**Terminal 6 Propane Export Facility Zoning Code and Map Amendments (February 17, 2015)**

| Question | Response |
|---|---|
| **Process** | |
| Why isn't there a NEPA process or EIS? | There is a process under the National Environmental Policy Act ("NEPA"). Based on current design concepts, a NEPA process will be triggered by the U.S. Army Corps of Engineers ("USACE") federal permitting requirements for the in-water components of the project. The scope of in-water components requiring approval is expected to be limited in nature and potential effects, as an existing berth is being utilized.<br><br>In addition to the NEPA process, the project will be subject to several municipal, state and federal permitting requirements, and the majority of these processes provide an opportunity for public comment and participation. Pembina will be working foremost to avoid, but where impracticable, to minimize and mitigate potential project impacts that may occur. These efforts will be reflected in the relevant permit applications.<br><br>The e-zone amendment is the first step in what will be a rigorous design and permitting process. Some of the reviewing agencies include:<br>• USACE;<br>• U.S. Fish and Wildlife, National Marine Fisheries Services ("NMFS");<br>• U.S. Coast Guard ("USCG");<br>• Federal Aviation Administration ("FAA");<br>• Oregon Department of Environmental Quality ("DEQ");<br>• Oregon Department of Fish and Wildlife ("ODFW");<br>• Oregon Department of State Lands ("DSL");<br>• Oregon State Fire Marshall ("SFM");<br>• City of Portland Bureau of Development Services ("BDS");<br>• City of Portland Bureau of Environmental Services ("BES"); and<br>• City of Portland Fire and Safety ("PF&R").<br><br>While the City of Portland's ("City") ESEE analysis addresses some potential project impacts, these impacts and others will be rigorously evaluated in project-specific administrative proceedings. For example:<br>• potential impacts to in-water habitat, water quality, and endangered species will require mitigation by USACE, NFMS, DSL, DEQ, and ODFW;<br>• potential impacts to air quality will be addressed by DEQ;<br>• stormwater impacts will be addressed by DEQ and BES;<br>• potential impacts to riparian habitat, wildlife habitat, and the floodplain will be addressed by BDS and BES; and<br>• safety will be reviewed by USCG, FAA, SFM, BDS, and PF&R. |
| **Safety/Risk** | |
| What is the safety record of propane transport by rail? | Information about rail safety was provided in Pembina's January 12, 2015 submission to the PSC. Pembina has been safely shipping propane by rail to Oregon for over 15 years. Please see the January 12, 2015 submission for further discussion and detail. |
| What is the safety monitoring and reporting plan for the facility? | Pembina is recognized as a safe, reliable operator. Pembina has provided substantial evidence to demonstrate its (1) exceptional safety record, (2) Safety, Environment, and Security Management System, (3) Emergency Response planning and preparedness, and (4) asset integrity management. See Pembina's submissions from January 12, 2015, December 5, 2014 and November 19, 2014.<br><br>In addition to Pembina's corporate requirements for safety monitoring and reporting, there are various regulators that will oversee and enforce the safety regulations during construction and operation.<br><br>The facility must comply with various applicable local, state and federal regulatory reporting and monitoring requirements. The USCG, US Environmental Protection Agency ("EPA"), federal and Oregon Occupational Health and Safety Administrations ("OSHA"), SFM, DEQ, and the City Fire Marshall will all have the ability and right to inspect the facility during construction and operation. |

| Question | Response |
|---|---|
| | Some examples of the regulating authorities and responsibilities for safety considerations are identified below:<br><br>• 33 CFR 127.011 - The operation must allow USCG Captain of the Port ("COTP") or representative access for inspections.<br>• 33 CFR 127.013 – Allows COTP to suspend operations to prevent loss or damage to resources.<br>• 33 CFR 127.019 – Requires Pembina to submit an Operations Manual and Emergency Manual to the COTP for review prior to operations.<br>• 33 CFR 127.1321 - Requires Pembina to notify the COTP of any release (does not specify threshold) of propane and to not transfer propane again until authorized by COTP. It also requires immediate shut down of the transfer.<br>• 33 CFR 127.1325 – Requires Pembina to allow USCG and other local, state and federal agency access to the facility and vessels for inspection. Allows USCG access to the facility at any time to make any examination or board any vessel moored at the facility.<br>• Section 112(r) of the 1990 Clean Air Act (40 CFR 68) – Requires Pembina to conduct consequence analysis for the facility, complete a hazard assessment, report accident history, develop prevention programs and submit updated information on each of these subjects every 5 years to the EPA in the form of a Risk Management Plan (RMP)<br>• The SFM will provide public access to community right to know (EPCRA) information and RMP information for the facility.<br>• Both the SFM and PF&R will conduct either annual or biannual fire safety inspections in accordance with ORS 480.375 (discussed at the January 15th meeting). Oregon 480.375[1] indicates "[t]he State Fire Marshal shall conduct an annual safety inspection at all nonretail and dual operations facilities dispensing Class 1 flammable liquids". The City website indicates "[e]ither the Company Fire Inspection OR the Fire Marshal's Office Code Enforcement Inspection will occur for commercial and institutional properties once every two years" (https://www.portlandoregon.gov/fire/58253)<br>• DEQ Air Contaminant Discharge Permit – This permit will establish air emission limits and reporting requirements for Pembina that will be enforced by DEQ<br>• Oregon OSHA has responsibilities for Process Safety Management rules (29 CFR 1910.119)<br>• Various rules at the federal and state level establish requirements for release reporting of hazardous substances and response (CERCLA, Oregon Administrative Rules, etc)<br>• The Oregon OHSA is responsible for enforcement of federal and state safety requirements at the terminal.<br>• The federal OHSA is responsible for enforcement of safety related to marine terminal operations under 29 CFR which has a number of requirements including how rail movements at a marine terminal are undertaken and emergency action plans<br>• Process Safety Management (29 CFR 1910.119) outlines requirements for preventing or minimizing the consequences of catastrophic release of hazardous chemicals and include such things as employee training, process equipment integrity, management of change process, emergency action plan, compliance audits, process hazard analysis. These requirements would be enforced by Oregon OSHA at the terminal.<br><br>Additional information specific to propane is provided in the attached memo from APEX, which Pembina previously provided to the City on November 19, 2014. |
| What will happen in a catastrophic event? | This facility will be a state-of-the-art facility. Safety measures and equipment design considerations for our proposed facility will include:<br><br>• Double-walled steel refrigerated storage tanks with full-time pressure monitoring between the inner and outer tanks<br>• Site-wide fire water tank and pump system for emergencies<br>• Automated monitoring and control systems<br>• All equipment connected to flare system<br>• "Fire eyes" automatic shutdown system and gas detection system<br>• Over-pressure automatic relief valves and automatic shutoff and isolation valves<br>• Backup power onsite for control systems and emergency equipment<br>• 24 hours/day, 7 days per week, skilled and trained control room operators and operations staff<br>• Site located in a Port secure area under Homeland Security supervision<br>• Segregated safety software systems<br>• Site-specific emergency response plan, systems and training<br>• US DOT 112 railcars designed for propane<br>• Six year average age of leased railcar fleet<br>• Quick disconnecting capability for railcars and ship loading equipment |

