

Request for Proposals – Risk Assessment, Gap Analysis, and Fire Protection Engineering Assessment related to the proposed Tesoro Savage Vancouver Energy Distribution Terminal Project

Introduction

Cardno is requesting proposals from individuals and firms interested in performing studies related the proposed Tesoro Savage Vancouver Energy Distribution Terminal (Project) at the Port of Vancouver, Washington. Two studies will be performed:

- The first study will provide an analysis of the risks and impacts the Project presents to the citizens of Vancouver and to the operational capabilities of the Vancouver Fire Department (VFD). The scope of this study may be expanded to assess the risks to citizens in other communities located along rail routes transporting crude oil including and the impacts on the operational capabilities of fire departments serving those communities.
- The second study will be a fire protection engineering assessment for the design of the Project. This study will determine whether the fire safety design for the Project meets applicable fire and safety codes and utilizes industry practices for similar crude by rail terminal facilities.

Background on the proposed facility, a preliminary scope of work, and qualifications required for consideration for the two studies is presented below. Qualified individuals and firms interested in performing this work can submit their proposal to Cardno in accordance with the requirements of this Request for Proposal.

Background

Tesoro Savage Petroleum Terminal LLC (Tesoro Savage) is seeking a Site Certificate Agreement with the State of Washington Energy Facility Site Evaluation Council (EFSEC) to construct and operate the Terminal at the Port of Vancouver, Vancouver Washington. At full build-out, the Terminal will be able to receive up to an average of 360,000 barrels of crude oil per day by rail, store the oil on site, and load the oil onto marine vessels primarily for delivery to refineries located on the United States' West Coast (the USWC). The Facility will be entirely located within the Port of Vancouver.

Tesoro Savage proposes to bring unit trains of up to 120 cars with crude oil from Midwest North America into the Port, transported via Class I railroad lines. The oil will be received at the Port's existing West Vancouver Freight Access (WVFA) rail facility—a facility built to accommodate unit trains for transport of materials on the Columbia River. Up to four unit trains per day (on average) will be delivered onto the Port's rail network for staging on the rail loops serving the Facility. The design of the rail access will accommodate complete unit trains, eliminating the need to break trains into smaller segments during the unloading process.

Railcar Unloading Area

The rail car unloading facility is composed of a covered structure through which the trains will be pulled and safely secured where the unloading will occur. The building that houses the rail car unloading functions will be approximately 1,850 feet long by 91 feet wide, with a maximum height of

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approximately 39 feet. The structure will consist of a steel frame with sheet metal roof. The structure will be open on both ends and sides except where a fire and hazard classification barrier is required to separate hazard classification zones.

The unloading area is designed to accommodate three parallel tracks. Each track will include 30 unloading stations for a total of 90 stations, 30 stations per track. The 30 unloading stations for each track are subdivided into five groups of six unloading stations. Each unloading station will accommodate one rail car. An unloading collection header collects the crude oil flow from a grouping of six railcars. The collection headers will be housed in below-grade trenches running parallel to the rail tracks. Each collection header is directly connected to a dedicated pumping station which transfers the crude oil into a 24-inch-diameter transfer pipeline (one per track), which will collect the flow from all five pump basins on that track and convey the crude oil to the storage tanks.

Spill containment, fire detection and suppression systems, air monitoring systems, egress and fire modeling, emergency response procedures, and other appropriate systems and features will be constructed and implemented as part of the design and operation of the unloading facility. A fire pump and foam/riser building will house a fire pump and fire suppression systems associated with the unloading facility. Each railcar unloading zone (5 zones total) will be served with single interlock pre-action foam/water sprinkler system, utilizing 3% foam solution designed to activate as necessary for each zone of the building. The system will include linear heat detectors, gas detectors, temperature monitors, pump monitors, automatic alarm horns and strobes, manual alarm stations, automatic and manual foam release systems, and tamper-resistant systems. Fire hydrants will be located along the south side of the building.

