Vancouver Energy Operations Facility Safety Program

Plan No. OP.02 | Revision 00

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Date: 30 April 2015

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Vancouver Energy
Operations Facility Safety Program

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590
30 April 2015

Prepared for

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Revision Summary

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Vancouver Energy
Operations Facility Safety Program

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1. Project Description

Vancouver Energy (Facility) provides transloading services for pipeline quality crude oil from railcars to marine vessels. The Facility is located at 5501 NW Old Lower River Road, Vancouver, Washington; it is situated at the Port of Vancouver USA (Port) on the north bank of the Columbia River at approximately River Mile 103.5. The Facility site is approximately 47.4 acres in size and comprises elements within the following "area" groupings, as illustrated in Figure 1.

- Area 200 – Rail Unloading – located at Terminal 5 of the Port
- Area 300 – Storage – located at Parcel 1A of the Port
- Area 400 – Marine Terminal – located at berths 13 and 14 at the Port
- Area 500 – Transfer Pipelines – located in locations between areas 200, 300, and 400
- Rail Infrastructure – located at Terminal 5 of the Port

The Facility receives an average of four unit trains per day and unloads an average of 360,000 barrels (bbl) of crude oil per day. Six nominal capacity 400,000 bbl tanks are used to store crude oil on site. A transfer pipeline system is used to convey crude oil from Area 200 to Area 300 for storage, and from Area 300 to Area 400 for vessel loading. The transfer pipeline system can also be operated to move crude oil from Area 200 directly to Area 400. The Facility operates 24 hours per day, 7 days per week.

1.1 Purpose of Plan

This operations facility safety program describes how the Facility will provide necessary instruction and guidance for the health and well-being of the facility, staff, contractors, and visitors.

1.2 Regulatory Requirements

This programmatic plan is written as a guide to address the broadly applicable health and safety requirements of Washington Administrative Code (WAC) Title 296, as administered by the Washington Department of Labor and Industries. Where applicable, federal regulations of the Occupational Safety and Health Administration (OSHA) found in Chapter 29 of the Code of Federal Regulations (CFR) are also cited.

1.3 Related Documents

Finally, because operation of the Facility will occur while portions of the Facility are under construction, the following documents and plans implement safety measures and procedures relative to construction activities.

- Contaminated Media Management Plan (CMMP)
- Construction Safety and Health Manual (CSHM)

1.4 Operations Safety Program Overview

1.4.1 Principles and Goals

The following principles guide the collective Facility team in all Facility operation activities.

- There is no task so important that the time cannot be taken to do it safely.
- People are our most important asset.
- Communication is the key to injury prevention.
- All injuries, property damage, and environmental incidents are preventable.
- Everyone is expected to stop unsafe work.
- Near miss reports are a gift. Elimination of little things prevents larger things from occurring.
- Addressing safety in the planning phase of a job saves time and prevents incidents.

- Effective safety management and leadership are good business.

The Certificate Holder requires that all direct employees and contractors abide by applicable regulations as well as the guidelines described in this Plan.

Our goals are simple:
No accidents
No harm to people
No damage to the environment

1.4.2 HSSE Organization

The Certificate Holder is contracting with Savage Companies to and Tesoro Maritime Company to manage operations of the Facility. The Vancouver Energy Team relies upon corporate health, safety, security, and environmental (HSSE) expertise, and employs its own Facility Security, Health, Environmental, and Quality (SHE&Q) manager. The Facility SHE&Q manger, the operations manager, maintenance manager, and general manager together form the overall Facility HSSE team. Figure 2 illustrates the operations management organizational chart for the Facility.

The Certificate Holder is committed to providing sufficient HSSE resources for the duration of the operation of the Facility. The Certificate Holder employs a dedicated Facility SHE&Q manager whose focus is to lead the development and delivery of operations HSSE requirements in a consistent and effective manner to achieve outstanding HSSE performance.

1.4.3 HSSE Systems and Procedures

Multiple proactive safety activities occur through the duration of Facility operations. These include, but are not limited to, reporting and documentation, investigations, audits, personal protective equipment, training and orientation, communication, hazard communication and task specific procedures. HSSE systems and procedures are described in detail in Section 2 and following of this plan.

1.4.4 Compliance Assurance

A primary role of the SHE&Q manager is compliance assurance. Their regular presence and intimate knowledge of the SHE&Q manager and other facility management and supervisory personnel allows for timely and constructive feedback to the workforce. As opportunities are identified, the SHE&Q manager provides coaching and guidance to help bridge any gaps between the Facility's expectations and the performance observed.

The Facility SHE&Q manager coordinates routine audits of key elements of the contractor's safety programs to assure they are being carried out as described. These audits are both formal and informal and include reviews of both operations activities and supporting documentation. Safety metrics are tracked and reported, including but not limited to: hours worked, major incident assessments and high-potential incidents, injuries/illnesses, near misses, environmental incidents.

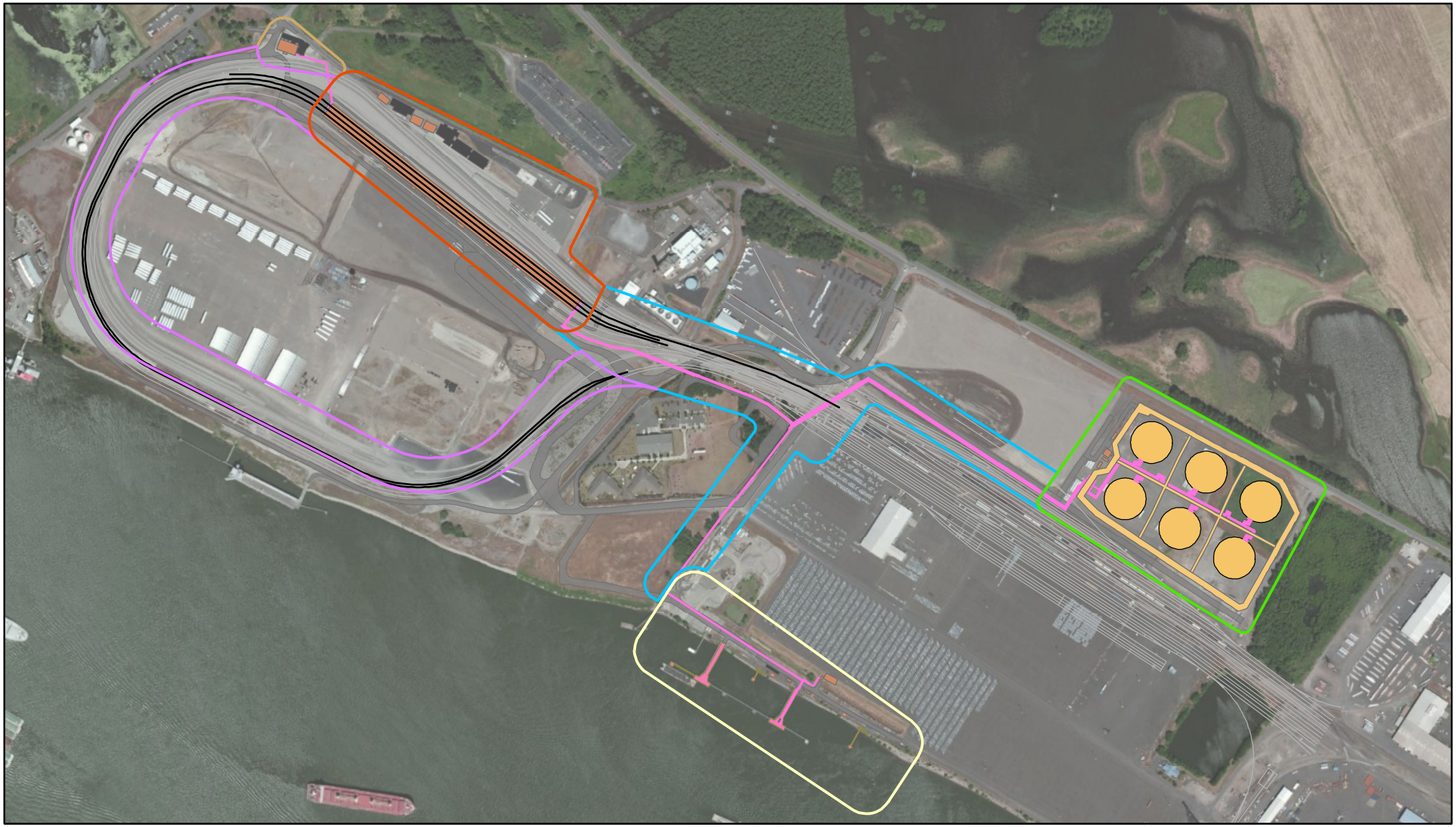

Figure 1 - Site Plan

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Proposed Project Facilities

- Containment Berm
- Storage Tank
- Rail
- Roads
- Parking
- Marine Terminal
- Building
- Pipeline

TSPT Improvement Areas

- 200 - Unloading and Office
- 300 - Storage
- 400 - Marine Terminal
- 500 - Transfer Pipelines
- 600 - West Boiler
- Rail Infrastructure

0 250 500 1,000
Feet

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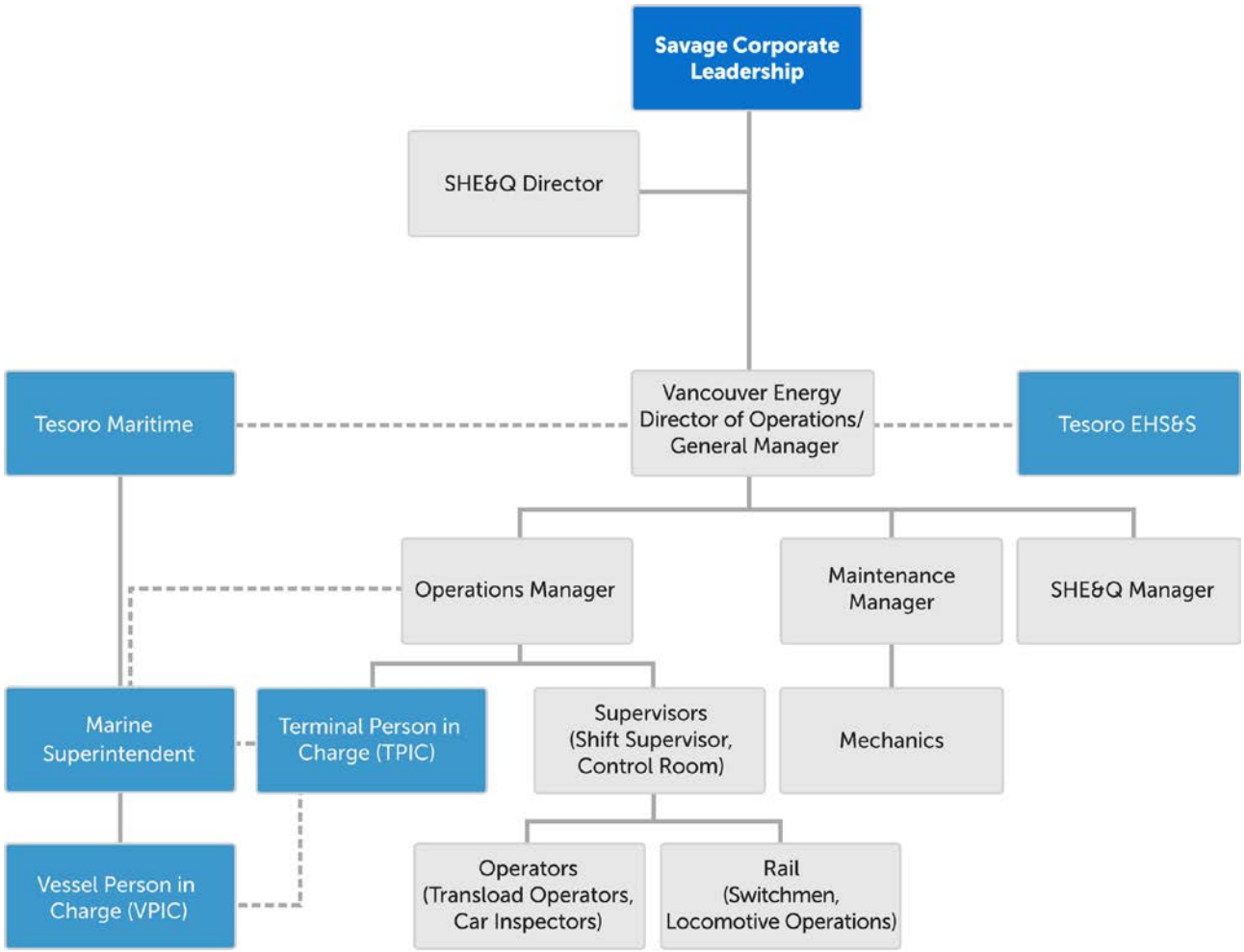
Date: April 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

Figure 2. Operations Management Hierarchy



Vancouver Energy
2.0 - Operations Rail Operating Safety and Maintenance Plan

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Introduction and Background

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- Area 200 – Rail Unloading – located at Terminal 5 of the Port
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- Area 600 – West Boiler – located in Terminal 5 of the Port
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The Facility is engaged in the movement of railcars, inspection of railcars, loading/unloading of railcars, weighing railcars, washing railcars, routine track maintenance, and other rail-related services. The Facility is committed to performing these duties in a safe and responsible manner.