| Question | Response |
|---|---|
| | • Site engines always hooked to loaded cars<br><br>Our facility will be designed to meet the most recent seismic standards of the 2012 International Building Code and the 2014 Oregon Structural Specialty Code. Consequently, the facility will be designed to withstand the effects of a magnitude-7 earthquake in the City of Portland or a magnitude-9 earthquake on the Oregon coast. Some of the design features that will achieve this standard include driving piles 160 feet in depth and 36 inches in diameter, like a bridge, as well as installing ground improvements, a long underground wall, along the site that may be as deep as 100 feet and as long as 3,000 feet. Post earthquake, the structures would still support gravity load, damage that does occur will not prevent egress for occupants, and the tanks will retain containment capability.<br><br>It should be noted that there has been no recorded failure of a large double-walled refrigerated storage tank. Further, with the design features described above, including significant seismic design components, it is expected that the refrigerated storage tanks would remain intact with their contents during an earthquake. Security plans including barriers to prevent access to the tanks will be in place to minimize potential intentional release. Consequently, a release of all 23 million gallons of propane from a tank is highly improbable.<br><br>It should also be noted that Portland has a strong energy sector in the Portland Harbor. Over 90% of Oregon's liquid fuels pass through the energy cluster on the west side of the river. In 85 years, there has been no catastrophic incident. Over time, regulations, risk management technologies and best management practices have and continue to improve.<br><br>Pembina has hired DNV GL, an internationally known consulting company, to complete a quantitative risk assessment (QRA) for the facility as well as a QRA for the ship route and dock. QRAs are a formal and systematic approach of identifying potentially hazardous events, estimating the likelihood and consequence of those events, and expressing the results as risk to people (onsite and public), the environment or the business. The QRA results will be used to:<br>• enhance facility and equipment system design as necessary,<br>• confirm all currently designed safety and emergency relief systems are adequate, and revise as necessary,<br>• optimize operating procedures, and<br>• form the basis of emergency response planning work.<br><br>DNV GL has developed a number of scenarios for the facility QRA, and has input key data into the model such as facility design details, comprehensive weather data, ignition sources and population data. The remaining work for the facility QRA includes frequency assessment for each scenario, input of facility design safety features, risk assessment for each scenario, and a local workshop to review outcomes and identify mitigation strategies. The workshop will occur in March. The completed QRA will result in the definition of final risk zones for the facility. As Pembina progresses the QRA work, information will be shared with applicable regulators such as the City, and other stakeholders. The results of the QRA and the resulting mitigation strategies including emergency response plans will be reviewed through the Project's permitting processes by various regulators as described in other responses. |
| What is the blast radius? | "Blast radius" is not a term that is used in any applicable regulations for the project's construction or operation. Pembina's QRA will provide results in relation to zones or areas defined by the USCG and EPA in their regulatory guidance materials. These zones are summarized below.<br><br>The USCG's Navigation and Vessel Inspection Circular (NVIC) 01-2011 Guidance Related to Waterfront Liquefied Natural Gas (LNG) Facilities outlines their expectations for QRAs and defines three zones of concern. Although NVIC 01-2011 has been developed for LNG, the USCG has advised Pembina to follow these requirements for the propane facility. The USCG's zones of concern consider fire hazard and vapor dispersion risk as well as potential consequences. The distance identified for each zone is affected by the scenario assessed, local topography and conditions, facility and equipment design and mitigation, and receptors.<br><br>The USCG has identified 3 zones of concern:<br>• Zone 1 has the most severe consequences with potential fatality and damage or significant disruption to critical infrastructure.<br>• Zone 2 has less severe consequences where severe injury could occur without shelter.<br>• Zone 3 poses minimal risks or consequences to public and property and is related to maximum flammable cloud.<br><br>EPA's Risk Management Program Guidance for Propane Storage Facilities (40 CFR Part 68) consequence assessment from a worst-case release must consider distance to a 1 psi overpressure for a worst-case release (at 1 psi, windows will break), receptors, potential consequences and mitigation strategies. This rule also provides guidance on how scenarios must be selected for the consequence analysis. |

