large rail transport spill scenario:** derailment resulting in a spill of up 150,000 gallons (3,570 barrels or the contents of five full tank cars).
- **Large rail transport spill scenario:** derailment resulting in a spill of up 900,000 gallons (21,400 barrels or the contents of 30 full tank cars).

The relative risks of these spill scenarios are shown graphically in Figure 4.5-2 and summarized below.

Figure 4.5-2. Environmental Health Risks from Potential Spills during Rail Transport—Proposed Action

- The **small rail transport spill scenario** could occur once in 100 years with current rail cars; with rail car improvements (80 FR 26643) this would extend to once in 105 years.
- The **medium rail transport spill scenario** could occur once in 36 years with current rail cars; with rail car improvements, this would extend to once in 43 years.
- The **large (three-car) rail transport spill scenario** could occur once in 250 years with current rail cars; with rail car improvements, this would extend to once in 370 years.
- The **large (five-car) rail transport spill scenario** could occur once in 4,800 years with current rail cars; with rail car improvements, this would extend to once in 11,000 years.

- The **large (30-car) rail transport spill scenario** could occur once in 10,000 years with current rail cars; with rail car improvements, this would extend to once in 74,000 years.

Along the PS&P rail line in the study area, a spill could affect a sensitive area or habitat of concern. Table 4.5-1 lists sensitive habitat areas and identifies the approximate length of exposure and its relative portion of the total route along the PS&P rail line. This percentage can be applied to the estimated chances of a release to determine the possibility that a specific release might occur in a particular area. This does not consider the extent of the spread, just the chance that a spill occurs in the area. For example, according to the assessment explained in Appendix M, *Risk Assessment Technical Report*, the chance of a spill equal to one rail car (30,000 gallons [714 barrels]) occurring anywhere along the PS&P rail line is once in 36years. The likelihood of this occurring near the marbled murrelet critical habitat would be predicted based on the percentage of marbled murrelet critical habitat along the route. Because this habitat occupies approximately 5% of the route, the likelihood of a spill would be 5% of the total chance, or once in 490 years.

Table 4.5-1. Sensitive Habitats along the PS&P Rail Line

Sensitive Habitat	Approximate Length of Exposure	Percent of Total Route
Three marbled murrelet critical habitat areas	3 miles	5%
Three crossings of bull trout streams designated as critical habitat areas	2 miles (approximate exposure considering track leading to and from crossings)	3%
Chehalis River Surge Plain Natural Area	6 miles	10%
Stretch of Chehalis River close to the rail line, designated as critical habitat for bull trout	10 miles	17%
Critical habitat for the Oregon spotted frog along Black River	10 miles	17%
Locations of two sensitive plant species (multiple locations between US Route 12 and the Black River crossing)	10 miles	17%
Source: Appendix M, *Risk Assessment Technical Report*		

Due to increased rail traffic, the proposed action would increase the potential for more frequent releases of bulk liquids relative to the no-action alternative. The risk of very large releases, however, would remain relatively low.

To provide additional information about the risks of a spill and to inform prevention, preparedness, and response planning relevant to the proposed action, oil spill modeling examined the movement of oil in the Chehalis River. The model uses two release points: one near Porter Creek Road near Oakville and the other at the Wynochee Bridge crossing. As presented in Appendix N, *Oil Spill Modeling*, the movement of spilled oil in the Chehalis River can vary dramatically, depending on weather conditions and hydrologic flow conditions. Depending on the size and location of the release, oil could move into the estuary in as few as 7.6 hours (100-year flood conditions) or in 4.5 days (low-flow conditions) if no response efforts contain the oil. The potential impacts of exposure to spills are addressed in Section 4.7, *Impacts on Resources*.

Oil Spill Prevention

As discussed in Section 4.2, *Applicable Regulations*, railroad operators that transport oil and hazardous materials are required to meet federal and state standards for locomotives and rail cars. They must also develop contingency and response plans to prevent spills from reaching the environment. Railroads must submit an incident report for derailments to the Federal Railroad Administration. Lessons learned from these reports can be incorporated into future contingency planning.