The Facility will have three functional areas.

- The Crude Unloading area at the Terminal 5 rail loop
- The Storage Tanks at Terminal 4 Parcel 1A East
- The Marine Loading at Terminal 4 Berth 13 and Berth 14

These instructions contain the minimum rules applicable for industrial rail switching and other rail related services and serve as a reference manual and a training guide. Employees are to be conversant with and understand the information contained in this Operating Manual.

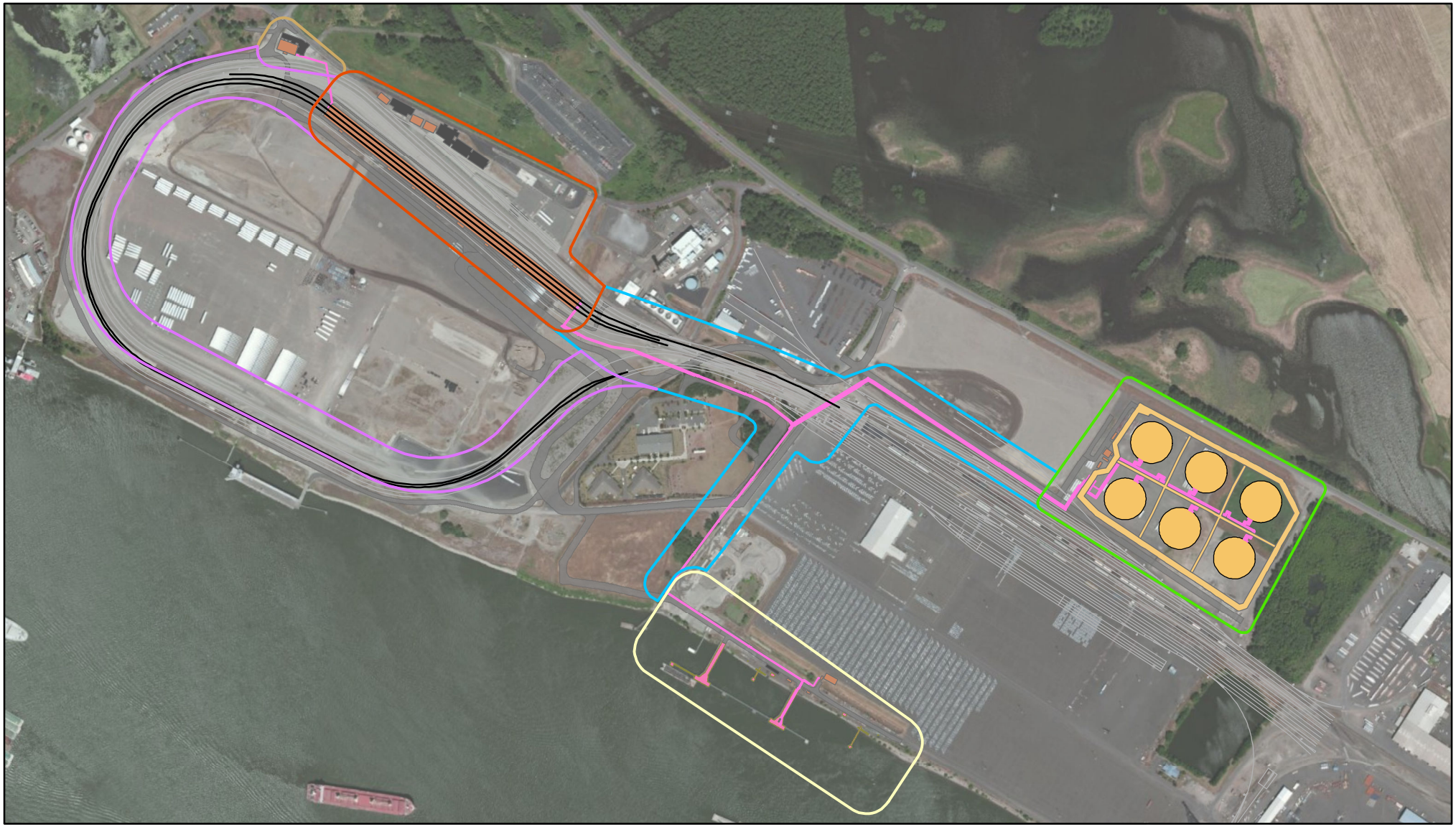

Figure 1 - Site Plan

VANCOUVER ENERGY

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- Roads
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- Marine Terminal
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- Rail Infrastructure

0 250 500 1,000
Feet

N

Date: April 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

Revisions

Revisions applicable to the Operating Manual are made through Operating Bulletins and Notices and are accessible to all employees. Operating Bulletins and Notices are approved by the Rail Operations (RO) Leadership Team and issued by the Director of Safety. This Operating Manual is reviewed minimally on an annual basis. A three-ring binder will be maintained at each operation with updated versions containing the RO Manual, Operations Bulletins, Managers Bulletins, and Site-Specific Procedures with Written and Proficiency Exams controlled by the Operations Mangers and Safety Specialist. If changes are made to the RO Manual employees will update their manuals as needed in a communication meeting. Requests for changes will be sent to the RO Director of Safety.

Exceptions

Only exceptions to these rules will be site-specific rules that may supersede a rule in this book. All site-specific rules must be in an approved written procedure format and be approved by the Group Leaders and the Safety and Training Directors.

Rail Operations Cardinal Rules

Red Zone

Always ask for and receive verbal confirmation ("Red Zone") before fouling any area between working ends of railcars, locomotives.

Exceptions:

- Riding a tank car outside the gauge
- Operating cut lever

Secured Equipment

Apply a sufficient number of hand brakes as required by Minimum Hand Brake Application Chart or Site-Specific Requirements to hold standing railcars in place. After applying hand brakes, always perform a push/pull test on all railcars.

Fouling Tracks

Do not leave equipment in the foul. If equipment cannot be left clear of the converging track's foul point, then the equipment must always be pulled to switch points and placed in a position that will:

- Foul the entire track; and
- Prohibit any equipment movement on the converging track.

Vehicles, equipment, or materials within 4' of any active rail or track are to be considered in the foul.

Point Protection

Always protect the leading movement by having the ability and being in position to visually confirm clear track. Always be in a position to stop short of:

- A compromised rail condition.
- Shoving into a stubbed track or one equipped with a bumping mechanism.

Restricted Speed

A speed that allows stopping within half the range of vision, or half of the last car count given to safely stop short of:

- Engineer or rail movements.
- Rolling equipment.
- Persons or equipment fouling the track.
- Stop signal.
- Derail or switch improperly lined.

Vancouver Energy
Operations Rail Operating Safety and Maintenance Plan (Section 2.0)

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1. General Responsibility

1.1 Safety

Safety is a critical element in the performance of job duties. Obeying the rules is essential to safety and is a condition of employment.

1.1.1 Maintaining a Safe Course

In case of doubt or uncertainty, always take the safe course.

1.1.2 Alert and Attentive

Employees must be careful to prevent injury to themselves and to others. They must be alert and attentive when performing their duties and plan their work to avoid injury.

1.1.2.1 Games, Reading, or Electronic Devices

Employees on duty must not:

- Play games.
- Read magazines, newspapers, or other literature not related to their duties when:
  - On a train, engine or while performing switching related functions.
  - Performing safety related activities.

Or

  - It would delay or interfere with required duties.

Personal Electronic or Electrical Devices

Employees are prohibited from using personal electronic or electrical devices such as cell phones, electronic games, TV's, computers, media players (including wearing associated earpieces) or from having such devices turned on while on duty. However, a personal wireless communication device, (cell phone) may only be used for voice communication as a redundant means of communication in the event of company-supplied radio failure and in accordance with company rules or instructions.

Exceptions

Employees may use a personal cell phone only during a recognized period of break time, meal period or after a job briefing with all crew members specifying that all railroad operations for that crew and employee have been stopped and suspended and the employee is not foul of any track. Such use must not interfere with any safety related duty.

Employees may use any means of communication necessary to respond to an emergency situation involving the operation or encountered while performing a duty for the company.

1.1.2.2 Company Authorized Cell Phones

In addition to compliance with all Company radio rules and instructions, the following applies to the use of company authorized Cell devices.

1. Except in an emergency, employees must not use a company authorized electronic device for purposes other than which it was intended or while:
   - Operating the controls of a moving locomotive.
   - Standing on the ground in a position foul (within 4 feet of the nearest rail) of any track.
   - On the ground and engaged in an active switching operation.
   - Any crew member is riding on any piece of equipment outside the cab of the locomotive.

- Any other employee is assisting in the preparation of the train or testing of railroad equipment or brakes.
- Inside the controlling cab of a locomotive or train unless there has been a job briefing and all crew members agree that it is safe to do so.

Or

- Obtaining or releasing mandatory directives when company radio communication is available.

2. Company authorized electronic devices may be used for company business when it will not interfere with safety related duties:

- For voice communication as a redundant means of communication in the event of radio failure.

Or

- To access stored electronic rule book files. When doing so, the wireless capability of the device must be disabled.

3. Company provided wireless devices with “Push-To-Talk” or “Direct Connect” type features may be used in lieu of a company radio to conduct train or switching operations when authorized by the company.

1.1.3 Accidents, Injuries and Defects

Immediately report all accidents, personal injuries, or any unusual condition that may affect the safety and efficiency of the rail operation. When required, promptly furnish a written report after reporting the incident.

1.1.4 Condition of Tools and Equipment

Employees must check the condition of equipment and tools used to perform their duties. Employees must not use defective equipment or tools until they are safe for use.

Employees must report any defects to their supervisor.

1.2 Rules

1.2.1 Rules, Training, Regulations, and Instructions

Safety Rules – Employees must have a copy of, be familiar with and comply with the rules and procedures in this Operating Manual.

Training – Employees must be familiar with and obey all rules, regulations and instructions. They must attend the required training classes and pass the required examinations.

Savage employees are trained on safe work practices, processes, policies, rules, regulations, and site-specific operational items.

New and Existing Employees

All employees must complete all site-specific hazard/customer-specific training and site regulatory requirements training before receiving the following training:

a) Employees must complete the New Hire RO Training and pass the associated exams.

b) Employees in training must complete the following to the satisfaction of a qualified trainer. A qualified trainer is an employee with the training, documentation, and experience relating to the task that is being trained for the purposes of proficiency testing requirements.

- Baseline procedures with proficiency exams
- Site-specific procedures with written and proficiency exams
- Job-specific training with proficiency exams

c) Employees may complete the Baseline training prior to completing the New Hire Rail Operations (RO) Training, in a nonproduction area or a safe location as long as the employee is under the direct and immediate supervision of a trained and qualified employee.

NOTE: Any employee NOT having completed documentation of his/her training must be under the direct and immediate supervision of a trained and qualified employee while performing the new job or task.

- All new hire employees must wear an item that designates they are in training and it differentiates themselves from the other employees. This distinguishable item must be visible for everyone to see clearly and must be worn until new employee is signed off to work unsupervised.

Explanation – Employees must ask their supervisor for an explanation of any rule, regulation or instruction of which they are unsure or do not understand.

Issued or Modified – Rules, regulations and instructions may be issued or modified by Operating Bulletins or Notices.

1.3 Carrying Out Rules and Reporting Violations

Employees must cooperate and assist in carrying out rules, regulations and instructions. Employees must correct if possible and then report any condition or practice that may threaten the safety of rail movements, employees or the general public and any misconduct or negligence that adversely affects the company or the customer.

1.3.1 Compliance with Instructions

Employees must comply with all instructions, directions and warnings given verbally, in writing, by bulletin, notice, or signs.

1.3.2 Good Faith Challenge

1.3.2.1 Right to Challenge

Federal Regulations have provisions that allow an employee the right to challenge a directive which, based upon the employee's good faith determination, would violate a company operating rule relating to:

- Shoving movements.
- Leaving equipment foul of an adjacent track.

Or

- Handling of hand-operated switches or fixed derails.

1.3.2.2 Good Faith Challenge Procedure

An employee may inform a supervisor issuing a directive that a good faith determination has been made that the directive would violate a railroad operating rule relating to:

- Shoving movements.
- Leaving equipment foul of an adjacent track.

Or

- Handling of hand-operated switches or fixed derails.

The supervisor will not require the employee to comply with the directive until the challenge is resolved. The supervisor may:

- Require the challenging employee to perform other tasks not related to the challenge until the challenge is resolved.

Or

- Direct an employee, other than the challenging employee, to perform the challenged task before the challenge is resolved. Employee so directed will be informed of the challenge, and determine that the challenged task does not violate the rules.

1.3.2.3 Resolving Good Faith Challenge

1. A challenge may be resolved by one of the following:
   - The supervisor's acceptance of the employee's request.
   - An employee's acceptance of the directive.
   - An employee's agreement to a compromise solution acceptable to the person issuing the directive.
2. If the challenge cannot be resolved because the supervisor issuing the directive has determined that the employee's challenge has not been made in good faith or there is no alternative to the direct order, the railroad will:
   - Provide immediate review by at least one manager, which must not be conducted by the supervisor issuing the challenged directive or that supervisor's subordinate.
   - Resolve the challenge using the same options available for resolving the challenge as the initial supervisor.
3. If the manager making the final decision concludes that the challenged directive would not cause the employee to violate any requirement of the involved rules, the reviewing manager's decision shall be final and not subject to further immediate review.
   - The manager will inform the employee that Federal law may protect the employee from retaliation, if the employee's refusal to do the work is a lawful, good faith act.
   - The employee making the challenge will be afforded an opportunity to document, in writing or electronically, any protest to the manager making the final decision before the employee's tour of duty is complete. The employee will be afforded the opportunity to retain a copy of the protest.