| Question | Response |
|---|---|
| | The facility QRA is in progress and results are not yet available that identify these zones for the assessed scenarios. Please see the response above for a discussion of the QRA process that Pembina is undertaking and the anticipated timelines. |
| Does the Fire Bureau have the equipment and training to respond to a catastrophic event? | PF&R is currently responsible for responses to emergencies in the Willamette energy cluster and is well acquainted with how to address hazardous fuels. PF&R will be hiring a third party reviewer of design, operations and risk assessment in addition to obtaining advice from the SFM. Pembina is proactively meeting with PF&R to discuss the project and identify training and equipment needs. This information will inform the final design of the Pembina facility. As part of the building permit review, PF&R will have input and the ability to modify design of the Pembina facility.<br><br>To assist with emergency response, the National Propane Gas Association (NPGA) has developed the Propane Emergencies Program to provide a uniform curriculum to help emergency responders and firefighters across the country to develop the knowledge and skills necessary to safely and effectively manage propane emergencies in transportation or at fixed facilities. NPGA committed at the January 13, 2015 PSC hearing to provide this training to the PF&R.<br><br>Pembina will be able to join the Maritime Fire and Safety Administration (MFSA) as a member of the Columbia River maritime community. MFSA is a bi-state, member-based non-profit organization funded by vessel fees. MFSA is made of two programs.<br>• MFSA provides an Oil Spill Vessel Response Plan for vessels transiting the river that is regulated and approved by Washington Department of Ecology and Oregon DEQ. MFSA coordinates a robust system of not only response but of prevention and preparedness. This robust system includes significant training, drilling and a cache of equipment strategically located through the Columbia River to ensure immediate response and clean up.<br>• MFSA also supports training and acquisition of specialized firefighting equipment for 13 fire agencies along the Columbia to respond to marine fires through the Fire Protection Agencies Advisory Council (F-PAAC). Coordinated drills, education, training and planning are conducted by F-PAAC members which provides all of the member fire agencies an increase response capability to respond to vessel emergencies<br><br>The Port of Portland Fire Department has a mutual aid agreement with PF&R that would likely also be available in a catastrophic event.<br><br>Before operations, a facility-specific Emergency Response Plan ("ERP") will be developed for the Project that addresses Pembina's corporate emergency response planning requirements and accounts for facility-specific incidents, potential impacts and response resources. This emergency response plan will be reviewed by the USCG, SFM, PF&R as well as the Port of Portland.<br><br>Pembina's approach to emergency response planning is to develop a plan, identify resources and train employees so that Pembina can be fully responsive to an emergency at one our sites. Although local first responders like PF&R may provide support, the primary response is provided by Pembina staff, resources and/or third-party contractors.<br><br>For example, at Pembina's Redwater facility, the site-specific ERP identifies local companies and contractors that can provide the following services in the event of an emergency: safety equipment and services, firefighting services, security guard and patrol services, tank trucks, vacuum trucks, water hauling, air monitoring and analysis, technical experts, construction equipment and personnel, cranes, disposal and clean-up, etc. In addition Redwater's site-specific ERP identifies resources for logistics such as transportation, accommodations and equipment rentals. Contacts and resources available through industry cooperative associations or mutual aid agreements are also identified.<br><br>Notwithstanding Pembina's reliance on its own employees, third-party contractors, and industry cooperatives such as the MFSA, Pembina will work with PF&R to ensure that local responders are adequately educated on facility-specific issues including having local responders participate in Pembina's regular emergency response exercises. If it was determined that local first responders lacked equipment critical to handling a potential incident at the facility, Pembina would support the purchase of such equipment. |
| Who is liable for damages in a catastrophic event? Does Pembina or the Port have the financial capacity to cover the losses? | Allocation of liability for damages from a catastrophic event depends on a number of factors. It is impossible to specify responsible parties in this context, but regardless of liability, there will be measures in place to respond immediately to a catastrophic event. Ultimately, liability for damages resulting from a catastrophic event will be determined by the courts, which are responsible for allocating liability and damages.<br><br>See also the response in the Port's submittal in response to PSC questions. |
| **Regional Economic Issues** | |
| Does the regional rail network have the capacity to accommodate these propane | As discussed in the Port's January 9, 2015 submittal to the PSC (Appendix B), trains serving the facility are not frequent enough to pose a rail capacity problem for other commodities or passenger rail. Please refer to this submittal for further discussion. |