As described in Section 4.2.1.2, *Rail*, PHMSA has issued a final rule that defines and regulates high-hazard flammable trains (49 Code of Federal Regulations [CFR] 171–180). The proposed requirements would improve the safety of crude oil and ethanol shipments by rail (80 FR 26643). The following steps outlined in the rule are intended to improve the safety of high-hazard flammable trains.

- Improve classification and characterization of crude oil to ensure the type of rail car used is appropriate.
- Provide appropriate railroad contact information to state, local, and tribal officials who contact a railroad to seek information about routing hazardous materials through their jurisdictions. This helps secure the exchange of sensitive information.
- Reduce operating speeds to no more than 40 mph. The PS&P rail line is already limited to 25 mph as Class II track and there are slower speed limits in areas.
- Require all high-hazard flammable trains to be equipped with alternative brake signal propagation systems of either electronic controlled pneumatic brakes, a two-way end of train device, or distributed power.
- Require new and existing tank cars to meet specific design requirements or performance criteria (e.g., thermal, top fittings, and bottom outlet protection; tank head and shell puncture resistance).

Oil Spill Response

Railroad

Typical actions for responding to a spill from a crude oil train derailment (if there is no fire) are as follows. Similar actions would be taken for all products proposed to be transported.

- Implement emergency response plan required under federal law. This includes notifications and initial actions for incidents.
- Protect public health and safety.
- Contact railroad emergency contact.
- Contact shipper (owner of the oil) using the shipping papers, railroad emergency contact, or CHEMTREC.
- Conduct hazard assessment and risk evaluation.

- Conduct continuous air monitoring, as appropriate.
- Confine the spill.
- Apply foam for vapor suppression, if available.
- Isolate or evacuate based on recommendations in the product-based emergency response guide (for example, Guide No. 128 for petroleum crude oil recommends initial downwind evacuation for at least 1,000 feet).

For first responders from the local jurisdictions or the railroad emergency response team, the posture for an oil or hazardous material spill on the rail is the same—defensive and protective. The local responders will do what is necessary to evaluate and report on the situation, keep themselves and the public safe, and monitor response and cleanup operations for compliance with local ordinances and permits.

Depending on the severity of the incident, when considering impacts on public health and the environment, the U.S. Environmental Protection Agency, U.S. Coast Guard, and Ecology may take a more aggressive role in the initial response operations to ensure that the responsible party is taking appropriate and timely action to mitigate damages to the environment.

The onus is on the responsible party to respond with the appropriate resources to contain the situation and clean up the spill. The federal basic oil spill response plan (49 CFR 130) currently applicable to rail operators with oil shipments of a capacity of 3,500 to 42,000 gallons per car does not require equipment to be contracted and available for an immediate response to an oil spill incident. In August 2014, PHMSA issued an advanced notice of proposed rulemaking seeking comment on potential revisions to its regulation to require high-hazard flammable trains to prepare comprehensive oil spill response plans (79 FR 45080). The comprehensive plans would require better coordination, identification of personnel, equipment, and training for responses to spills, and submission of the plan to the Federal Railroad Administration.

The Washington State passed ESHB 1449 in 2015, authorizing Ecology to adopt rules to require PS&P to prepare an oil spill contingency plan. The plan would, among other things, demonstrate that PS&P has the capacity to remove oil and minimize any damage to the environment resulting from a worst-case spill. Prior to adoption of rules, the federal oil spill response plans will be used to meet the state requirement.

Geographic Response

As mentioned previously, the Grays Harbor and the Chehalis River Geographic Response Plans (GRP) contain specific response strategies in the event of an oil spill (from any source) into or threatening waters and related environmental resources along the PS&P rail line. For example, the Grays Harbor GRP contains 16 response strategies relevant to an oil spill that affects the Chehalis River (this number does not include response strategies related to tributaries or wetlands that connect to the river). These strategies encompass boom placement to close off movement of spilled oil into environmentally sensitive sites (such as the Elliot Slough in Aberdeen), to deflect oil moving on the river into a containment area for collection (with vacuum trucks and sorbent materials), or to divert oil away from areas that are sensitive and/or hard to clean. Culvert blocks or underflow dams are also response strategies presented within the GRPs to aid in shoreline protection and oil collection. The GRPs also contain supplemental information related to the response strategies that

support their implementation. For example, the Chehalis River GRP includes a table with appropriate boom deflection angles for a range of water speeds and another table with stream flow data (averaged over several years) recorded at various points in the Chehalis River and its tributaries.