1.3.2.4 Request for Review and Verification of Decision

Upon written request, at the time of the challenge, the employee has the right for further review by the "Unit Safety Manager". Within 30 days after the expiration of the month during which the challenge occurred, the "Unit Safety Manager" will verify the proper application of the rule in question. The verification decision shall be made in writing to the employee.

1.3.2.5 Employee Rights and Remedies

The Good Faith Challenge is not intended to abridge any rights or remedies available to the employee under a collective bargaining agreement or any Federal law.

1.4 Minimum Rail-specific PPE

Reflective material must be worn at all times while performing work duties. If the uniform is not equipped with reflective material, a reflective vest, belt, or arm and leg bands must be worn. The reflective material must be worn so as not to be covered by any other clothing.

Work boots are required to be worn at work sites with a minimum 6-inch lace up with a defined heel and hard toecap. Special provisions may be made to the "lace up" portion for employees working with chemical transfers (where rubber boots are required). Company-approved hard hat and protective eyewear must be worn as required by company policy. Company-approved hand protection must also be worn.

1.5 Care of Property

Employees are responsible for properly using and caring for the property of the company and customer. Employees must return said property when requested by the proper authority. Employees must not use company or customer property for personal use.

1.6 Occupying the Roof

Employees whose duties require them to occupy the roof of a car or engine must do so only with proper authorization and only when the equipment is standing.

1.7 Unauthorized Persons

Unauthorized persons are not permitted on the property or equipment of the company or the customer.

1.8 Altering Equipment

Employees are not to alter, tamper with, nullify, change the design of or interfere with the normal function of any device or equipment on engines, railcars or other equipment or property, except in case of an emergency. Changes made in an emergency are reported to the proper authority as soon as possible and adjustments made accordingly.

1.9 Flat Spots

If a wheel on rail equipment has a flat spot more than 2 ½ inches long, or if the wheel has adjoining flat spots that are each at least 2 inches long, the equipment must be moved very slowly at couple speed (2 miles per hour) and the condition reported to the supervisor.

1.10 Reporting Engine Defects

Locomotive operators or other employees report engine defects to the supervisor and enter the defect on the Daily Locomotive Inspection Form.

1.11 Reference to Locomotives and Engines

Reference to locomotives and engines in the Operating Manual also include on-rail, off- rail, and railcar movers.

2. Giving and Receiving Signals

2.1 Looking for Signals

To recognize and follow signals correctly, employees must:

- Always be on the lookout.
- Comply with the intent of the signal.
- Not act on any signal that they do not understand or that may be intended for other movements or employees.

2.2 Signals by Employees

To give clear signals during the day, employees must:

- Use the correct color of flags or lights.
- Use day signals from sunrise to sunset.

To give clear signals during the night, employees must:

- Use the correct color of reflective flags or lights.
- Use night signals from sunset to sunrise and when day signals cannot be seen clearly.

Flags may be made from cloth, metal or other suitable material.

2.3 Giving Signals

Employees who give signals must:

- Make sure the signals can be plainly seen.
- Give signals clearly so they can be understood.
- Give signals from locomotive operator's side of the track.

2.4 Signal Disappearance

When moving under the control of hand signals, the disappearance from view of either the employee or the signal controlling the movement must be regarded as a stop signal.

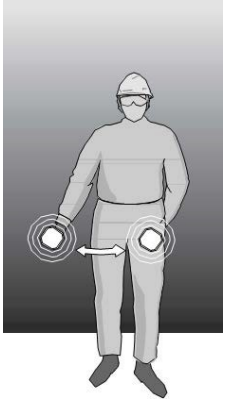
2.5 Emergency Stop

- Any object waved violently by any person on or near the track is a signal to stop.
- In case of emergency, any employee discovering a hazardous condition affecting the safe passage of a movement must, by the use of flags, lights, radio or any other means, make every possible effort to stop the movement.

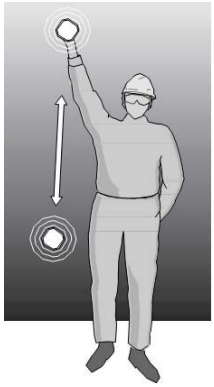
2.6 Hand Signals

The following diagrams illustrate the hand signals for a movement to stop, move forward, and move backward:

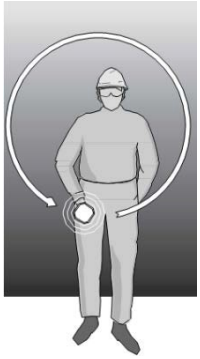
Stop – Swung from side to side at right angle to the track



Move Forward – Raised and lowered vertically



Move Backward – Swung vertically in a circle at right angle to the track



2.7 Radio and Hand Signals

- Radio or hand signals are to be used to communicate signals or instructions.
- Advanced hand signals may be used provided a clear understanding is established among employees.
- There is no hand signal for Red Zone Protection. Red Zone Protection must be communicated vocally.
- If there is doubt as to the meaning of a signal, it must be regarded as a stop signal.

2.8 Acknowledgment

An employee receiving a radio call must acknowledge the call immediately unless doing so would interfere with safety.

3. Engine Bell Signals

3.1 Ringing the Engine Bell

The engine bell must be rung:

1. When the engine is about to move, except when making momentary stop and start switching movements.
2. As a warning signal:
    - Passing a rail movement or engine operating on an adjacent track.
    - Approaching, passing and moving about facilities where people may be working.

- Approaching public crossings at grade with the engine in front. If distance does not permit, ringing must begin soon enough before the crossing to provide a warning and continue until the crossing is occupied.

4. Engine Whistle Signals (Horn)

4.1 Sounding the Engine Whistle (Horn)

1. When weather conditions impair visibility, sound the whistle frequently.
2. If the whistle fails, ring the bell continuously while moving.
3. When other employees are working in the immediate area, sound the whistle signal before moving.
4. The radio may be used in place of the whistle signals, except for signals (a) and (e) of the following illustrations.

4.2 Engine Whistle Illustrations

The required whistle signals are illustrated by “o” for short sounds and “-” for long sounds.

Sound	Indication
(a) Succession of short sounds	Use when an emergency exists, or persons or animals are on the track. When crews on other movements hear this signal they must stop until it is safe to proceed.
(b) o o	Acknowledgement of any signal not otherwise provided for.
(c) o o o	Acknowledgement to move backward
(d) o o o o	Request for signal to be given or repeated if not understood.
(e) --o-	Approaching public crossings at grade with engine in front, start signal not less than ¼ mile before reaching crossing, if distance permits. If distance does not permit, start signal soon enough before crossing to provide warning. Prolong or repeat the signal until the engine occupies crossing.
(f) o-	Acknowledgement to move Forward
(g) -o	Approaching men or equipment on or near track

5. Engine Lights

5.1 Display of Engine Lights

1. When moving, a headlight is displayed to the front and, when equipped, to the rear of an engine in non-main and industrial track service by day and by night.
2. The headlight on the end coupled to cars may be dimmed, except when approaching public crossings at grade, until fully occupied by the movement.
3. When approaching public road crossings at grade with the engine leading, the headlight on the leading end must be on full power until the crossings are fully occupied.

5.2 Engine Headlight Failure

If both headlights on an engine fail, repairs must be made as soon as practicable.

1. At night, display a white light on the front of the engine, the bell must be rung continuously; the whistle sounded frequently and the speed reduced as necessary.
2. When approaching public road crossings and other vehicular or pedestrian crossings the movement must stop and the crossing must be manually flagged in advance of the movement until the crossing gates are fully lowered or if no traffic is approaching or stopped at the crossing.

6. Improperly Displayed Signals

1. If a signal, flag or sign is improperly displayed, or absent from the place it is usually shown, regard the signal as still being in place.
2. Promptly report improper displayed signals or absent fixed signals, flags or signs to your immediate supervisor.

7. Protection of Workmen and Employees

This rule outlines the requirements for protecting workmen inspecting, testing, repairing or servicing railcars and other track maintenance equipment; as well as employees moving on or about rail equipment.

7.1 Definitions

1. Rail Equipment: Engines, cars or an engine coupled to one or more cars.
2. Blue Signal: During the day, a clearly distinguishable blue flag or blue light, and at night a blue light. The blue light may be steady or flashing.
3. Effective Locking Device: When used in relation to a manually operated switch or derail, a lock that can be locked or unlocked only by the craft or group of workmen applying the lock.
4. Switch Providing Protection: For the switch to provide protection the switch must be lined against the track to be protected and locked by an effective locking device.
5. Red Zone: The area between the working ends of rail equipment is designated as the Red Zone for the purposes of this Operating Manual.
6. Red Zone Protection: Protection secured by the locomotive operator upon request. This protection will, at a minimum, be

   - Independent Brake Fully Applied
   - Apply the Automatic Brake (10 pounds) (as needed to control car movement)
   - Center the Reverser Handle and
   - Open the Generator Field Switch (Down position)

   NOTE: Only when these steps have been completed may the operator confirm that Red Zone Protection is in effect.

7. Place the throttle in stop position

7.2 What a Blue Signal Signifies

Blue Signal Protection is mandatory whenever equipment is under repair. A blue signal signifies that workmen are on, under or between rolling equipment and requires that:

1. Rolling equipment must not be coupled to or moved.
2. Rolling equipment must not pass a blue signal on a track protected by a blue signal.
3. Other rolling equipment must not be placed on the same track so as to block or reduce the view of the blue signal.
4. Rail equipment must not enter a track when a blue signal is displayed at the entrance to the track.
5. Blue signals must be displayed for each craft or group of workmen who will work on, under or between rolling equipment.

Note: More than one piece of rolling equipment may be placed on the same track when a derail divides a track into separate working areas.

7.3 Blue Signal Protection Removed

1. Blue signals may only be removed by the craft or group who placed them.
2. When blue flag signal protection has been removed from one entrance of a double ended track or from either end of rolling equipment, that track is no longer under blue signal protection.

7.4 How to Provide Blue Signal Protection

One of the following methods of protection or a combination of these methods must be provided:

1. Each manually operated switch that provides direct access must be lined against movement onto the track and secured by an effective locking device. A blue signal must be placed at or near each switch.
2. A derail capable of restricting access to the track where work will occur must be locked in derailing position with an effective locking device and positioned at least 50 feet from the rolling equipment to be protected.

7.5 Protection for Emergency Repair Work

If a blue signal is not available for employees performing emergency repairs on the same track as a locomotive, the employee controlling the locomotive will, upon request from the crewman working directly with the repairmen, provide “Red Zone Protection” and such protection must remain in effect until removed by request from the crewman who originally requested it.

7.6 How to Provide Red Zone Protection

When a task requires an employee to work inside the Red Zone area, that employee requests Red Zone Protection from the locomotive operator.

If more than one member of the crew intends to work under Red Zone Protection, the employee in charge will request the protection and such protection will remain in effect until the employee in charge determines that all members of his/her crew understand the intention to remove the protection and all are in the clear.

7.7 Removing Red Zone Protection

When the requirement for Red Zone protection is no longer in effect and all employees working under the protection are in the clear, the request to remove Red Zone Protection is made to the locomotive operator. The locomotive operator will not remove Red Zone Protection unless directed by the employee who initially requested it.

8. Red Flag Displayed between Rails

When a red flag or red light is displayed between the rails of a track other than a main track, the movement must stop a minimum of 3 car lengths away and not proceed until the red flag or red light has been removed by an employee of the craft or group that placed it. This protection is intended for individuals working on track with or without equipment; but, may be used for anyone wishing to restrict access to a specific area for any purpose other than the repair of rail equipment (for repair of rail equipment see section 7.4, How to Provide Blue Signal Protection).

9. Operating Bulletins and Notices

Operating Bulletins and Notices are issued by the proper authority and in the prescribed format.

1. Operating Bulletins and Notices are posted in a book provided for that purpose in the general office.

2. Operating Bulletins contain information or instructions pertaining to the movement of engines and cars, operating and switching procedures, track and equipment conditions and safety instructions.
3. Notices contain non-operating information of interest to the employees. Operating Bulletins are numbered consecutively, beginning on the first day of each new year.
4. A yearly re-issue, containing the number, date and the contents of each operating bulletin remaining in effect, is issued the first day of each calendar year. The Operating Bulletins remaining in effect from the previous year may be consolidated into a Summary Bulletin at the start of the calendar year. All other Operating Bulletins not addressed in a Summary or re-issued will no longer be in effect.
5. Employees responsible for the placement of operating bulletins and notices must post them in the book provided for that purpose immediately after they are received and they must record on each bulletin the time and date it is posted in the books.
6. Before commencing work, every employee and trainee must read, understand, sign and date all newly posted Operating Bulletins and Notices.

10. Starting Engine Movement

An engine or rail movement must not start to move until a hand signal or instruction is received by the locomotive operator from a crew member.