| Question | Response |
|---|---|
| trains? | |
| Will the trains displace or delay regional goods trying to get to market via rail? | No, see above. |
| Will the trains displace or delay passenger rail service? | No, see above. |
| **Facility Operations** | |
| Is this the biggest project that Pembina has ever invested in? | No, typically, Pembina's major projects can range from $100 million to over a $1 billion in size. |
| What will happen if unit trains are not able access the facility due to delays in transloading? | Pembina's proposed terminal rail yard is designed with three tracks:<br>• one track to receive a loaded propane train;<br>• a second track one to accommodate an empty train ready to depart; and<br>• a third "run around" track to allow the mainline locomotives to disconnect from one end of the loaded train after arrival on site, run around to connect to the empty train and then depart the site with the empty train.<br><br>The time for the mainline locomotives to be on site to deliver the loaded train and depart with the empty train is estimated to be 2 – 2.5 hrs.<br><br>A loaded train will arrive every two days or every 48 hours. The terminal is designed to offload liquid propane from one unit train in 32 hours. There are 16 hours to allow for the mainline locomotive to disconnect from the arriving train and depart with the empty train before a second train arrives into the Portland area.<br><br>The facility is being designed to have spare pumps and compressors that allow the facility to operate at full capacity even in the event some equipment is off-line for maintenance. Consequently, the on-line time is very high for the propane unloading and refrigeration systems. In the instance trains do not arrive as planned, the facility can operate back-up systems to reduce the propane unloading time from 32 hours to 24 hrs.<br><br>Pembina is also discussing with PGE a secondary power supply to the site, that if installed would minimize any electrical outages that might reduce online operation time. Both design considerations (spare equipment and secondary power supply) would minimize delays unloading the liquid propane from the unit train.<br><br>Notwithstanding these described design and operational features for trans-loading, if the service disruption is significant, Pembina has the ability to delay train departures from its Redwater, Alberta loading facility and require that the mainline rail carrier accommodate some trains in transit within its rail system. |
| What is the maximum capacity of the site based on future expansion? | The site restricts the size of a facility that may be constructed and operated.<br><br>As designed, the project has the capacity to handle approximately 1.6 million gallons of propane per day:<br>• One propane unit train (100 cars) will arrive every second day, carrying approximately 3.2 million gallons of propane.<br>• An average of 1.6 million gallons of propane will be unloaded each day from the unit train, placed in holding tanks, refrigerated, and then placed in the large refrigerated storage tanks which have a combined storage capacity of approximately 33.6 million gallons<br>• Ships will arrive 2 -3 times per month to export the liquid propane.<br><br>Expansion beyond the 1.6 million gallons of propane per day is not being contemplated at this time.<br>The proposed site has sufficient space to accommodate up to twice the throughput of the current design but Pembina would need to make significant infrastructure improvements at the site including the installation of a second rail unloading rack, associated unload equipment and unload storage, additional refrigeration equipment, and required utilities. There would be no requirement to increase the number of large refrigerated storage tanks.<br><br>These changes would trigger permitting requirements including potentially:<br>• City environment review for any changes or new infrastructure within the e-zone<br>• City site development permit for ground disturbance and changes to the infrastructure on the site<br>• DEQ air permit amendment if the changes would result in a different air emission profile |

| Question | Response |
|---|---|
| | • DEQ NPDES 1200-C Construction Stormwater General Permit if the additional infrastructure installation would disturb more than one acre<br>• DEQ NPDES 1200-Z Industrial General Stormwater Permit modification or amendment to address changes to the site stormwater management plan<br>• Potential permit modifications or review from USACE, DSL and USCG for increased vessel traffic operations |
| **Climate Action Plan (CAP)** | |
| Is the export facility consistent with the Climate Action Plan? | For the reasons discussed in Pembina's January 12, 2015 submittal to the PSC, the project is consistent with the 2009 Climate Action Plan (CAP). Please refer to this submittal for further discussion and detail. |
| Does the propane come from "fracking" or from tar sands? | The propane that will be shipped by rail to Portland is derived from natural gas production in the Western Canadian Sedimentary Basin (WCSB) – not the oil sands. The specific gas fields within the WCSB, to which Pembina provides service, are located in northeast BC, and northwest and central Alberta. Pembina has pipelines in these areas that transport the natural gas liquids, once they've been separated from the natural gas, to Pembina's Redwater Facility in Fort Saskatchewan where the propane component of the natural gas liquids is separated. The producing natural gas fields are located in areas quite separate from the Alberta oil sands resources.<br><br>Pembina provides a service to customers to ship product to market and Pembina's business does not involve extraction or production of oil and gas. This includes hydraulic fracturing; The propane is derived from natural gas produced in Canada and, like more than 95% of new North American natural gas production, the propane is likely extracted through hydraulic fracturing in deep reservoirs. Hydraulic fracturing, or "fracking," is not new; it has been in existence for more than 70 years. |
| **Habitat Impacts** | |
| What about impacts to unprotected natural resources? | Most of the natural resources that have been identified on parts of the proposed site or that may be affected by the development are protected by various City, State and Federal legislation. They include in-water habitat, riparian habitat, as well as all habitats within the Environmental overlay zone. The permitting process will review potential impacts to these resources and appropriate mitigation will be developed for any impacts.<br><br>In addition, the City identified grassland habitat in their 2012 Natural Resource Inventory on the east end of the site that has been used as a dredge handling area. To the extent some of the upland grassland habitat is not protected by federal, state or city regulatory requirements, Pembina is working with City staff at the Bureau of Environmental Services to identify off-site voluntary habitat enhancement measures. |
| **Boating Access** | |
| What will be the restrictions on recreational boating access to the Oregon Slough? | As addressed in Pembina's January 12, 2015 response to PSC's earlier questions and its earlier December 5, 2014 submission to City staff, the USCG will evaluate the safety and security zone for the facility and associated ships. The safety and security zone will be determined only after the USCG reviews Pembina's Waterway Suitability Assessment. Please see these submittals for further discussion and detail. |

# MEMORANDUM

**Date:** November 17, 2014

**To:** Ian Whitlock, Port of Portland
Tom Bouillion, Port of Portland
Richard Vincent, Port of Portland

**From:** Michael Pickering, R.G.
Herb Clough, P.E.

**Re:** Summary of Regulations Pertaining to Propane Handling in Portland Harbor and the Lower Columbia River
Portland, Oregon
2188-00

---

This memorandum presents a summary of regulations and protocols in place to address the handling of propane in Portland Harbor and the lower Columbia River.