The response strategies are prioritized in the GRPs to reflect the sensitivity of threatened environmental resources or potential public health concerns (as in the case of spill proximity to populated areas or water intakes). In some cases, economic considerations may dictate response priorities (for example preventing oil from affecting a dock area near a waterside restaurant or a marina). These priorities are discussed prior to a spill and reflected accordingly in the GRPs to prevent a delay in the allocation of potentially scarce response assets during an active spill response.

Each GRP identifies potential spill origin points. Table 4.5-2 provides the identification labels for the points that could originate from a project-related rail incident and affect sensitive sites due to proximity of the rail line to the Chehalis River or a tributary (there is no attribution in the GRPs for the cause of the spill at the spill origin points).

Table 4.5-2. Geographic Response Planning Spill Origin Points along the PS&P Rail Line

Spill Origin Point Designation	Geographic Designation
Grays Harbor Geographic Response Plan	
GH-A	Chehalis River Upstream of Cosmopolis
GH-B	Aberdeen/Hoquiam/Port of Grays Harbor
Chehalis River Geographic Response Plan *(draft)*	
CHER-O	Central Park
CHER-N	Wynoochee River
CHER-M	Wenzel Slough
CHER-K	Porter
CHER-J	Oakville
CHER-I	Black River

Each spill origin point has a multitude of associated response strategies within the GRPs due to the inevitable likelihood that spilled oil will spread on and flow with water until it is contained and removed.

In addition to the site-specific information in the GRPs, there is relevant information in other sections of the larger Northwest Area Contingency Plan that supplements the site-specific strategies. For example, Chapter 3000 – Operations, contains a section titled *Operational Safety Issues Associated with Bakken Crude Oil* and another section titled *Fast Water Oil Spill Response*, which would inform local responders in the event of a rail incident. Section 9302 of the Northwest Area Contingency Plan is entirely dedicated to responder decision tools for oil spill response in fast water currents.