11. Stopped Clear of Fouling Point

An engine or rail movement required to stop for another rail movement must be stopped clear of the route to be used by the other engine or rail movement.

12. Movements at Restricted Speed

When required to move at restricted speed, movement must be made at a speed that allows stopping within half the range of vision short of:

- Engine
- Rail movement
- Rolling movement
- Persons or equipment fouling the track
- Stop signal
- Derail or switch improperly lined

12.1 Precautions against Unusual Conditions

Protect trains and engines against any known conditions that may interfere with their safety. When conditions restrict visibility, regulate speed to ensure that crew members can observe and comply with all operating rules. In unusually heavy rain storm, snow storm, or high water, trains and engines must approach bridges, culverts, and other potentially hazardous points prepared to stop. If they cannot proceed safely, they must stop until it is safe to resume movement.

12.2 Water above Rail

Rail Movements are not to operate through water of a depth of more than two inches above the ball of the rail (top of the rail). They may operate through water if the depth is two inches or less above the ball of the rail, but at a speed not to exceed 2 miles per hour and with proper authorization.

12.3 Maximum Authorized Speed

Switchmen and operators are jointly responsible for knowing and not exceeding the maximum authorized speed for their train.

The maximum speed permitted by the site/customer must be adhered to or a speed of 10mph must never be exceeded, whichever is less.

13. Emergency Stop Protection

When a train or engine is stopped by an emergency application of the brakes or severe slack action occurs while stopping, take the following actions.

- When a derailment occurs on an industrial track or the track of another railroad is fouled or obstructed by the derailed equipment, an emergency radio broadcast is immediately initiated and action must be started to prevent a collision.
- Cars/locomotives should not be moved until the investigation team/supervision has arrived on site and/or has given the okay to do so in order to clear a road crossing or fouling track.
- Crew members of the derailed equipment must, by the use of flags, lights, emergency radio calls or any combination thereof, stop all rail movements on, or approaching the obstructed track.
- The supervisor must be notified immediately and a call must be made to other rail movements and other affected railroads to notify them of this emergency.
- Protection of the fouled track must continue until notified by the supervisor that all rail movements in the area, and those of other affected railroads, have been notified and that all rail movements have been secured.

14. Switches and Derails

The employee handling the switch or derail is responsible for the position of the switch or derails in use. When possible, employees on the engine must verify that the switches and derails near the engine are properly lined.

1. Employees handling switches and derails must ensure that:
   - The locomotive or railcar has a minimum distance of 25 feet from the switch point to prevent the weight of the equipment from allowing a gapping switch point.
   - Communicate to the operator that the switches and derails are properly lined for the intended use, example: “Switch is lined from the main to the siding.” (“Points Look Good” must also be conveyed to the operator.)
   - When the operating lever is equipped with a latch do not step on the latch to release the lever except when lining the switch.
   - After locking a switch or derail, test the lock to ensure it is secured.
2. When not in use, switches must be locked, hooked or latched, if so equipped.
3. If a switch is run through it is unsafe and must be immediately reported to the supervisor. When the switch has been run through, the entire movement must be made through the switch and the movement should never be reversed until the switch has been inspected, repaired, or temporarily spiked and tagged on the switch handle.
4. Replace any missing or defective switch locks. If they cannot be replaced report the condition to the supervisor and spike the switch if possible. If switch is spiked do not operate the switch.
5. Employees in rail movement service must know the location of all fixed derails.
6. A train or engine moving on or entering tracks where fixed derails are located must stop at least 150ft from the derail in derailing position.
7. Do not make a movement over a derail in the derailing position.
8. Derails are left in the derailing position and locked (where applicable) to provide protection against unexpected movement.
9. Avoid leaving unattended railcars and locomotives stopped on open derails.
10. Railcars left standing in front of a derail must have a minimum distance of 50 feet unless otherwise required by a site-specific rule/yard capacity, and precautions must be taken prior to coupling to a car in this position.

14.1 Switch Stand Mechanisms, Switch Points and Derails

1. Ensure all switch stand mechanisms and switch point travel areas are free of tools, material or debris and any persons working in the area are in the clear prior to operating the switch.
2. Look in both directions to ensure that no moving equipment is approaching on adjacent tracks prior to operating a switch or derail. Ensure your body position, while operating the switch, does not place you between rail traffic and the switch stand or within the travel area of the switch lever.
3. Ensure you are facing the switch stand and your body is well braced with both feet firmly planted on the ground or on the switch ties before operating switch and:
   - For operating a ball type switch or derail, bend knees and use leg muscles to steadily lift lever while keeping feet clear of ball.
   - For operating high stand switch or derail, take a firm grip with both hands near the end of the operating lever and exert a steady pull. Avoid jerking, pushing or kicking to try and move or seat the switch lever.
   - Never stand or sit on a switch handle and stay clear when movement is being made over a switch.

14.2 Difficult Switch

Employees must not exert force beyond their normal physical capabilities in order to line a switch, which is difficult to operate. They must obtain assistance to complete task and notify your supervisor of the problem.

14.3 Proper Alignment of Switches

Ensure the switch is properly lined for the route to be used, the switch points fit tightly, not to exceed 1/8-inch gap, from the stock rail, and the switch is fully secured.

14.4 Cleaning Switch

A broom, scraper or any suitable device available must be used to clean switch mechanisms of ice, snow and other debris. Never use your hands or feet to clear out any debris between switch points.

15. (Section Reserved)

16. Hand Brakes and Securing Devices

A sufficient number of hand brakes must be applied on cars prior to uncoupling or leaving a train unattended. Also verify the following:

- Verify the chain is tight, and brake shoe is firmly against the wheel.
- Single cars that are set out will require chocks. (Exception: During switching operations, single cars may be left temporarily with hand brakes only.)

16.1 Push/Pull Test

Prior to leaving equipment, test the hand brake's effectiveness by fully applying a sufficient number of hand brakes then slightly move the car or cut of cars as needed to ensure the necessary retarding force is available.

When performing a push/pull test you must follow the proper steps below in order to ensure you have a sufficient amount of hand brakes on cars/locomotives left standing.

- Apply hand brakes per our minimum hand brake chart (more if needed, a sufficient amount)
- Apply hand brakes as directed by site-specific requirements

- Prior to leaving the cars/locomotive standing release all airbrakes
- Instruct the locomotive operator to either push or pull until you see movement in the cars/locomotives
- Then instruct the locomotive operator to power down, without setting any airbrakes
- Finally visually ensure the cars/locomotives stop and the hand brakes will hold

16.2 Minimum Hand Brake Application Chart

1 car	1 hand brake	40-49 cars	5 hand brakes
2-19 cars	2 hand brakes	50-59 cars	6 hand brakes
20-29 cars	3 hand brakes	60-69 cars	7 hand brakes
30-39 cars	4 hand brakes	70-79 cars	8 hand brakes

(Note: At locations where a specific number of hand brakes are required, such locations are identified in Operating Bulletins and Notices or Site-Specific Procedures and equipment left unattended is checked as provided by Rule 17.0 Hand Brakes and Securing Devices – specifically the Push/Pull test.)

16.3 Hand Brake Operation

16.3.1 Accessing the Hand Brake Platform

There are a variety of hand brakes in service. When ascending to the hand brake platform always use the ladder on the side of the car. Maintain four points of contact at all times. Get a firm grip with both hands on the ladder rungs. For good balance, place feet at an angle with the balls of the feet on the ladder rung. While climbing, always maintain firm grasp with hands and be alert at all times for any sudden movement. Upon reaching a height that is equal to that of the brake platform, place one hand on end ladder and grasp firmly. Bring one foot over to the end ladder, maintain balance and then swing the other foot around to the end ladder. Prior to applying the hand brake you may place your right foot on the edge of the brake platform securing it against your heel, maintaining good balance.

16.3.2 Visual Check

Visual check of hand brake components, including brake wheel, lever, pawl, ratchet and chain, is to be carried out before operating hand brake. Any defects found must be reported to your supervisor.

16.3.3 Application of Hand Brake

To apply hand brake, place release lever in “on” position, then with right hand begin applying hand brake by rotating wheel in clockwise motion. Always keep hand on the outside of the wheel rim while applying. Never apply using the wheel spokes, if sufficient force cannot be applied by using the wheel rim additional brakes and/or wheel chocks may be necessary. Always visually confirm that the brake shoes are contacting the wheels of the railcar after applying the hand brake.

16.3.4 Release of Hand Brake

To release hand brake, move release lever to “off” position with enough force to disengage the hand brake locking feature. Ensure hands and body are clear of brake wheel and feet are clear of the chain, as it may release with great force under tension.

16.3.5 Assistance during Hand Brake Release

If a hand brake has been applied too tight, assistance may be required to release it. The application of the automatic brake may be required to loosen the tension on the brake rigging. Assistance from a second person may be required.

16.3.6 Operating Hand Brakes from the Ground

Operating a hand brake from the ground is strictly prohibited. The only exception is with the proper use of a brake stick.

17. Other Hand Brake Operations

17.1 Descending the Hand Brake Platform

Prior to exiting from between railcars, look both ways to insure there is no approaching movement that may endanger you while dismounting the railcar.

To descend the hand brake platform, slowly move body around to the side ladder. Maintain four points of contact at all times. Climb down slowly while maintaining firm hand holds. Keep feet angled and upon reaching the bottom rung or stirrup, ensure there are no obstacles at the point where you will contact the ground. Ensure feet are firmly planted on the ground before releasing handgrip on ladder rung.

17.2 Standing on Drawbar

Standing on drawbar, drawbar housing or un-coupler lever while applying or releasing hand brakes is prohibited. Reaching over a drawbar or knuckle for any reason is always prohibited.

17.3 Wheel Chocks

Use wheel chocks where required. When placing or removing wheel chocks, keep all body parts outside the Red Zone Area. Never attempt to apply a wheel chock that is defective or missing a handle or never use a modified wheel chock such as a rock or block of wood.

17.4 Unattended Locomotive

When the locomotive cab is not occupied by a qualified crew member, it is considered unattended. When leaving a locomotive or consist (two or more locomotives) unattended, locomotive(s) hand brake(s) must be applied. Release locomotive air brakes to determine hand brakes will prevent movement. (Verify chain is tight and the brake piston has sufficient travel, and the brake shoes contact the wheels.) Fully re-apply independent brake. Loaded trains are not to be left unattended.

- Remove reverser handle
- Generator field switch in off position
- Wheel chocks applied
- Lights dimmed
- Place locomotive isolation switch into the isolation setting

17.5 Releasing Hand Brakes on grade

When the engine is coupled to railcars standing on a grade, do not release the hand brakes until the air brake system is fully charged and Red Zone is in effect.

18. Coupling and Uncoupling Regulations

Switching must be performed carefully to prevent personal injuries as well as damage to equipment or contents. Movements must be carefully handled to avoid shocks from abrupt starting and or stopping. No attempts may be made to uncouple moving railcars.

Extreme care must be exercised when coupling to avoid impact damage. Cars and engines must only be coupled with sufficient force necessary to affect the coupling. Coupling speed is 1 mile per hour and must never exceed 2 miles per hour.

Before coupling to, or moving cars being washed, dried, loaded or unloaded, all persons on or about such cars must be notified. Vehicles, loading/unloading devices and other equipment must be free and clear.

Prior to coupling, a safety stop is required minimum of one car distance (50 feet) and care must be taken to ensure that cars being coupled to are properly secured. After coupling to cars, the coupling must be "stretched" to ensure it is secure beforehand brakes are released or movement commences.

Avoid uncoupling railcars in curves whenever possible. Take care when attempting to couple to any equipment standing on curves or on switches as the drawbars may not align properly. Notify the operator of the position of the cars to be coupled (coupling in a curve) so all crew members have a clear understanding of the potential coupling issue.

18.1 Switching with Air

Do not handle railcars without charging the air brake system. Prior to any movement couple railcar air hoses and charge the brake system; this will allow for a more controlled movement of railcars. (Kicking, dropping, and cutting off cars in motion is strictly forbidden)

EXCEPTION: Site-specific customers who, by contract, require the handling/switching of railcars without air in classification yards. In such cases, site-specific instruction is required and documented training performed.

18.2 Opening and Closing Couplers

Ensure that coupler is in good operating condition with no missing or damaged components. Notify supervisor of any damaged equipment.

18.3 Proper Stance

Always maintain proper stance to couple or uncouple cars. Ensure both feet are placed outside the working end of the rail car, with an open stance, and your body is clear of equipment. To uncouple cars, use hand nearest equipment to operate the uncoupling lever.

18.4 Failure of Operating Lever and Coupler Adjustment

18.4.1 Prior to Coupler Adjustment

Before making adjustments to a coupler, separate equipment by at least 50 feet and secure the equipment using Red Zone Protection as prescribed in Rule 7.1 (f, g) of the Operating Manual.

18.4.2 Coupler Adjustment

Once the area is secured with Red Zone Protection, the employee enters the gauge placing both feet firmly on the ground toes up against the inside base of the rail; with both hands firmly gripping the underside of the coupler, using the legs, lift the coupler applying pressure with the lower back against the coupler to move it over.