Storage Area

The crude oil will be stored in up to six double-bottom, internal floating-roof aboveground storage tanks (ASTs). These tanks will be approximately 48 feet in height and 240 feet in diameter, with a shell capacity of approximately 380,000 barrels each. The maximum amount of product stored in each tank will be approximately 360,000 barrels, to take into account the presence of the internal floating roof and the additional headspace required to allow product movement in the event of seismic conditions. The working capacity of each tank will be approximately 340,000 bbl. The ASTs will be erected in the field and constructed per API Standard 650. The first tank floor provides primary containment and the second floor acts as secondary containment. The interstitial space within the double-bottomed tanks will include a leak detection system. The tanks will also be cathodically protected to prevent corrosion.

The tanks will be surrounded by a containment berm approximately 6 feet in height. The containment area will be designed with a capacity at least equal to 110 percent of the volume of the largest tank plus precipitation from a 24-hour, 100-year storm event. The storage tank area will be served by six foam water sprinkler zones, one per storage tank. Each foam water sprinkler zone will be designed to discharge into the inside of the storage tank it protects. The system will include linear heat detectors

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and notification horns and strobes, as well as manual foam release stations. A fire water loop will be provided with hydrants and monitors. Each tank will be protected by a fixed 3% foam/water suppression system on the seal area surface. The fire water loop and the foam/water fire suppression systems for the tanks and the pump basin will be supplied from a fire pump. The fire pump and foam/risers will be located in a separate building located near the pump basin.

Marine Terminal

Crude oil will be transferred to vessels at Berth 13 from the storage tanks via a welded steel pipeline. Piping, jib cranes, a moveable gangway, an observation and control platform, dock safety unit, pipe trays, skiff, containment, boom reel, and lighting will be installed on the existing dock to allow loading operations to be performed.

Marine vessels will generally arrive at the berth empty with inert (noncombustible) gases occupying the tank. When the vessel tanks are filled with crude oil, the vapors from previous cargo, vapors from the crude being added to the tank, and the inert gases will be displaced from the tank. These vapors will be sent to the marine vapor combustion unit, which will combust the hydrocarbons in the vapors.

A fire pump and foam/riser building located near the Dock-side control house will house a fire pump and manual fire suppression systems associated with the marine terminal. Two elevated, fire monitors will be installed at the marine loading dock, with hydrants connected to the existing on-site water supply. This system is primarily for fires on the berth, but can be used to assist in the event of a vessel fire. The vessels berthing at the Marine Terminal are required to have onboard systems as well as contracts with commercial marine firefighting companies to respond in the event of a shipboard fire.

Scope of Work Study 1 - Analysis of Risks and Impacts

- Perform a document review and study to provide an analysis of the risks and impacts the Project represents to the citizens of Vancouver and to the VFD operations.
- Interview, coordinate, and communicate with the VFD, Tesoro Savage, Tesoro Savage's Fire Protection Engineer of Record, and other entities to develop a complete understanding of the proposed Project design and the VFD operational capabilities.
- The geographical boundary of the project shall include the area of response that falls within the VFD jurisdiction and is determined by the South West Washington Homeland Security Region 4 and the Maritime Fire & Safety Association (MFSA) Fire Protection Agencies Advisory Council (F-PAAC) region.
- Evaluate any Gaps between the engineering design and the VFD operational capabilities and provide recommendations to close the Gap.
- Provide an estimate of cost to quantify the value of the recommendations made to close the Gap between the engineered Project and the VFD operation capabilities.
- Perform document review and analysis of applicable documents including, but not limited to, the Tesoro Savage permit documents submitted through the Washington State Energy Facility

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site Evaluation Council (EFSEC) process, engineering drawings, relevant emergency response and security plans, procedures, agreements, contracts, records, reports, studies, standards, regulations, best practices, and completed risk, threat, and gap analysis that the applicant believes are relevant to this project.