4.5.2.2 Fires or Explosions

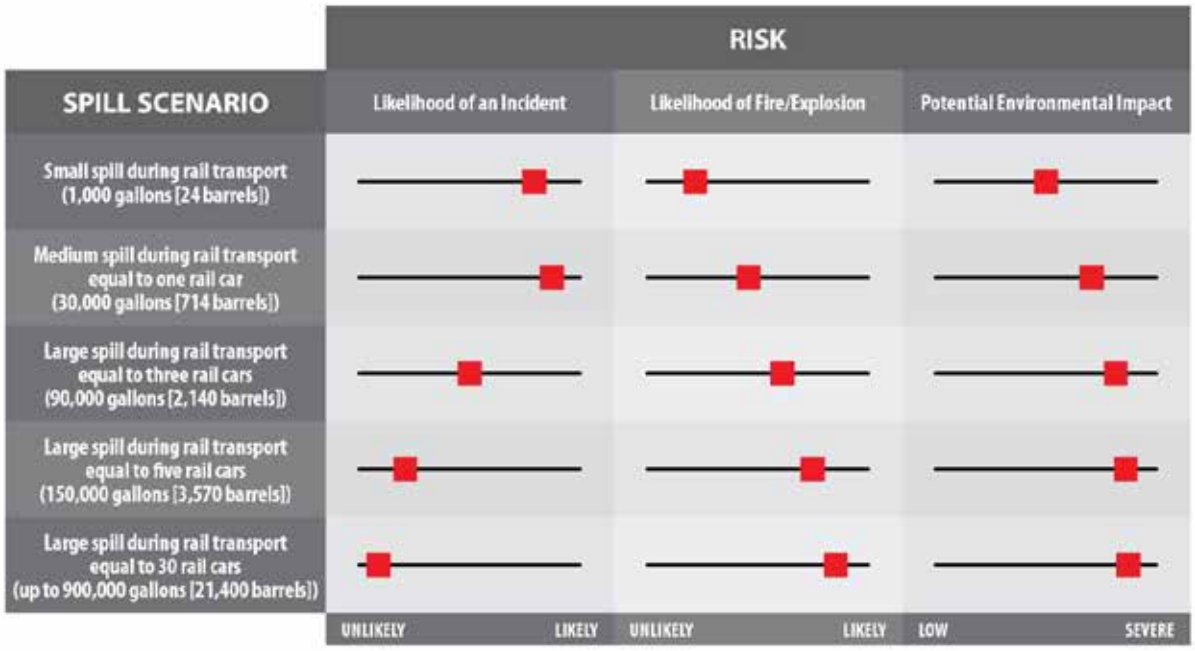
Fire or Explosion Risk

A spill could cause a fire or explosion if there is an ignition source and combustible gases are present in a quantity that could ignite. The incident could cause sparking, which could ignite the spill. Explosions are most likely when a spill is ignited and the resulting fire impinges on another tank or rail car. As the material in these adjacent tanks or rail cars heat up, the pressure builds and may eventually burst the container. The extent of the damage depends on the exact configuration of the release and fire compared to the location of the other tanks or rail cars, any fire suppression capabilities, and the timing and nature of response actions. It also depends on the material: Bakken crude oil is more flammable than other heavier crude oils. The flammability of diluted bitumen varies based on the diluent (diluting agent) used.

Although fires or explosions can result from spills resulting from events like collisions and derailments, long-term historical data show that most spills do not result in fires or explosions. A fire or explosion would be less likely to occur than a spill. While there have been multiple recent derailments of trains on main lines that resulted in fires or explosions, the chance of an extreme derailment is very limited in the study area because of the slow speeds on the PS&P rail line, which are slower than typical mainline speeds. In general, large derailments from high-speed trains lead to releases from multiple rail cars. The energy involved in high-speed derailments and the resulting scatter of rail cars yield the greatest chance of a fire that affects other rail cars and possibly result in an explosion.

The risks of fires or explosions at the terminal are presented in Figure 4.5-3. Additional information regarding the risks of fire and explosions during rail transport is provided in Appendix M, *Risk Assessment Technical Report*.

Figure 4.5-3. Environmental Health Risks from Potential Fires or Explosions during Rail Transport—Proposed Action



Explosion Prevention

Rail operations are required to meet national and state regulations for safe operation and maintenance, which are intended to prevent fires and explosions related to rail transport.

Explosion Response

PHMSA provides guidance for a fire or explosion from a train carrying crude oil (Pipeline and Hazardous Materials Safety Administration 2014), which states that,

> "in the event of an incident that may involve the release of thousands of gallons of product and ignition of tank cars of crude oil in a unit train, most emergency response organizations will not have the available resources, capabilities, or trained personnel to safely and effectively extinguish a fire or contain a spill of this magnitude (e.g., sufficient firefighting foam concentrate, appliances, equipment, water supplies). Response to unit train derailments of crude oil will require specialized outside resources that may not arrive at the scene for hours; therefore it is critical that responders coordinate their activities with the involved railroad and initiate requests for specialized resources as soon as possible."

As with oil spills, first responders from the local jurisdictions or the railroad emergency response team would provide an initial investigation. The first responders are expected to enact defensive operations until appropriate and adequate resources are on scene. The on-scene coordinator would contact the company responsible for the product for technical support related to an emergency with the oil or chemical (49 CFR 172.604). Rail carriers provide emergency response resources. These may include air monitoring and environment management capabilities, technical specialists, and

contractors to assist in managing the consequences of a crude oil train derailment (49 CFR 130.31). Final rules updating the requirements are pending.