18.4.3 Failure of Operating Lever

When an operating lever fails to open a knuckle the employee secures Red Zone Protection and ensures there is a safe distance of at least 50 ft of clearance between the equipment before attempting to open

the knuckle or adjust any coupler components. When opening a knuckle both feet must be outside the nearest rail to prevent injury. With your left hand lifting up on the cut lever, use your right hand to grip the knuckle and pull the knuckle to the open position at the same time.

18.5 Working within Physical Capabilities when Coupling

Employees must ensure they work within their physical capabilities while coupling or uncoupling equipment. Assistance is to be obtained to adjust a difficult operating lever or coupler.

18.6 Adjustment of Drawbars with Feet

Employees must not adjust drawbar or components with feet. Ensure that your feet are kept clear of the knuckle, in case it falls.

18.7 Loading/Unloading devices

Loading and unloading devices must be clear and all top hatches and bottom outlets closed prior to moving.

18.8 Proper Alignment

Before a coupling is made to cars, the drawbars must be checked to ensure they are properly aligned. Whenever possible, car should be left on straight track for coupling. If not possible, extreme caution must be used when coupling. Refer to rule 19.0

18.9 Trainline Air Hose

When coupling a train line air hose, always request Red Zone prior to coupling train line air hoses. Once it is safe, place one foot between the rails while leaving the other foot outside, with your body angled. Your right hand grasps the glad hand of the nearest air hose, while the left hand grasps the glad hand of the air hose farthest away. Kink the air hose in your right hand while bringing it up to a 90-degree angle. Bring the glad hand of the air hose in your left hand up to meet the other glad hand, then let both glad hands slide into place to engage coupling.

18.10 Applying Air to Coupled Cars

Prior to coupling, ensure the angle cock on the railcar away from the air source is completely opened. Once the coupling is made and stretched and the slack action stopped, request and receive “Red Zone Protection”, lace the train line hose. Place one foot inside the gauge with leg against train line hose and place other foot outside gauge. Do not open angle cock too fast as this will put the air brake system into emergency.

18.11 Uncoupling Cars

When uncoupling cars that have air applied, close the angle cock on the last car to remain coupled to the locomotive. After lifting the uncoupling lever and directing the equipment in a direction to separate, look away as the air hoses separate to avoid exposure of dust and debris to the eyes.

19. Working on or Around Equipment

19.1 Getting On Stationary Equipment

First ensure a solid grasp of handrails and/or grab irons with both hands. With your feet firmly planted and body facing equipment, pull with your arms while one foot is placed on the corner of bottom stirrup. Place the other foot in opposite corner of stirrup.

19.2 Getting Off Stationary Equipment

Ensure the location where your feet will contact ground is clear of debris or other objects which could cause injury. Ensure your body is facing equipment as you back down onto ground. With one foot, step down to contact ground and after the first foot is firmly planted, bring down the other foot. When both feet are firmly on the ground, you may then release handholds.

19.3 Getting On/Off Moving Equipment Is Prohibited

Mounting moving equipment is prohibited. You may dismount moving equipment ONLY in case of an emergency. In case of an emergency, always face the direction of movement and dismount the equipment using your trailing foot to hit the ground first. Turn your body away from the railcar while releasing your handlhold once your trailing foot has made contact with the ground.

19.4 Close Clearance

While riding equipment always maintain a vigilant observance in the direction of movement. Ensure that equipment on adjacent tracks, obstructions on ground or buildings do not pose a hazard or within 4ft of the rail. Riding rail cars inside buildings is prohibited.

19.5 Prohibited Means of Getting On/Off Rail Equipment

Getting on or off rail equipment by means other than steps, ladders or handholds provided is prohibited. Dismounting railcars may only be done from the side ladder. Stepping on cut-levers, couplers or anything other than approved safety appliances is prohibited. Never cross from one railcar platform to another railcar platform to access a railcar.

19.6 Equipment Condition

Ensure equipment is in good order prior to mounting it to avoid possible hazards.

19.7 Distance from Moving Equipment

Employees shall not cross in front of moving equipment unless it is clearly determined that sufficient distance (not less than 150 ft. or three railcars) is available and the speed is less than 5 mph. Employees shall not cross behind moving equipment (moving away) at a distance less than 20 ft.

19.8 Mounting or Dismounting Equipment on Bridges, Trestles, or Overpasses

Mounting or dismounting equipment on a bridge, trestle or over pass should be avoided. If necessary, extra caution must be taken to ensure sound footing and sufficient clearance.

19.9 Debris

Debris found near tracks where employees are required to walk should be removed to eliminate potential hazards.

20. Fouling Other Tracks

- Equipment must not be moved foul of another track unless the movement is properly protected. Switches must be lined for the route and it must be visually seen that the portion of the track to be used is clear.
- Equipment must not be left foul of a connecting track unless the switch being fouled is covered by the equipment.

21. Shoving Equipment

When cars or engines are shoved and the way cannot be ensured clear, employees must take an easily seen position on the leading car or engine, or be ahead of the movement, to provide protection. Cars or engines must not be shoved over switches, derails or crossings without protection. Upon request and prior to opening the throttle to shove, the locomotive operator must establish that the crew member directing the shove is in position to protect the point. Equipment must not be shoved to block other tracks unless it is known that adjacent tracks are clear and switches are properly lined for the movement.

22. Shoving into Stub Tracks

When shoving into tracks that are stubbed, equipped with wheel stops or bumping posts, a “Safety STOP” must be made between 50 and 100 feet from the end of the track, wheel stops or bumping post. The movement must not exceed 2 miles per hour for the remaining distance.

23. Radio Rules

23.1 Reliability Tests

- When employees are equipped with radios, they must conduct a communications test as soon as practicable after coming on duty and prior to performing railcar switching to ensure they are working properly.
- Radio tests must consist of an exchange of voice transmissions with another radio, and the quality and readability of its transmission must be ascertained.
- If the radio is found to be defective, it must be exchanged for a working radio.

23.2 Monitoring Radio Transmission

Radio base stations or mobile units must be turned to the appropriate channel with the volume loud enough to receive communications.

23.3 Proper Radio Terminology

All radio communications will be conducted in a professional manner. Any foul or abusive content is strictly forbidden. Suggested examples of proper terminology:

- “Stand-by” - Monitor this channel for my next transmission.
- “Over” - Transmission is ended and a response is expected.
- “Out” - Transmission is ended and no response is expected.

23.4 Transmitting

Employees operating radios must do the following:

- Before transmitting, listen long enough to make sure the channel is not being used.
- Give the required identification.
- Do not proceed with further transmission until acknowledgment is received.

23.5 Required Identification

- Employees transmitting or acknowledging a radio communication must begin with the required identification including engine number.
- After positive identification has been made in connection with switching within the plant, fixed and mobile units may use short identification after their initial transmission and acknowledgement.
- Direction in relation to the controlling unit, distance to be traveled, as well as intent of the move, must be given with each communication.
- Anytime the switchman and locomotive operator travel without obstacles, regular car counts and acknowledgements of communication will need to be made every 10 cars or 500ft. (i.e. there are no crossings, derails, or misaligned switches)
- When the switchman is riding outside of the cab of the locomotive, he/she will need to continue to communicate with the provided radio to ensure all crew members are alert and attentive, and aware of all expected movement. (i.e. - direction and distance.)

NOTE: Site-specific procedures should designate verbiage to be used for direction of travel and must be made clear to all employees (i.e., direction – north/south, east/west, shove/drag, etc.).

- If no further communication is received before the movement has traveled one-half the distance required by the last instruction, the movement must be stopped at once.

23.6 Content of Communication

Radio communications are brief and to the point and contain only essential instructions or information.

23.7 Verification Procedures

When verbal instructions or information pertaining to locomotive or yard movements are received by radio, such information must be repeated to the sender to ensure correctness and acknowledgement before acting on such instructions and/or information.

23.8 Communication Not Understood or Incomplete

- An employee who does not understand a radio communication or who received a communication that is incomplete, must not act upon the communication.
- An employee who receives information that may affect the safety of employees or the public or cause damage to property must take the safe course. When necessary, stop the movement until the communication is understood.

23.9 Emergency Communications Procedures

1. An employee will transmit the word “EMERGENCY” three times at the beginning of a transmission to indicate the report of:

   - an accident involving injury to employees or others;
   - a condition, which may constitute a hazard to employees or others;
   - a condition, which may endanger the passage of engines, or
   - a derailment, which is fouling another track.

   When an “EMERGENCY” communication, which is directed to a specific person or movement, has not been acknowledged, any other employee hearing it will, if practicable, relay the communication by any means available.

2. Other employees must not interfere with such communication.
3. An “EMERGENCY” communication has absolute priority over all other transmissions.

24. Tracks and Track Equipment

24.1 Walking On or Near Track

Look in both directions for approaching rail equipment when preparing to foul tracks. Foul tracks only when necessary for the purposes of assigned duty.

24.2 Safe Distance from Rail Movements

Keep a safe distance from passing rail movements. Do not stand by a switch or switch stand if possible. Stand in the clear in the event of dragging lading, equipment or a derailment.

24.3 Walking On or About Tracks

Walk clear of the rail staying off head-block ties and looking in the direction of movement. Only walk in the gauge when duties require and only for the shortest amount of time necessary to complete the required work. If at all possible remain in the clear of all tracks unless protected as described in Rule 7.1

24.4 Sitting on, stepping on and walking on Rail

Sitting on, stepping on or walking on rail is prohibited. Sitting on any part of the track structure is prohibited. Whenever possible avoid walking on cross ties to prevent slipping on creosol, fuel oil and lubricants that may be present.

24.5 Crossing Over

Crossing over, under or between railcars or equipment is prohibited unless in performance of duty and only when proper protection is provided. When required to do so, use the proper running boards and hand-holds.

Never step between the coupler horn and striker casting or on the striker casting. When crossing between railcars or equipment, a distance of 50 ft or greater must be available unless under Blue Signal protection and only when such equipment is chocked. When crossing behind or around standing equipment, a distance of no less than 25 ft must be maintained.

24.6 Leaning Against Railcars or Rail Equipment

Leaning against railcars or rail equipment is prohibited.

24.7 Riding Rail Equipment

Riding railcars and rail equipment is prohibited unless designated in the requirements of the assigned work. Riding equipment should be avoided whenever possible. If necessary, ride only on the leading side ladder of a railcar in yard movement or the trailing side ladder on the last car of a train or cut of cars. **Crew members shall never ride equipment into a couple. They must stop short (a 50-foot safety stop minimum) and dismount prior to coupling.**

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25. Employee's Acknowledgment of Receipt

As an employee of Vancouver Energy Companies, I acknowledge receipt of this Operating Manual. I understand its contents and agree to comply with them while on duty or on company property. If in doubt about the meaning of a rule, I will request clarification from my operations manager.

_____

Employee Name

_____

Employee Signature

_____

Location

_____

Date

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Vancouver Energy
3.1 - Emergency Response Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590
30 April 2015

Prepared for

Tesoro Savage Petroleum Terminal LLC
5501 NW Old Lower River Road
Vancouver, Washington 98660

Prepared by

ERM West, Inc.
136 East South Temple, Suite 2150
Salt Lake City, Utah 84111

Revision Summary

No.	Date	Edits/Comments
00	30 April 2015	Submittal for Application Review

Vancouver Energy
Emergency Response Plan (Section 3.1)

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In the event of an emergency:

CALL 911

Then

CALL Port of Vancouver on-duty Security Officer at 360-922-1120

The address for this facility is:

Vancouver Energy

5501 NW Old Lower River Road

Vancouver, Washington 98660

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1. General Information

1.1 Facility Description

Vancouver Energy (Facility) provides transloading services for pipeline quality crude oil from railcars to aboveground storage tanks (ASTs) and from ASTs to marine vessels through interconnected pipelines. The Facility is located at 5501 NW Old Lower River Road, Vancouver, Washington; situated at the Port of Vancouver USA (Port) on the north bank of the Columbia River at approximately River Mile 103.5.

Operations at the Facility include

- Crude oil unloading from rail tank cars to bulk crude oil ASTs
- Filling of the crude oil ASTs via dedicated pipelines
- Operation of unit trains with dedicated yard locomotives
- Crude transfer from the crude oil ASTs to the Marine Terminal via dedicated pipelines

The Facility is approximately 47.4 acres in size and comprises elements within the following “area” groupings, as illustrated in the vicinity map and site plan shown in Figures 1 and 2 (in Section 1.2), respectively.

- Area 200 – Rail Unloading Building and Administration– located at Terminal 5 of the Port
- Area 300 – Storage Area (ASTs) – located at Parcel 1A of the Port
- Area 400 – Marine Terminal – located at Berths 13 and 14 of the Port
- Area 500 –Transfer Pipelines – located in locations between areas 200, 300, and 400
- Area 600 – West Boiler– located at Terminal 5 of the Port
- Rail Infrastructure – located at Terminal 5 of the Port

The Facility receives up to an average of four unit trains per day of crude oil and unloads up to an average of approximately 360,000 barrels (bbl) per day. Six nominal capacity 400,000 bbl tanks are used to store crude oil on site. A transfer pipeline system conveys crude oil from Area 200 to Area 300 for storage and from Area 300 to Area 400 for vessel loading. The transfer pipeline system can also be operated to move crude oil from Area 200 directly to Area 400. The Facility operates 24 hours per day, 7 days per week. The Facility is staffed with a total of up to approximately 48 employees on site during operational hours.