- Perform review and analysis of applicable documents that may be restricted from view by the general public. These documents may be classified under federal law as sensitive security information (SSI), sensitive but unclassified (SBU), protected critical infrastructure information (PCII), sensitive homeland security information (SHSI), for official use only (FOUO), and law enforcement sensitive (LES). Refer to DHS Form 11000-6.
- Visit an operational unloading facility, similar to the one proposed to be constructed at the Port of Vancouver and operated by Tesoro Savage to observe activities.
- Coordinate and attend meetings with the VFD, Tesoro Savage, and the Fire Protection Engineer of Record.
- Perform a local and regional risk analysis for the fire and life safety risk based on increased volume of crude oil being transported and transport type (rail and vessel). The analysis shall include the risk to the following:
 - Residential dwelling along the rail system and Columbia River within the VFD area of jurisdiction.
 - Commercial businesses along the rail system, Columbia River and Vancouver downtown area.
 - Industrial complexes adjacent to the rail lines, Columbia River and Port of Vancouver.
 - Rail lines through the City of Vancouver and the waterfront with regard to planned developments.
 - Analysis of the increase of risk of the additional trains carrying crude oil through the defined areas as compared to the current level of trains moving through the rail system.
- Determine what impacts the proposed Project and operations will have on the Fire Department's ability to provide incident response services, identify deficiencies and needed mitigations such as training, equipment, or personnel.
- Assess risks associated with the proposed facilities and operations and the VFD's operational capabilities to respond to an emergency.
- Assess risks associated with the proposed systems in excess of what exists for transportation of flammable and combustible liquids within the geographic boundary of this project, including:
 - Rail transportation over local railways, loading and off-loading operations
 - Marine transportation over local waterways, loading and off-loading operations
 - Pipeline transportation within the Port of Vancouver.
- Assess the increase in risks associated with the proposed systems for transportation of flammable and combustible liquids within the VFD area of jurisdiction as compared to the existing risks, including:

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- Rail transportation over local railways, loading and off-loading operations
- Marine transportation over local waterways, loading and off-loading operations
- Pipeline transportation within the Port of Vancouver.
- Evaluate the VFD's ability to provide incident response services (i.e., spill response, firefighting, confined space rescue, etc.) to the proposed facilities and related transportation systems. This evaluation shall include existing and proposed:
 - Pre-emergency plans
 - Tactics and strategies
 - Training
 - Equipment
 - Other resources
- Evaluate the proposed fire protection systems and spill protection systems for the proposed facilities and compare to the VFD operational and response capabilities.
- Recommend measures and estimated costs to mitigate any impacts in excess of those risks that currently exist and are due to the proposed facilities or related transportation systems and which may have an effect on VFD's ability to provide emergency services. These recommendations shall address existing and proposed:
 - Pre-emergency plans
 - Tactics and strategies
 - Training
 - Equipment
 - Other resources
- Provide draft and final reports to Cardno.
- Provide written responses to comments made by the VFD on the draft report.

Deliverables

Project deliverables shall consist of a Draft Report and a Final Report. Each Report shall be submitted to Cardno in accordance with the Project Schedule at the end of this RFP. Deliverables shall be submitted in both MS Word and pdf format. Deliverables containing security sensitive or other restrictive information will not be transmitted by email.

The Draft Report shall each be submitted as two separate files. One file shall be a redacted version that contains no sensitive or restricted information and is appropriate for release to the public. The second Draft Report file shall contain any sensitive or restricted information that may be necessary to support the Draft Report conclusions and recommendations. The unredacted version will not be releasable to the public.

The Final Report shall each be submitted as two separate files. One file shall be a redacted version that contains no sensitive or restricted information and is appropriate for release to the public. The second

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Final Report file shall contain any sensitive or restricted information that may be necessary to support the Final Report conclusions and recommendations. The unredacted version will not be releasable to the public.

Qualifications

Qualifications of the individual or firm and key personnel performing work on the project should demonstrate the qualifications described below. Offerors claiming experience for key personnel prior to joining the Offeror's firm must clearly identify that the work and experience was performed by key personnel prior to joining the Offeror's firm. The following provides a list of qualifications that will be considered during proposal evaluation.

- Government security clearances necessary to review relevant security sensitive information (SSI) documents.
- Experience performing risk assessments and gap analysis for flammable and hazardous liquids.
- Experience working with municipal fire departments.
- Practical hands on experience responding to incidents and controlling emergency situations.
- Experience with and/or evaluation of risks associated with the transportation of flammable and hazardous materials by rail and marine vessel.
- Experience with and /or evaluation of risks associated with the storage of flammable and hazardous liquids.
- Experience performing emergency response planning.