Capabilities at the local level differ between fire departments. The local fire departments along the PS&P rail line do not have technical hazardous material teams. Air monitoring capabilities vary based on the equipment and personnel trained. Supporting resources may be available from surrounding jurisdictions. Under Revised Code of Washington (RCW) 43.43.961, the Fire Service Resource Mobilization Plan provides personnel, equipment, and other logistical resources from around the state when a fire or other emergency, like a hazardous material release, exceeds the firefighting and hazardous material capacity of local jurisdictions (Washington State Patrol Office of the State Fire Marshal 2014:5). State agencies that share responsibility as primary agencies for a hazardous material response are Ecology and the Washington State Patrol (Washington State Emergency Management Division 2011). If a fire or hazardous material response incident escalates beyond the limits of state resources, additional federal assets can be requested for an incident.

Typical emergency actions for responding to a crude oil train derailment resulting in an explosion or fire are as described in Section 4.5.2.1, *Oil Spills, Oil Spill Response.* Similar actions would be taken for all products proposed to be transported.

4.5.3 What mitigation measures would reduce impacts related to rail transport?

This section describes the voluntary measures and design features, applicant mitigation, and other measures that would reduce impacts on environmental health and safety impacts from rail transport related to the proposed action. These mitigation measures are in addition to regulatory compliance and best practices discussed above.

4.5.3.1 Voluntary Measures and Design Features

- To reduce potential risk from tank car punctures and spills identified with use of DOT-111 tank cars for transport of Bakken crude oil, the applicant will not accept crude oil by rail unless the following actions occur.
  - The rail cars meet or exceed the new U.S. Department of Transportation specification 117 design or performance criteria.
  - Existing tank cars are retrofitted in accordance with the U.S. Department of Transportation-prescribed retrofit design or performance standard (80 FR 26643).

4.5.3.2 Applicant Mitigation

The applicant will implement the following mitigation.

- To improve preparedness for incidents, including oils spills, explosions, and fires, the applicant will ensure an emergency preparedness workshop is conducted prior to beginning project operations. The applicant will coordinate the workshop with Ecology. The workshop will be no more than 1 day in length and be held prior to beginning operations and annually thereafter. The initial workshop will focus on familiarizing local emergency responders, tribes, and communities with the contents of the Northwest Area Contingency

Plan, the Grays Harbor and Chehalis Geographic Response Plans, other local response plans, the facility response plan, and the measures that are in place for a rapid and effective spill response.

- To improve the safe transport of crude oils with different volatilities and sinking tendencies, the applicant will not accept crude oil by rail unless the following actions have occurred.
  - The applicant has received verification that a sample of the oil has been tested and properly classified and characterized.
  - Where classification and characteristics of the oil are available in advance, the applicant has fully described this information and the implications for emergency response in its oil spill contingency plan.
- To reduce risks of a spill due to a rail incident, the applicant will not accept crude oil unit trains by rail unless the train has in place a functioning two-way end-of-train device or distributed power for operations on the PS&P rail line to the local yard.
- Due to sensitivity of the local environment, tribal resource concerns, and the potential presence of special-status species, to improve coordination and response capabilities in the event of a rail accident, the applicant will not accept crude oil by rail unless PS&P prepares, submits to Ecology for approval, and implements a contingency plan meeting the requirements identified below. This requirement will remain in place until state contingency plan requirements for railroads are implemented by Ecology pursuant to ESHB 1449, Section 5, and/or amendments to the federal oil spill response plan rule (49 Code of Federal Regulations 130) is adopted.
  - Disclose full details of the method of response to spills to various sizes.
  - Define a worst-case spill planning volume.
  - Identify response notification and coordination procedures.
  - Identify personnel assigned to implement the plan.
  - Reference applicable Washington State geographic response plans.
  - Describe a training and exercise program for personnel and equipment.
  - Identify prepositioned spill containment and cleanup equipment and trained personnel.
  - Identify arrangement for enlisting qualified and trained cleanup personnel to implement the plan.
  - Describe how plan relates to other relevant contingency plans, such as facility plans, other rail plans, including federal oil spill response plans, and regional plans.
- To improve first response effectiveness and safety, the applicant will consult with the Olympic Region Clean Air Agency and U.S. Environmental Protection Agency to identify air monitoring equipment needs for public health and safety in the case of a spill or explosion. The applicant will ensure equipment identified that is necessary for determining air quality

conditions but not available through local agencies or fire departments will be made available to local fire departments.