The area surrounding the Facility primarily consists of mixed-use industrial properties. The site is bounded on the north by NW Lower River Road, to the south by the Columbia River, to the east and west by industrial facilities. Example neighboring industrial facilities include Tidewater, Kelly Steel, Farwest Steel, CPU River Road Generating Plant, CalPortland, and the Subaru car lot. The Clark County Jail Work Center (JWC) is located between Area 200 and Area 400. The JWC is considered a residential facility. All Facility areas are located within the Port, which is in various states of industrial development.

Depending on the magnitude of a potential major emergency incident, the closure of surrounding roads may be required. Closure of surrounding roads would be under the direction of the lead response agency, such as the Clark Regional Emergency Services Agency (CRESA) or Vancouver Fire Department.

Traffic associated with the Facility primarily accesses the west end of Terminal 5 via NW Lower River Road (State Route 501 [SR 501]) to the west, NW Old Lower River Road to the south, and the Old Alcoa facility access road to the east. A limited amount of site traffic and all construction-related traffic use NW Gateway Avenue from NW Lower River Road (SR 501), as well as a private access drive just east of the Farwest Steel Corporation building.

Key roadways in the vicinity of the proposed Facility include

- State Route 501—Washington State Department of Transportation (WSDOT) operates and maintains SR 501. Beginning west of Interstate 5, this highway heads west out of the downtown Vancouver area as Mill Plain Boulevard and then transitions into NW Lower River Road, west of the Fourth Plain Boulevard/Mill Plain Boulevard intersection. As Mill Plain Boulevard, the highway operates as a one-way couplet through the downtown area before transitioning into a two-way, five-lane road west of Franklin Street. The roadway has urban design features, including landscaped medians, bicycle lanes, and sidewalks. West of the Fourth Plain Boulevard intersection, the highway becomes more rural in nature, where it reduces to two travel lanes with left-turn lanes provided at major intersections. The highway generally has wide paved shoulders and fog line striping for bicycle travel, and there is a multi-use path at intermittent locations along the south side of the road. Construction of a multi-purpose path is currently underway that would connect from the intersection of Mill Plain and Fourth Plain Boulevards at NW Lower River Road, to NW Gateway Avenue. Continued buildout of the Port would prompt this path to be extended to the Flushing Channel.
- NW Gateway Avenue—NW Gateway Avenue is the main entrance to the Port Terminal 5. The roadway is a private road with two travel lanes and partial sidewalks; on-street parking is allowed.
- Old Lower River Road—Old Lower River Road leads to the west end of Port Terminal 5 as it extends south from NW Lower River Road (SR 501). The roadway continues west to provide access to local industrial businesses before it circles back to SR 501 to the northwest. It is a public local road with two lanes of travel, no sidewalks or bicycle lanes, and no on-street parking.
- Old Alcoa Access Facility Road—The Old Alcoa access facility road extends east from where Old Lower River Road turns southbound to westbound. This private road has two travel lanes, a posted speed of 15 mph, and no sidewalks. It leads east to the NGL Energy Partners LP propane supply facility and a gate that prevents further travel east. This roadway serves as the primary local access road for the Facility.

1.1.1 Facility-Wide Fire/Safety Systems Overview

Firefighting equipment is installed and maintained throughout the Terminal and includes automatic and engineered controls, to allow control of fires should they occur. Fire suppression equipment and systems are designed to National Fire Protection Association (NFPA) and American Petroleum Institute (API) requirements, the more stringent Factory Mutual Global insurance requirements, and state and local regulations. Buildings are fireproofed, and emergency egress is provided in accordance with applicable fire and building codes. All automatic fire suppression systems are designed to activate automatically and will be equipped with manual trip stations. The design of fire suppression systems for each Facility area is discussed below.

Fire suppression systems, linear heat detection, manual release stations, and gas monitors are connected to local audible alarms and visual strobes located in areas 200, 300, 400, and 600. Each area has its own fire alarm system control panel that transmits to a supervising station at the e-house/control room for each area. **All alarm signals will also initiate the audible and visual alarm, transmit the alarm signal to the supervising station, and shut down the transfer operation, with all crude oil transfer valves closing within 30 seconds.**

The Facility also has a facility-wide fire/evacuation alarm that is activated from the Area 200 Control Room. Section 1.11 contains additional information about the facility alarms.

1.1.2 Area 200 – Fire/Safety Systems Overview

Area 200 (Rail Unloading Building and Administration), shown in Figure 4 (in Section 1.2), encompasses the main office, the employee change building, the rail off-loading structure, five e-houses (containing electrical equipment), the main control room, and a fire pump/foam building.

The railcar unloading area is served with a foam fire extinguishing system. A closed-head foam-water pre-action sprinkler system is installed inside the rail unloading structure at the roof level, under walkways (as required by code) and in the pump basin areas. The structure is divided into five zones; each zone will be

activated either manually from the foam manual release stations or automatically from the linear heat detection installed at the roof level and at the pump basin level for that associated zone. The pump basins are located in the center of each zone respectively between the tracks. Note that this system is a closed-head pre-action foam-water system; therefore, foam-water solution will only be discharged once the fire is large enough to activate the linear heat detection, trip the valve and then activate the sprinklers above the fire. In the event of a fire, foam would be used to control and extinguish the crude oil pool fire and will also provide cooling to the railcars and any adjacent equipment or building elements.

Manual foam release stations are located at the base and at the top of the stairs of the rail unloading structure and at every egress point of the rail unloading structure.

A closed-head wet-pipe sprinkler system (water only, no foam) is provided for the Fire Pump/Foam Building in accordance with NFPA 20, Section 4.12.1.1.2. The wetpipe system contains water under pressure; therefore, when a fire starts and grows large enough to trip a sprinkler at the ceiling/room, a sprinkler or sprinklers are expected to control the fire.

Manual fire pull stations are surface mounted, and typically located within 5 feet of every egress point, near the fire alarm control panel in the rail unloading structure and at exits from the fire pump/foam buildings and e-houses. These manual pull stations, when manually activated, will send an alarm signal to the fire alarm panel, activate the audible and visual alarms and transmit the alarm signal to the supervising station.

The system includes linear heat detectors, gas detectors, temperature monitors, pump monitors, automatic exterior alarm horns and strobes, manual alarm stations, automatic and manual foam release systems, and tamper-resistant systems. The manual foam release stations are mounted on catwalks near stairway exit paths. All systems interface with the Area 200 control room.

Fire hydrants supplied by the City of Vancouver water distribution system are located on the south side of the rail unloading structure, spaced at 300 foot intervals and are accessible to fire department apparatus. The office and support buildings are equipped with ABC-type fire extinguishers.

Hydrogen sulfide (H_2S) and lower explosive limit (LEL) monitors are located at each unloading station. H_2S, LEL, and oxygen (O_2) monitors are located in each pump pit basin. The high and low alarm set-points for the gas detector system are as follows.

Gas Detector	Low Alarm	High Alarm
H_2S	10 ppm	15 ppm
LEL	10% LEL	30% LEL
O_2	19%	24%

Eyewash and emergency shower stations are located near the pump pits and in the control room.

1.1.3 Area 300 – Fire/Safety Systems Overview

Area 300 (Storage Area), shown in Figure 5 (in Section 1.2), contains six crude oil ASTs. Area 300 also has a Fire Pump/Foam Building, Storage Building, e-house, and pump basin. All tanks are located inside a perimeter dike capable of containing 110 percent of the volume of the largest tank plus precipitation from a 24-hour, 100-year storm event. The tanks are positioned so that the distance between each tank is at least 120 feet in all directions. The distance from the tank to the dike varies from 33 to 150 feet.

An automatic fixed foam system is provided for each storage tank to protect the seal area of the internal floating roof. This system will be activated by the linear heat detection system installed at the foam dam of the floating roof or by the manual foam release stations associated with each respective tank. These

automatic fixed foam systems are specifically designed to control a potential fire inside a tank. The linear heat detection cable located around the foam dam is connected to the fire alarm system.

Manual foam release stations are located at the base of the stairs on the tanks, at the top of the dike near the closest fire hydrant for each tank, and on a bank of release stations located at the foam/pump house.

The fire pump/foam building is equipped with a closed-head wet-pipe sprinkler system (water only, no foam) in accordance with NFPA 20, Section 4.12.1.1.2. The wetpipe system contains water under pressure, therefore, if a fire starts and grows large enough to trip a sprinkler at the ceiling/room, a sprinkler or sprinklers are expected to control the fire.

Manual fire pull stations are surface mounted, and typically located at every exit from the fire pump/foam buildings and e-houses within Area 300. These manual pull stations, when manually activated, will send an alarm signal to the fire alarm panel, activate the audible and visual alarms and transmit the alarm signal to the supervising station.

Fire hydrants for fire department use are located around the perimeter of Area 300, spaced at 300-foot intervals. Two fire hydrants are located inside the dike area near the intersection of the intermediate dikes. These fire hydrants include a monitor nozzle that can be used to cool the tanks, reduce potential fire exposure and apply the self-healing biodegradable foam.

Each fire hydrant is equipped with a monitor nozzle and foam eductor and pick-up line that can be placed in a bucket, pail or other portable device of foam concentrate, which will draw foam concentrate from the pail/container to generate a foam solution. The flow of water from these monitor nozzles are provided to create a cooling effect on the tank wall. The foam eductor provided on each monitor nozzles will allow the fire hydrant to spray a foam water solution and control a small pool fire within the dike area. A predetermined size of foam concentrate will be kept in the Fire Pump/Foam Building. When the need arises for its use, such as a small spill or rubbish fire, the foam concentrate will be taken to the appropriate fire hydrant and the hose will be placed in the bucket, pail or other portable device. The nozzle will draw the foam in at the manufacturer determined proportioning rate to achieve the desired concentration of foam/water solution.

Additionally, an elevated monitor nozzle supplied with foam-water from the Fire Pump/Foam Building is located near the crude oil pump basin with the primary purpose of providing manual fire suppression to the pump basin. This monitor nozzle for the crude oil pump basin is capable of providing a 3 percent foam application to the pump basin area. Utilizing a flow rate of 750 gallons per minute will provide coverage of the crude oil pump basin.

Hydrogen sulfide (H_2S), LEL, and O_2 monitors are located in the pump basin. The high and low alarm set-points for the gas detector system are as follows:

Gas Detector	Low Alarm	High Alarm
H_2S	10 ppm	15 ppm
LEL	10% LEL	30% LEL
O_2	19%	24%

Eyewash and emergency shower stations are located in the storage building and on the north side of the e-house.

1.1.4 Area 400 – Fire/Safety Systems Overview

Area 400 (Marine Terminal Area), shown in Figure 6 (in Section 1.2), consists of berths 13 and 14, the control room/e-house, and the fire pump/foam building. Safety measures include automatic shutoff

valves, a line to return crude to the storage tanks, a marine vapor combustion unit, floating booms and manual fire protection features. Berth 14 is used for storage of and access to the boat that deploys the boom in the water around the vessel. There are no crude unloading operations planned for Berth 14. Other structures located at the Marine Terminal Area include a control room/e-house, vapor blower staging unit, fire pump/foam building, and a dock safety unit.

Two elevated fire monitors are installed at the marine loading dock. The monitor nozzles are supplied from a Pre-Action Foam System located in the fire pump/foam building. Activation of the foam-water monitor nozzles is by manual foam release stations located in the e-house and throughout Area 400. The controller for the nozzles will be located in the e-house located shore side. A fire hydrant is provided for fire department use near Area 400, supplied by the City of Vancouver water distribution system. This system is primarily for fires on the berth, but can be used to assist in the event of a vessel fire. Manual foam release stations are located at the loading berth.

The fire pump/foam building is equipped with a closed-head wet-pipe sprinkler system (water only, no foam) in accordance with NFPA 20, Section 4.12.1.1.2. The wetpipe system contain water under pressure, therefore, if a fire starts and grows large enough to trip a sprinkler at the ceiling/room a sprinkler or sprinklers are expected to control the fire.

Manual fire pull stations are surface mounted, and typically located at every exit from the fire pump/foam buildings and e-houses for Area 400. These manual pull stations, when manually activated, will send an alarm signal to the fire alarm panel, activate the audible and visual alarms and transmit the alarm signal to the supervising station.

The vessels berthing at the Marine Terminal are required to have on-board fire protection systems, as well as contracts with commercial marine firefighting companies, to respond in the event of a shipboard fire.

Eyewash and emergency shower stations are located on the east and west sides of Berth 13.

1.1.5 Area 500 – Fire/Safety Systems Overview

Area 500 (Transfer Pipelines) consist of transfer pipelines that run between areas 200, 300, and 400. The transfer pipelines are mainly aboveground and on supports. Where required to avoid interferences or cross over rail track, the pipeline is underground and is encased in a secondary containment pipe.

The pipeline area is served by existing and new (as constructed to serve specific Facility areas) fire hydrants in the vicinity of the pipeline alignment.

1.1.6 Area 600 – Fire/Safety Systems Overview

Area 600 (West Boiler), shown in Figure 7 (in Section 1.2), contains a boiler building with a natural-gas boiler. The boiler is utilized to generate steam for heated crude unloading operations inside Area 200. Area 600 also includes an e-house.