Scope of Work Study 2 – Fire Protection Engineering Assessment

- Review facility design documents for compliance with the National Fire Protection Association (NFPA) codes and standards, 2012 International Fire Code (IFC) code, 2012 International Building Code (IBC), and the American Petroleum Industry (API) standards with respect to fire and life safety codes.
- Review and evaluate the proposed fire suppression systems at the Project for compliance with applicable codes and industry standards. Systems include, but are not limited to, linear detection cable, sprinklers, foam extinguishing systems, fire pumps, riser pipes, underground water distribution system, fire hydrants, and monitors.
- Review and evaluate the proposed spill protection systems at the Project for compliance with applicable codes and industry standards. Systems include, but are not limited to railcar unloading containment pans, containment tanks, and collection basins.
- Review and evaluate the proposed building code and life safety systems at the Project for compliance with applicable codes and industry standards.
- Review and evaluate the results of a computational fire dynamics modeling performed on the Railcar Unloading Area building.

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- Review and evaluate the proposed emergency vehicle access(s) to the Project site for accessibility to Project facilities by the VFD fire apparatus and fire water streams.
- Review and evaluate the fire detection and fire suppression activation philosophy for performance in case of a fire.
- Review and evaluate the proposed startup plans for the Project.
- Review and evaluate the proposed Hazardous Materials Management Plan (HMMP) for the Project.
- Review and evaluate the Hazardous Materials Inventory Statement (HMIS) reflecting peak capacities for the Project.
- Review and evaluate the proposed accident procedures and emergency response/evacuation plans for the on-site staff.
- Visit an operational unloading facility, similar to the one proposed to be constructed at the Port of Vancouver and operated by Tesoro Savage to observe activities.
- Coordinate and attend meetings with the VFD, Tesoro Savage, and the Fire Protection Engineer of Record.
- Review the proposed portable fire extinguishing equipment, size, type and placement.
- Review the design of the proposed fire hydrants locations and adequacy of the proposed water supply.

Deliverables

Project deliverables shall consist of Draft and Final Reports. Each report shall be submitted to Cardno in accordance with the Project Schedule. Deliverables shall be submitted in both MS Word and pdf format. The report shall include an analysis of the proposed Project and address each of the items included in the Scope of Work.

Qualifications

Qualifications of the Offeror and key personnel performing work on the project should demonstrate the qualifications described below. Offerors claiming experience for key personnel prior to joining the Offeror's firm must clearly identify that the work and experience was performed by key personnel prior to joining the Offeror's firm. The following provides a list of qualifications that will be considered during proposal evaluation.

- The proposed Project Manager shall be licensed as a Fire Protection Engineer in at least one State of the United States and will have successfully passed the National Council of Examiners for Engineering and Surveying (NCEES) Fire Protection Professional Engineering Exam.
- Key personnel shall have experience with fire detection and suppression systems at marine, rail, and crude oil tank facilities.
- Key personnel shall have experience with fire detection and suppression systems at facilities where crude oil is piped and/or stored.

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- Key personnel shall have experience performing building code and life safety evaluations.
- Key personnel shall have experience performing and interpreting computational fire dynamics modeling.
- Offeror should have experience performing similar activities to those listed in the Scope of Work.
- Offeror shall have experience serving as an employee of or consultant to an authority having jurisdiction in a federal, state, or local governmental agency.
- The proposed Project Manager shall have a minimum of 15 years of design and/or review experience in fire detection, fire suppression, and life safety applications.

Proposal Requirements and Qualification Evaluation

The Offeror may submit a proposal for one or both of the studies described above. A single proposal addressing both studies is acceptable as long as the technical approach and cost estimate for each study are described separately. The proposal shall include the following information:

- Transmittal Letter (1 page)
 - Title page (1 page)
 - Offeror Name
 - Address of Offeror and location where work will be performed
 - Contact Information
- Company Background (1 page)
- Project Experience and References (3 to 5 projects; 1 page per project)
- Technical Approach (5 pages)
- Resumes for Project Manager and Key Personnel (2 pages each)
- Key Personnel Certification
- Cost Proposal (including total labor and total travel/other direct costs for the project)

Evaluation Criteria and Weighting

Cardno will select the consultant based on the content of the Offerors' written proposals. Interviews are not anticipated at this time but Cardno reserves the right to schedule interviews with any or all Offerors prior to selection. Cardno will use the following evaluation criteria and weighting to score proposals:

- Project Experience: 35%
- Technical Approach: 30%
- Key Personnel Proposed: 25%
- Cost: 10%

Total 100%