A variety of commodities pass through local port facilities on a daily basis. These include bulk items such as steel and grain, manufactured products such as automobiles and electronics, and liquids/gases such as petroleum and food products. These commodities may be transported as bulk items, packaged in containers, or in liquid or gas form within pipelines. If released into the environment, many of these commodities contain hazardous materials that could impact human health or the environment. There is a wide range of existing local, state, and federal regulations to address the handling of commodities containing hazardous materials or a release or threat of a release of hazardous materials from these commodities. These hazardous materials fall into broad categories including oil (which has a federal exclusion from the hazardous substance definition; i.e., the "petroleum exclusion"), identified hazardous materials (i.e., materials with federally designated reportable quantities; e.g., solvents, heavy metals, acids, etc.), and other hazardous materials (e.g., materials that would be designated solid waste except when they exhibit characteristics of hazardous waste including ignitability, corrosivity, reactivity, and toxicity). These regulations cover design and operation of systems targeted toward preventing releases, as well as response actions in the event of a release.

Table 1 lists key regulations, summarizes relevant issues, and discusses applicability to propane. The remainder of the memorandum discusses how these regulations provide a comprehensive program to protect human health and the environment in relation to the storage and transport of propane.

Propane is normally a gas, but can be compressed into a transportable liquid. At the proposed facility and within the associated piping, propane will be in liquid form. Propane, if released, will dissipate naturally into the atmosphere. Propane is denser than air, however, and consequently in the event of a release there is the potential for the gas to spread along the ground and collect in low or confined areas.

## PROTECTION OF AIR AND WATER

Both federal and state regulations have been enacted to control discharges of hazardous substances to air and water. The Clean Air Act (CAA) (42 U.S.C. 85) and corresponding state Air Pollution Control Act (ORS 468A et. seq.) control air pollution and discharges of hazardous substances to air. The CAA includes provisions to prevent and address chemical accidents (40 CFR 68). Facilities storing greater than 10,000 pounds of propane are subject to these regulations. These regulations include requirements for hazard assessment, release prevention (e.g., operating procedures, training, mechanical integrity, and audits), emergency response, risk management planning, and recordkeeping.

The Clean Water Act (33 U.S.C. 1341) and corresponding state Water Pollution Control Act (ORS 468B.048) regulate discharges of hazardous substances to water. Propane is a flammable gas and is unlikely to impact water in the event of a release. Except in unusual circumstances (e.g., an underwater release), these regulations are not likely to be applicable to propane.

## CONTROL OF HAZARDOUS SUBSTANCES

Multiple federal regulations control the handling and use of hazardous substances. The Resource Conservation and Recovery Act (RCRA) of 1976, as amended in 1984, regulates solid waste, hazardous waste, and underground storage tanks. The State of Oregon has delegated authority to administer RCRA in Oregon. The Toxic Substances Control Act (TSCA) of 1976 provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Propane is not on the lists of hazardous substances under these regulations.

## RELEASE PREVENTION

The first step in protection of human health and the environment is release prevention. This is achieved through siting standards, design standards, and release prevention planning and training.

**Siting Standards.** City of Portland land use and zoning regulations restrict industrial facilities, including facilities handling flammable substances such as propane, to certain areas to limit potential impacts of these facilities. Additionally, the Oregon Department of Energy has jurisdiction over energy facilities above certain sizes, limiting where these facilities may be located (ORS 469.300).

**Design Standards.** Building codes, administered through the City of Portland, provide minimum standards for the design and construction of industrial facilities. The permitting process includes review by multiple city agencies, including the City of Portland Fire and Life Safety review, especially relevant to construction of facilities handling flammable gases such as propane. The U.S. Department of Transportation, through the Pipeline Safety Regulations (49 CFR Parts 190-199), defines specific requirements for pipeline design and construction. Oil Pollution Prevention regulations (40 CFR 112) include specific requirements for construction of oil handling facilities to prevent releases, but these requirements do not apply to propane handling facilities.

**Release Prevention Planning and Training.** The Ports and Waterways Safety Act (33 U.S.C. 25), Pipeline Safety Regulations (49 CFR Parts 190-199), the Oil Pollution Prevention regulations (40 CFR 112), and the CAA (40 CFR 68) each have provisions for planning and training to prevent accidents and releases. The CAA requirements are specifically applicable to propane, and the other regulations have requirements that are relevant to preventing and responding to releases of propane. These regulations include standards for the handling, loading, unloading, storage, stowage, and movement of hazardous materials; minimum safety equipment requirements to assure

adequate protection from fire, explosion, natural disaster, and other serious accidents or casualties; requirements to develop and implement plans that establish procedures, methods, and equipment requirements to prevent releases of oil; and requirements for pipeline inspection and training.

## RELEASE REPORTING

The CAA (40 CFR 68) includes requirements for investigating and reporting incidents that result in a release or near release of flammable substances, including propane. Other regulations that require release reporting such as federal and state hazardous substance release reporting regulations (40 CFR Part 302 and OAR 340-142-0001 through 340-142-0130) are not applicable to propane.

## INCIDENT RESPONSE

**Immediate Threat to Life and Property.** In the event of an immediate threat to life or property, the initial incident response would be handled by Portland Fire & Rescue. Portland Fire & Rescue includes a State Hazardous Materials (HazMat) Response Team composed of firefighters with specialized training in the prevention and mitigation of incidents involving hazardous materials, including flammable gases such as propane.

**Emergency Response.** There are a wide variety of comprehensive regulations to respond to releases of hazardous substances. Under the CAA (40 CFR 68), facilities are required to develop an emergency response plan. For flammable gases such as propane, the facility may develop their own plan or coordinate response actions with the local fire authority.