The boiler building and surrounding area are served by adjacent fire hydrants. Smoke detectors, automatic and manual alarms, and hand held fire extinguishers are located as appropriate inside and outside the boiler building as required by local fire code. Based on the construction type and occupancy classification, sprinkler systems are not necessary for fire control in the Area 600 boiler building.

Eyewash and emergency shower stations are located along the east, south, and west walls of the boiler building.

1.1.7 Rail Infrastructure – Fire/Safety Systems Overview

The rail infrastructure operated by the Facility is served by fire hydrants in the vicinity of the rail loop alignment. An overpass exists over the rail line on the east side of the rail loop; emergency services could use this overpass to access the interior of the rail loop.

1.2 Site Maps/Figures

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Figure 7B. Area 600 – Life Safety Plans

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Figure 1 - Vicinity Map

LEGEND

- Project Boundary
- Vancouver, WA
- Portland, Oregon

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Date: April 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

N

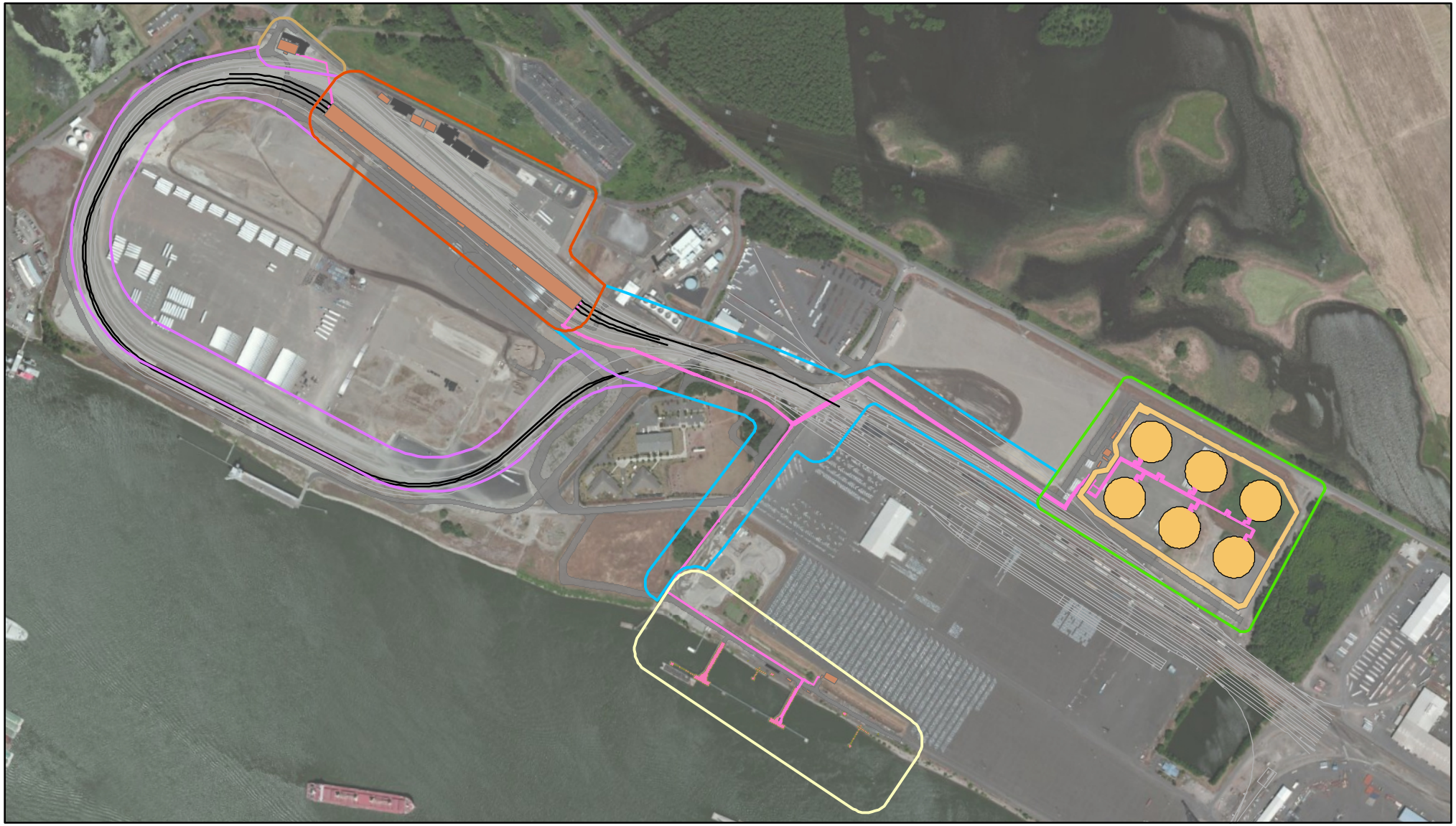

Figure 2 - Site Plan

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Proposed Project Facilities

- Containment Berm
- Rail
- Parking
- Building
- Transfer Pipeline
- Storage Tank
- Roads
- Marine Terminal

TSPT Improvement Areas

- 200 - Unloading and Office
- 300 - Storage
- 400 - Marine Terminal
- 500 - Transfer Pipelines
- 600 - West Boiler
- Rail Infrastructure

0 250 500 1,000 Feet

N

Date: February 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

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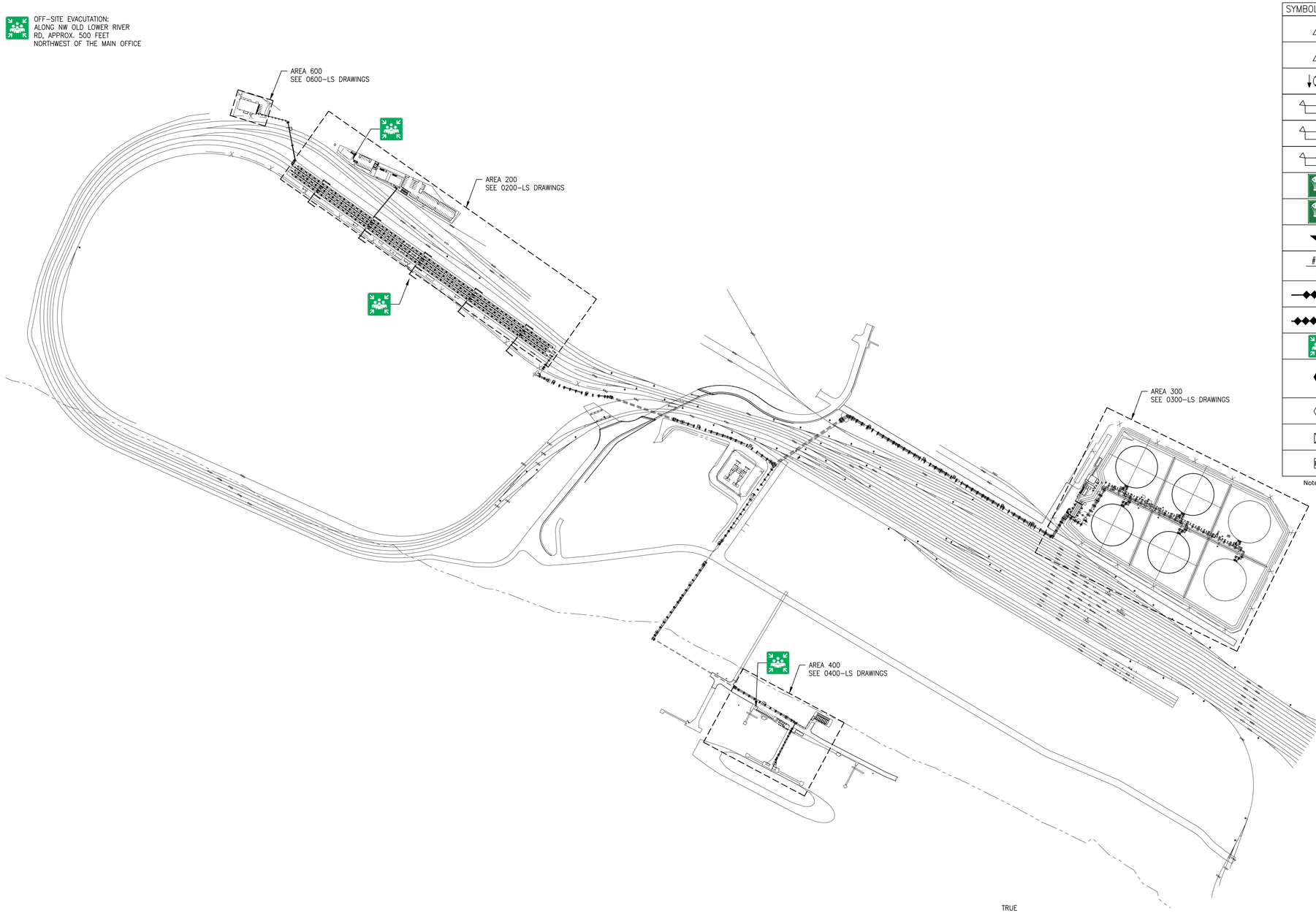


1 LIFE SAFETY SITE PLAN
SCALE: 1" = 300'

SYMBOLS LEGEND	DESCRIPTION	PROTECTIVE ELEMENTS
	DRY CHEMICAL EXTINGUISHER – ABC TYPE	
W	DRY CHEMICAL EXTINGUISHER – ABC TYPE – WHEELED	
	ILLUMINATED EXIT SIGN	
	EMERGENCY LIGHT – BATTERY POWERED	
EP	EMERGENCY LIGHT – BATTERY POWERED – EXPLOSION PROOF	
	COMBINED BATTERY POWERED EMERGENCY LIGHT AND ILLUMINATED EXIT SIGN	
	EYE WASH STATION – HEATED	
P	EYE WASH STATION – PORTABLE	
	EXIT – EXTERIOR	
#/#" / #"	ACCUMULATED EXIT WIDTH AT REQUIRED EXIT (CLEAR WIDTH)	OCCUPANTS / REQUIRED WIDTH PROVIDED WIDTH (BASED ON MOST RESTRICTIVE EXIT COMPONENT)
	2 HOUR FIRE BARRIER	
	3 HOUR FIRE BARRIER	
	MUSTER POINT	
X	GAS DETECTOR	GAS DETECTOR SETTINGS: CH4: LOW/10%LEL HIGH/30%LEL H2S: LOW/10ppm HIGH/15ppm O2: LOW/19% HIGH/24%
	SMOKE DETECTOR	
	HORN/STROBE	
FO	FOAM RELEASE MANUAL SWITCH	

Note: Final drawings will include locations of windsocks, first aid kits, automated external defibrillators, and spill response materials.

GENERAL NOTES:

1. THESE DRAWINGS ARE CONCEPTUAL IN NATURE AND ARE ONLY MEANT TO SHOW THE DESIGN INTENT.
2. THE EQUIPMENT PLACEMENT SHOWN IS FOR DIAGRAMMATIC PURPOSES ONLY. THE ENGINEER RESPONSIBLE FOR THE INSTALLATION SHALL MAKE ANY FINAL DETERMINATIONS ON DEVIATIONS FROM THIS LAYOUT.
3. ALL EQUIPMENT TO BE INSTALLED SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (2012), INTERNATIONAL FIRE CODE (2012), NFPA 10 (2010), NFPA 30 (2012), ANSI Z358.1 (2009), AND OTHER APPLICABLE CODES AND STANDARDS, OR AS REQUIRED BY THE "AHJ".
4. EXTINGUISHERS LOCATED IN E-HOUSES ARE ALLOWED TO BE CO_2.
5. FIRE EXTINGUISHERS LOCATED OUTSIDE OR EXPOSED TO WEATHER SHALL BE PROTECTED BY AN ENCLOSURE OR PROTECTIVE COVER.