- To increase the timeliness of responses to spills and incidents involving trains and to maximize coordination of responses along the PS&P rail line, the applicant will not accept crude oil by rail unless the following measures are completed.
  - PS&P participates with the local fire districts in a public safety drill at least once every 2 years.
  - PS&P tests one geographic response plan strategy annually and invites Ecology to participate.
  - PS&P participates in testing the applicant's oil spill contingency plan with a rail scenario at least once every 3 years, including participating in at least one drill every 3 years. This drill will be designed with Ecology and scheduled on the regional drill calendar.
- To improve response capability for spills that may occur on the Chehalis River, the applicant will coordinate with Ecology to advertise and extend registration of Vessels of Opportunity to the Chehalis River and to tribal boat owners prior to beginning operations. Applicants for the Vessel of Opportunity Program should be directed to www.oilspills101.wa.gov for information and registration.
- To improve response capability for trains transporting product to the project site, the applicant will not accept crude oil until a foam truck has been provided to the Elma Fire Department to provide fire-fighting capability along the PS&P rail line. The foam truck must be available and operational prior to beginning operations. The applicant will consult with Ecology and the local fire department to determine the capacity of the foam truck.
- To improve response times to reduce the initial impacts of an oil spill, the applicant will ensure that two trailers containing the spill response equipment listed below are available prior to beginning crude oil operations for use by initial local and emergency responders along the PS&P rail line. This equipment will be offered to fire departments along the PS&P rail line and the Chehalis Indian Tribe. The trailer and equipment will be maintained by the applicant and inspected annually. The equipment will only be provided to fire departments and Chehalis Tribe if they agree to store the equipment in a secure location and ensure the equipment used by appropriately trained personnel. The applicant will work with Ecology and local emergency officials to update the Western Region Response List website (www.wrrl.us), any applicable spills response plans to address the emergency equipment caches and to document notification protocols, necessary training, use of Personal Protective Equipment, and equipment deployment procedures.

  Mobile trailers of a specific size to hold the below equipment:
  - 3000 feet of river boom in four 500-foot sections and five 200-foot sections
  - 5000 feet of sausage sorbent boom
  - 30 kits - anchoring systems (anchors, lines, floats)

- 20 kits - shoreside anchoring systems
- 1 towing bridle
- 4 heaving lines
- 1 machete (or other vegetation cutting tool)
- 1 pair of bolt cutters
- 50 sandbags
- 1 roll plastic sheeting
- 4 each plywood sheets (4 feet by 8 feet)
- 500 feet 3/8-inch poly line
- PPE: coveralls or Tyvek ® disposable suits, gloves, outer (chemical-resistant and disposable) boots, safety glasses or chemical splash goggles, hard hats - sufficient for 5 people

- To reduce risks related to an oil spill, the applicant will not accept crude oil by rail until PS&P meets with local emergency management officials to identify training needs for local responders who will respond to an emergency on the PS&P rail line. This effort will include development and execution of a training program to these responders to increase level of awareness and understanding of the hazards associated with an oil train incident. The training will include identification of notification protocols, use of Personal Protective Equipment, and equipment deployment procedures. This training will be completed before the applicant begins receiving oil trains and will be offered at least annually.
- To improve response capability on the Confederated Tribes of the Chehalis Reservation lands in the case of an oil spill, the applicant will ensure that an annual 1-day hazard awareness oil spill training for identified Chehalis tribal members is provided, including conducting and inviting tribal members to participate in drills.
- To improve response capability in the Grays Harbor area in the case of an oil spill, the applicant will ensure an annual one-day hazard awareness oil spill training is provided for identified Quinault Indian Nation tribal members, including conducting and inviting tribal members to participate in drills.
- To increase the timeliness and maximize the coordination of responses to spills and incidents involving crude oil trains along the PS&P rail line, the applicant will ensure the Grays Harbor Local Emergency Planning Committee's emergency response plan is updated to address the applicant's operations. This information must be included prior to beginning operations.