Additional regulations are summarized below in this section, but in most cases, these regulations are not directly applicable to propane because as a flammable gas, releases of propane would generally not impact soil or groundwater. In the event of an incident with immediate threats to the environment, a team of local, state, and federal agencies will respond to address immediate impacts and conduct initial cleanup. The overarching regulations are the National Oil and Hazardous Substances Pollution Contingency Plan (NCP; 40 CFR Part 300) and the Emergency Planning and Community Right-to-Know Act (EPCRA; 42 U.S.C. 116). EPCRA establishes requirements for federal, state and local governments, Indian tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The NCP is the federal government's blueprint for responding to oil spills and hazardous substance releases. The goal of the NCP is a national response capability and coordination among the hierarchy of responders and contingency plans. The first NCP was developed in 1968 as the first comprehensive system of accident reporting, spill containment, and cleanup of oil releases. The plan also established a response headquarters, a national reaction team, and regional reaction teams (precursors to the current National Response Team and Regional Response Teams). The scope of the NCP has expanded over the years. As required by the Clean Water Act of 1972, the NCP was revised to include a framework for responding to hazardous substance releases. Following the passage of Superfund legislation in 1980, the NCP was broadened to cover releases at hazardous waste sites requiring emergency removal actions. Additional revisions have been made to the NCP in response to enactment of legislation. The latest revisions to the NCP were finalized in 1994 to reflect the oil spill provisions of the Oil Pollution Act of 1990.

For oil and hazardous materials spills in the navigable waterways of the Lower Columbia Region (including the navigable portions of the Willamette and Columbia Rivers), a multi-agency team (as defined in the Lower Columbia Region Harbor Safety Plan) would respond to address emergency management and short-term cleanup of the release. The U.S. Coast Guard fills the role of the Federal On Scene Coordinator. The Oregon Department of Environmental Quality (DEQ) acts as the State On Scene Coordinator for spills and impacts to state waters (consistent with the Oil and Hazardous Materials Emergency Response Requirements [OAR 340-142-0001 through 340-142-0130]). Together with the responsible party (the spiller), these agencies make up the Unified

Command (UC). The UC coordinates responses, mitigation, and cleanup efforts to protect public health and safety, response personnel, and the environment. In the Pacific Northwest, the Region 10 Regional Response Team and the Northwest Area Committee are charged with protecting public health and safety and the environment by ensuring coordinated, efficient, and effective support of the federal, state, tribal, local, and international responses to significant oil and hazardous substance incidents within the Pacific Northwest Region as mandated by the NCP.

## ENVIRONMENTAL CLEANUP

Similarly, releases of propane would not likely impact soil or water in a manner that would require environmental cleanup. In the event of an unusual incident that is not completely addressed by emergency responses, federal and state laws are in place to address risks to public health or the environment. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a 1980 law commonly known as Superfund, authorizes EPA to respond to releases, or threatened releases, of hazardous substances that may endanger public health, welfare, or the environment. CERCLA also enables EPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response or remediation costs incurred by EPA. At the state level, the Oregon Hazardous Substance Remedial Action Rules (OAR 340-122) require cleanup of hazardous substances and control of further release of the hazardous substances to protect present and future public health, safety, and welfare and the environment.

## ATTACHMENT

Table 1 - Summary of Key Regulations - Propane Handling in Portland Harbor and the Lower Columbia River

**Table 1 - Summary of Key Regulations - Propane Handling in Portland Harbor and the Lower Columbia River**
**Portland, Oregon**

| REGULATION | CITATION | GENERAL APPLICABILITY | APPLICABILITY TO PROPANE |
|---|---|---|---|
| Clean Air Act | 42 U.S.C. 85 | • The primary federal statute for controlling air pollution in the United States.<br>• Applies to releases of hazardous substances to air.<br>• Includes requirements to prevent and address chemical accidents at facilities storing flammable gases. | • These regulations are directly applicable to propane.<br>• Applicable to both the construction and operation of a pipeline infrastructure project.<br>• A release of propane from a pipeline would also be subject to these regulations. |
| Clean Water Act | 33 U.S.C. 1341, 40 CFR Section, 121.2(a)(3), (4) and (5) | • The primary federal statute that establishes the basic structure for regulating discharges of pollutants into the waters of the United States.<br>• Applies to releases of hazardous substances to water. | • These regulations are not directly applicable to propane except in unusual circumstances (e.g., an underwater release). |
| Ports and Waterways Safety Act | 33 U.S.C. 25 | • §1225. Waterfront Safety<br>(a) In general<br>The Secretary may take such action as is necessary to—<br>(1) prevent damage to, or the destruction of, any bridge or other structure on or in the navigable waters of the United States, or any land structure or shore area immediately adjacent to such waters; and<br>(2) protect the navigable waters and the resources therein from harm resulting from vessel or structure damage, destruction, or loss. Such action may include, but need not be limited to—<br>(A) establishing procedures, measures, and standards for the handling, loading, unloading, storage, stowage, and movement on the structure (including the emergency removal, control, and disposition) of explosives or other dangerous articles and substances, including oil or hazardous material as those terms are defined in section 2101 of title 46<br>(B) prescribing minimum safety equipment requirements for the structure to assure adequate protection from fire, explosion, natural disaster, and other serious accidents or casualties;<br>(C) establishing water or waterfront safety zones, or other measures for limited, controlled, or conditional access and activity when necessary for the protection of any vessel, structure, waters, or shore area; and<br>(D) establishing procedures for examination to assure compliance with the requirements prescribed under this section. | • These regulations are directly applicable to propane.<br>• Applicable to the handling, loading, unloading, storage, stowage, and movement of hazardous materials (including propane).<br>• Specifically apply to safety zones for protection of vessels, structures, waters, and shore area. |
| Spill Prevention, Countermeasure, and Control (SPCC) | Oil Pollution Prevention regulation<br>40 CFR 112 | • Sets forth requirements for prevention of, preparedness for, and response to oil discharges at non-transportation-related facilities. Examples of transportation facilities include oil terminals and interstate pipelines (for the purpose of bulk movement of oil).<br>• For the purpose of preventing oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil, the regulation requires applicable facilities to develop and implement SPCC Plans that establish procedures, methods, and equipment requirements for the facility. | • Propane is not an oil as defined in SPCC regulations and, therefore, the regulations do not apply.<br>• Regulations pertain to petroleum-based fuels that are liquids at a temperature of 60 degrees F at atmospheric pressure (at sea level). |

**Table 1 - Summary of Key Regulations - Propane Handling in Portland Harbor and the Lower Columbia River**
**Portland, Oregon**

| REGULATION | CITATION | GENERAL APPLICABILITY | APPLICABILITY TO PROPANE |
|---|---|---|---|
| Pipeline Safety Regulations | US Department of Transportation - Pipeline and Hazardous Materials Administration (PHMSA)<br>49 CFR Parts 190-199 | • Includes requirements for pipeline design and construction, inspection, training, reporting, and safety issues.<br>• Specific provisions applicable to pipelines used to convey gases and hazardous liquids.<br>• To minimize threats to life, property or the environment due to hazardous materials related incidents, PHMSA's Office of Hazardous Materials Safety develops regulations and standards for the classifying, handling and packaging of hazardous materials transported via pipeline.<br>• §192.1 What is the scope of this part?<br>(a) This part prescribes minimum safety requirements for pipeline facilities and the transportation of gas, including pipeline facilities and the transportation of gas within the limits of the outer continental shelf as that term is defined in the Outer Continental Shelf Lands Act (43 U.S.C. 1331).<br>(b) This part does not apply to—<br>(5) Any pipeline system that transports only petroleum gas or petroleum gas/air mixtures to—<br>(i) Fewer than 10 customers, if no portion of the system is located in a public place; or<br>(ii) A single customer, if the system is located entirely on the customer's premises (no matter if a portion of the system is located in a public place). | • Pipeline regulations are applicable to the transmission of liquids and gases.<br>• These regulations are directly applicable to petroleum gases (including propane) with the exception of the exclusions presented in Part 192.1. |
| Resource Conservation and Recovery Act | 40 CFR 260, 261 | • Gives EPA the authority to control hazardous waste from the "cradle-to-grave."<br>• Includes the generation, transportation, treatment, storage, and disposal of hazardous waste.<br>• Includes the framework for the management of non-hazardous solid wastes.<br>• The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.<br>• Applies to releases of hazardous substances. | • These regulations are not directly applicable to propane.<br>• Propane is not on the lists of hazardous substances under these regulations. |
| Toxic Substances Control Act | 15 U.S.C. §2601 et seq. | • Provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. | • These regulations are not directly applicable to propane. |
| Oil Pollution Act | 33 U.S.C. 40 | • §2701. Definitions<br>(9) “facility” means any structure, group of structures, equipment, or device (other than a vessel) which is used for one or more of the following purposes: exploring for, drilling for, producing, storing, handling, transferring, processing, or transporting oil.<br>(30) “remove” or “removal” means containment and removal of oil or a hazardous substance from water and shorelines or the taking of other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches;<br>• §2702. Elements of liability<br>(a) In general<br>Notwithstanding any other provision or rule of law, and subject to the provisions of this Act, each responsible party for a vessel or a facility from which oil is discharged, or which poses the substantial threat of a discharge of oil, into or upon the navigable waters or adjoining shorelines or the exclusive economic zone is liable for the removal costs and damages specified in subsection (b) of this section that result from such incident. | • Propane is not an oil as defined in in the regulations and, therefore, the regulations do not apply.<br>• Regulations pertain to petroleum-based fuels that are liquids at a temperature of 60 degrees F at atmospheric pressure (at sea level). |

**Table 1 - Summary of Key Regulations - Propane Handling in Portland Harbor and the Lower Columbia River**
**Portland, Oregon**

| REGULATION | CITATION | GENERAL APPLICABILITY | APPLICABILITY TO PROPANE |
|---|---|---|---|
| Executive Order for Wetlands Protection | Executive Order 11990 (1977) 40 CFR 6.302 (a)<br>40 CFR Part 6, App. A | • Purpose is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands".<br>• Requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided.<br>• Applies to Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation and licensing activities. | • These regulations are not directly applicable to propane.<br>• Applicable to Federal activities and programs. |
| Lower Columbia Region Harbor Safety Plan | January 2013<br>http://lcrhsc.org/documents/HSPlanJanuary2013edition.pdf | • For oil or hazardous material spills, reports must be made to the required federal and state agencies and as required in the vessel or facility response plan, if applicable.<br>• The U.S.C.G. fills the role of Federal On Scene Coordinator for oil and hazardous materials spills on the navigable waterways in the Lower Columbia Region. Washington Department of Ecology (DOE) and Oregon Department of Environmental Quality (DEQ) act as the State On Scene Coordinator(s) for spills and impacts to state waters. Together with the responsible party (the spiller), these agencies make up the Unified Command (UC). The UC coordinates responses, mitigation, and cleanup efforts for spills in the Lower Columbia Region to protect public health and safety, response personnel, and the environment.<br>• As soon as is practicable, a vessel shall notify the U.S.C.G. of any of the following:<br>2. Pollution reporting requirements in 33 CFR 151.15<br>6. Situation involving hazardous materials as required by 49 CFR 176.48<br>• Reportable Events include collisions, anchor dragging, grounding, oil spills and hazardous material releases of any amount, equipment casualties, loss of propulsion (including even brief losses) and any other situation which results in the loss of vessel control or possible loss of control but does not immediately put lives at risk.<br>• Reportable Events include collisions, anchor dragging, grounding, oil spills and hazardous material releases of any amount, equipment casualties, loss of propulsion (including even brief losses) and any other situation which results in the loss of vessel control or possible loss of control but does not immediately put lives at risk.<br>• For Oil & Hazardous Material Spills notify:<br>National Response Center - (800) 424-8802 or VHF channel 16<br>Oregon State (Oregon Emergency Response System) - (800) 452-0311 | • These regulations are directly applicable to propane. |
| Oregon Oil and Hazardous Materials Emergency Response Requirements | OAR 340-142-0001 through 340-142-0130 | • Presents the requirements for emergency action, required reporting, reportable quantities, cleanup standards, disposal of recovered material, sampling/testing procedures, inspections and investigations, and incident management and emergency operations | • These regulations are not directly applicable to propane. |
| Oregon Environmental Cleanup Law | Oregon Hazardous Substance Remedial Action Rules; ORS 465.315.; OAR 340-122-0040(2)(a) and (c), 0115(3), (32)and (51). | • Requires a degree of cleanup of the hazardous substance and control of further release of the hazardous substance that assures protection of present and future public health, safety and welfare and of the environment. | • These regulations are not directly applicable to propane.<br>• A propane release would not likey impact soil or water in a manner that would require environmental cleanup. |