4.5.3.3 Other Measures to Be Considered

Potential impacts associated with the proposed action resulting from increased likelihood of a rail incidents occurring could be further reduced by implementing the following measures.

- To improve coordinated responses, Ecology should urge the legislature to amend current laws, including RCW 90.56, RCW 88.40, and RCW 88.46, to require contingency plans, advance notice of transfer and certificates of financial responsibility from railroads transporting oil, including PS&P.

- To increase the timeliness of responses to spills and incidents, Ecology should seek funding for a grant program to supply firefighting equipment and oil spill response equipment to local responders along the rail lines.

- To increase the timeliness of responses to spills and incidents involving trains and maximize coordination of response along the PS&P rail line, PS&P should attend meetings and discuss incidents and near misses with the Grays Harbor Local Emergency Planning Committee at least once annually. PS&P should discuss with the Washington Utilities and Transportation Commission the feasibility of creating a railroad safety committee based on the model of the Grays Harbor Safety Committee.

- To improve response capability on the Chehalis Tribe Reservation in the case of an oil spill, the Chehalis Tribe should identify members who could respond to oil spills and provide this information to PS&P and the Grays Harbor Local Emergency Planning Committee.

- To improve response capability in Grays Harbor in the case of an oil spill, the Quinault Indian Nation should identify members who could respond to oil spills and provide this information to PS&P and the Grays Harbor Local Emergency Planning Committee.

- To improve local response capability in the case of an oil spill, the Grays Harbor, Thurston, and Lewis Local Emergency Planning Committee and Fire Departments along the PS&P rail line should support the attendance of local emergency response personnel at the Security and Emergency Response Training Center in Pueblo, Colorado, to enhance their skills in response to releases from train incidents.

- To reduce the risk of an incident on the PS&P rail line, PS&P should work with local officials to collaborate and initiate a comprehensive community awareness campaign to educate and inform the public of the dangers of trespassing into the railway and trying to beat a train. This campaign will include communication of new train frequency, publishing ads in local newspapers, and continuing to support the existing Operation Lifesaver program with visits to schools, community centers, civic clubs, and town hall meetings.

4.5.4 Would the proposed action result in unavoidable and significant adverse environmental impacts related to rail transport?

A large oil spill or explosion would likely cause unavoidable and significant adverse environmental impacts. As described above, the likelihood of a large spill or related explosion is low; however, the potential for significant consequences to the environment and human health in the case of a large spill or explosion is high. The specific impacts would vary based on the location, amount spilled, type of liquid, river flow, time of year, and weather conditions. Examples of these impacts are described in Section 4.7, *Impacts on Resources*. Regulatory requirements for the prevention of, preparedness for, and response to a large spill or explosion and mitigation measures to reduce impacts are

detailed above. However, no mitigation measures would completely eliminate the possibility of a large spill or explosion, nor would they completely eliminate the adverse consequences of a large spill or explosion.

4.5.5 Who would pay for the response and cleanup of a rail transport spill?

The liability for rail transport spills is the same as described for onsite spills (Section 4.4.5) when there is the potential for waters of the United States to be affected. The polluter pays for costs and damages associated with oil spills. Response and cleanup of spills from rail cars that threaten the navigable waters or adjoining shorelines are the responsibility of the owner or operator (also referred to as the *shipper*) of the rail cars carrying the crude oil (RCW 88.40, Transport of Petroleum Products—Financial Responsibility). The federal government has established high limits on that liability. Washington State places no limits on liability of polluters to third parties, allowing recovery of cleanup costs and natural resource damages beyond the federal limit. To cover removal costs above the federal limits of liability, the U.S. Congress established a 1-billion-dollar Oil Spill Liability Trust Fund to pay for expeditious oil removal and uncompensated damages.

If the spill from a train car does not reach or threaten navigable waters, the federal Resource Conservation and Recovery Act (42 United States Code [U.S.C.] 6901) as well as the Federal Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9607), and the Natural Resource Damage Act (43 CFR Part 11) provide mechanisms for the State to obtain compensation from the responsible party for cleanup and environmental restoration, and liability provisions for criminal and civil penalties.