**Table 1 - Summary of Key Regulations - Propane Handling in Portland Harbor and the Lower Columbia River**
**Portland, Oregon**

| REGULATION | CITATION | GENERAL APPLICABILITY | APPLICABILITY TO PROPANE |
|---|---|---|---|
| Water Pollution Control Act | ORS 468B.048<br>Water Quality Standards OAR 340-041-0340, Table 20 and Table 33A | • DEQ is authorized to administer and enforce Clean Water Act program in Oregon. | • These regulations are not directly applicable to propane except in unusual circumstances (e.g., an underwater release). |
| Oregon Air Pollution Control | ORS 468A et. seq.<br>General Emissions Standards OAR 340-226 | • DEQ is authorized to administer and enforce Clean Air Act program in Oregon. | • These regulations are directly applicable to propane.<br>• Applicable to both the construction and operation of a pipeline infrastructure project.<br>• A release of propane from a pipeline would also be subject to these regulations. |

## Pembina Propane Export Terminal Project

# PERMITS REQUIRED

Dated: February 2, 2015

In late 2014, Pembina and the Port of Portland started due diligence work to evaluate the Terminal 6 location for the proposed project. This work involved identifying permits and approvals that may be required to construct and operate the project facilities.

The Environmental Overlay Zone (Ezone) amendment by the City of Portland is the first step in a rigorous design and permitting process. The project is subject to municipal, state and federal permitting requirements and many of these processes provide opportunities for public comment. Pembina will be working to minimize and mitigate any potential project impacts; these efforts will be reflected in the relevant permit applications.

The table below identifies the regulatory authorities, their relevant permits and the types of impacts assessed in their regulatory reviews. This list of permits may change as the project's detailed designs are completed.

| Regulator | Permit or Outcome | Description |
|---|---|---|
| **FEDERAL** | | |
| Federal Aviation Administration | Determination of No Hazard for Air Navigation | Assesses and confirms safety of the flare stack relative to the flight paths of planes landing at the Portland Airport. |
| U.S. Coast Guard | Letter of Recommendation for the Waterway Suitability Assessment | The Waterway Suitability Assessment evaluates safety and security risks for the ships from the time they enter the territorial waters of the United States (12 nautical miles offshore), to the berth and while at the berth, and makes relevant recommendations to manage any identified risks. |
| U.S. Army Corps of Engineers | Permit under s.404 of the *Clean Water Act* and/or s.10 of the *Rivers and Harbors Act* | This review will assess the potential for impacts to in-water habitat, endangered species, water quality, and cultural resources associated with the project.<br>As part of this permit process, it is anticipated the U.S. Army Corps of Engineers will complete a review under the National Environmental Policy Act (NEPA). |
| **STATE** | | |
| Oregon Department of Environmental Quality | Air Contaminant Discharge Permit under Oregon's Air Quality Program | This review will assess potential impacts to air quality as a result of the facility operation. |
| | *Clean Water Act* s.401 Certification | This certification process assesses the potential impacts to water quality from activities in U.S. waters. |
| | 1200-C Construction Stormwater General Permit | This review assesses the management and potential off-site impacts of stormwater during construction of the project. |
| | 1200-Z Industrial General Stormwater Permit | This review assesses the potential impacts of any modified or new stormwater discharges required for the facility during operations. |
| Oregon Department of State Lands | Removal-Fill Permit under Oregon Revised Statutes | This review assesses the potential impacts associated with project in-water activities involving the removal or discharge of material as the bed and shore are state lands. |
| **CITY** | | |
| City of Portland | Environment Permit | Permits new development within the mapped boundaries of the Ezone, which include: upland area on the site, as well as development to the face of the berth. This review will assess potential environmental impacts within the Ezone (riparian habitat, wildlife habitat, floodplain) and required mitigation. |
| | Site Development Permit | Permit for entire development on the site including within the Ezone and will also include the more detailed plumbing, electrical and utility permits. This review will assess riparian habitat, wildlife habitat, floodplain considerations, seismic design requirements, stormwater management, fire and design safety, and other detailed design requirements. The State Fire Marshall will assist the City in their review process. |
| | Urban Forestry Tree Permit | Assesses the proposed removal of any trees for the project and mitigation for tree removal. |