Poole Fire Protection
19910 West 161st Street
Olathe, KS 66062
www.poolefire.com
913.829.8650 office ▲ 913.829.8690 fax

JOHN W. POOLE III
STATE OF WASHINGTON
34993
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CK'D	APP

BergerABAM
700 NE Multnomah Street, Suite 900
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

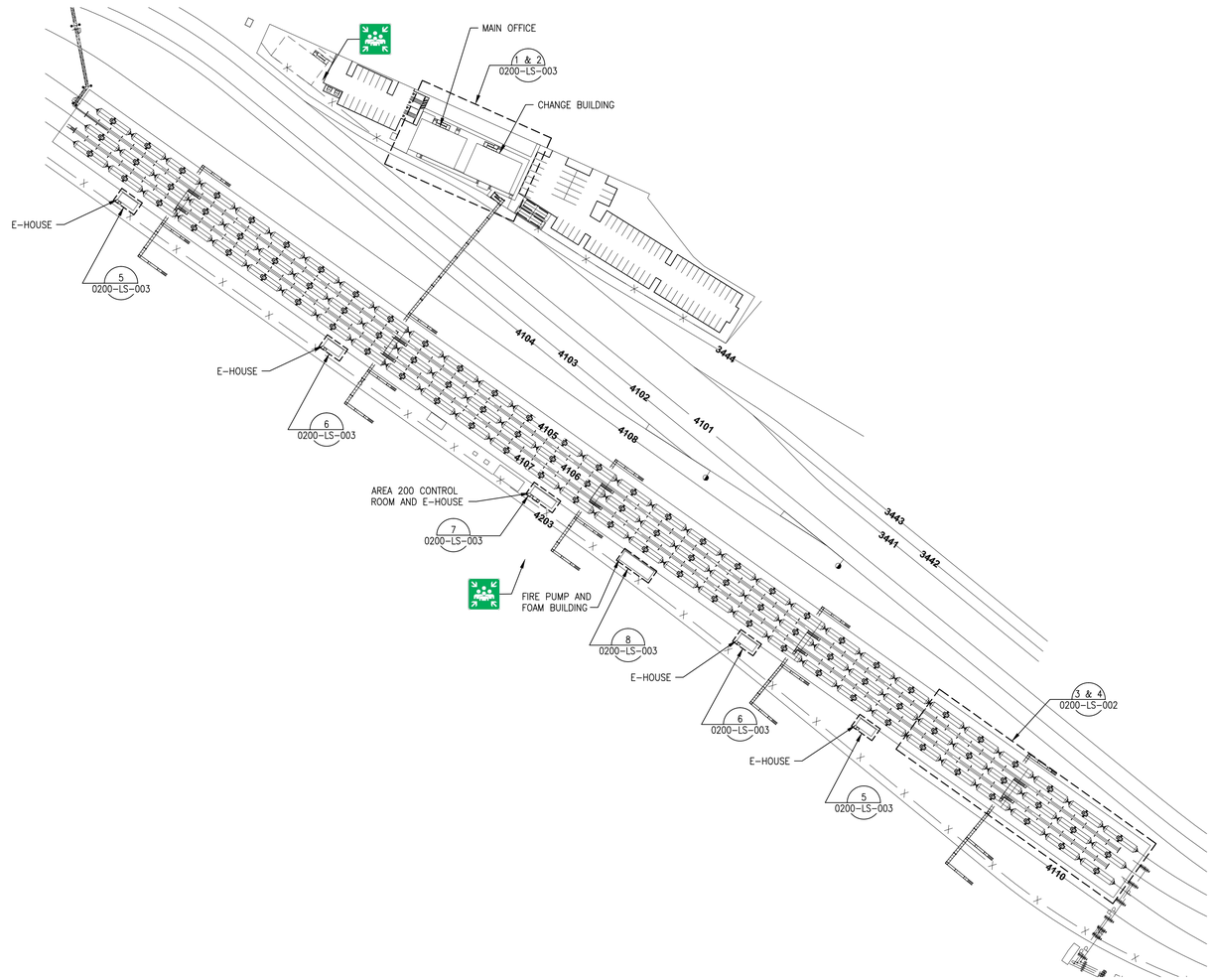
VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

PROJECT:
TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	3/31/2014	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

DRAWING NUMBER	SHEET	REV.
0100-LS-001	1/1	A



1 AREA 200 – LIFE SAFETY SITE PLAN

SCALE: 1" = 100'

0 100' 200'

TRUE NORTH

Poole Fire Protection
19910 West 161st Street
Olathe, KS 66062
www.poolefire.com
913.829.8650 office ▲ 913.829.8690 fax

PERMIT SET
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CK'D	APP

BergerABAM
700 NE Multnomah Street, Suite 900
Portland, Oregon 97232-4189
(503) 872-4100 FAX: (503) 872-4101

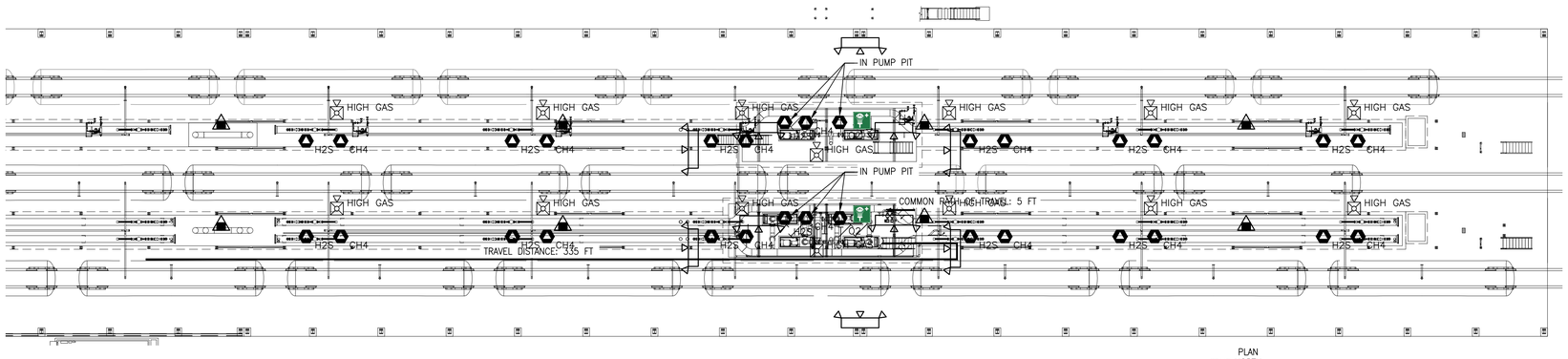
VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

PROJECT: TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION: AREA 200 – LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

DRAWING NUMBER	SHEET	REV.
0200-LS-001	1/1	A

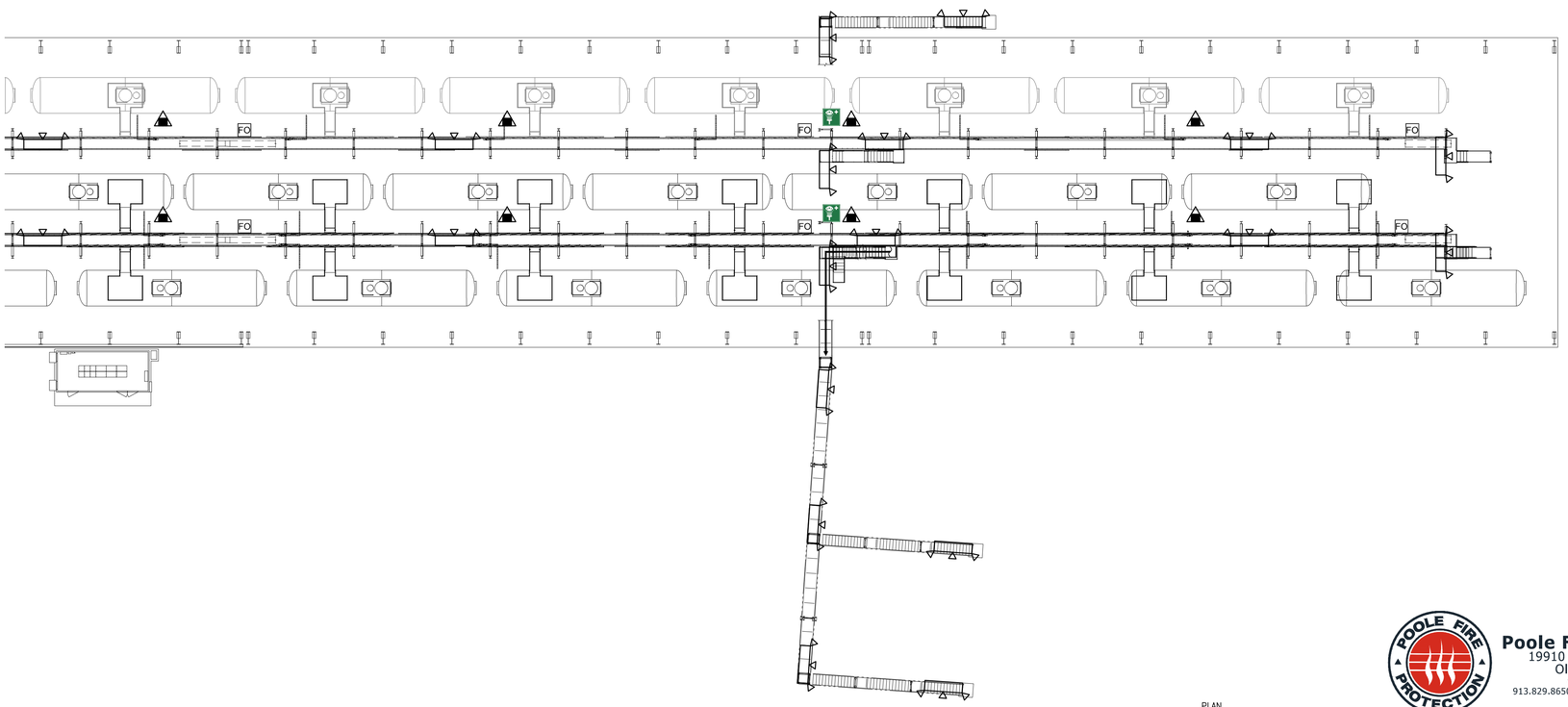


3 AREA 200 – TYPICAL LIFE SAFETY UNLOADING BUILDING PLAN @ T/RAIL EL 32'–6"

SCALE: 1" = 20'

0 20' 40'

TRUE NORTH PLAN NORTH



4 AREA 200 – TYPICAL LIFE SAFETY UNLOADING BUILDING PLAN @ EL 57'–8"

SCALE: 1" = 20'

0 20' 40'

TRUE NORTH PLAN NORTH

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JOHN W. POOLE III
STATE OF WASHINGTON
14993
REGISTERED PROFESSIONAL ENGINEER

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VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

PROJECT:
TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
AREA 200 – TYPICAL LIFE SAFETY UNLOADING BUILDING PLANS

DESIGN:	R. BENNETT	START DATE:	4/29/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04–30–2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36

DRAWING NUMBER	SHEET	REV.
0200–LS–002	1/1	A

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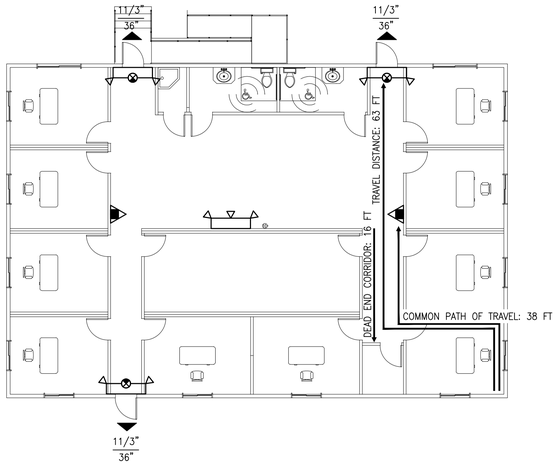
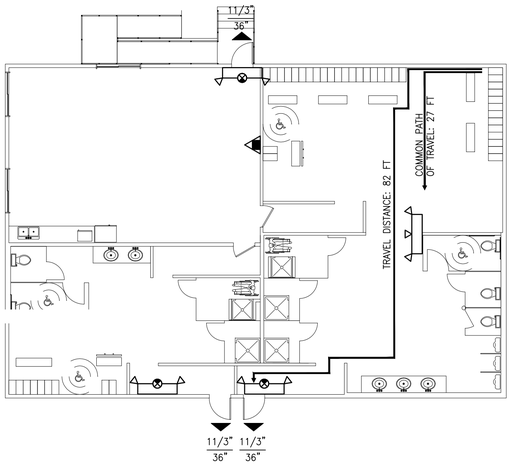
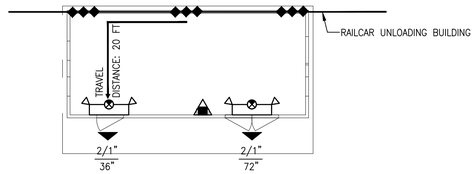


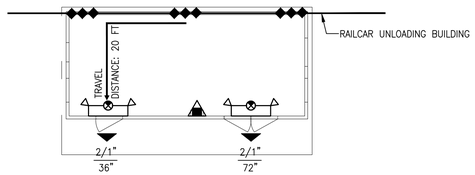
1 AREA 200 – LIFE SAFETY OFFICE BUILDING PLAN
SCALE: 1" = 10'
0 10' 20'
PLAN TRUE NORTH



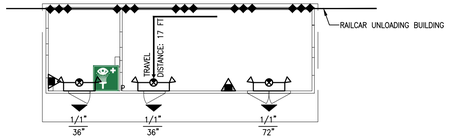
2 AREA 200 – LIFE SAFETY CHANGE BUILDING PLAN
SCALE: 1" = 10'
0 10' 20'
PLAN TRUE NORTH



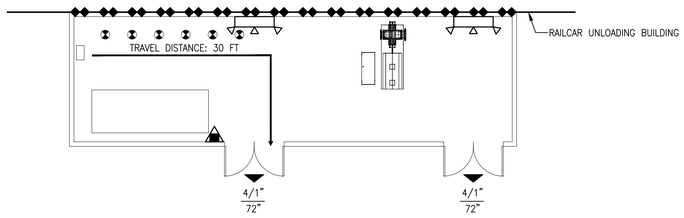
5 AREA 200 – LIFE SAFETY E-HOUSE 1 & 5 PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN TRUE NORTH



6 AREA 200 – LIFE SAFETY E-HOUSE 2 & 4 PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN TRUE NORTH



7 AREA 200 – LIFE SAFETY CONTROL ROOM/E-HOUSE 3 PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN TRUE NORTH



8 AREA 200 – LIFE SAFETY FIRE PUMP AND FOAM BUILDING PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
PLAN TRUE NORTH

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Portland, Oregon 97232-4189
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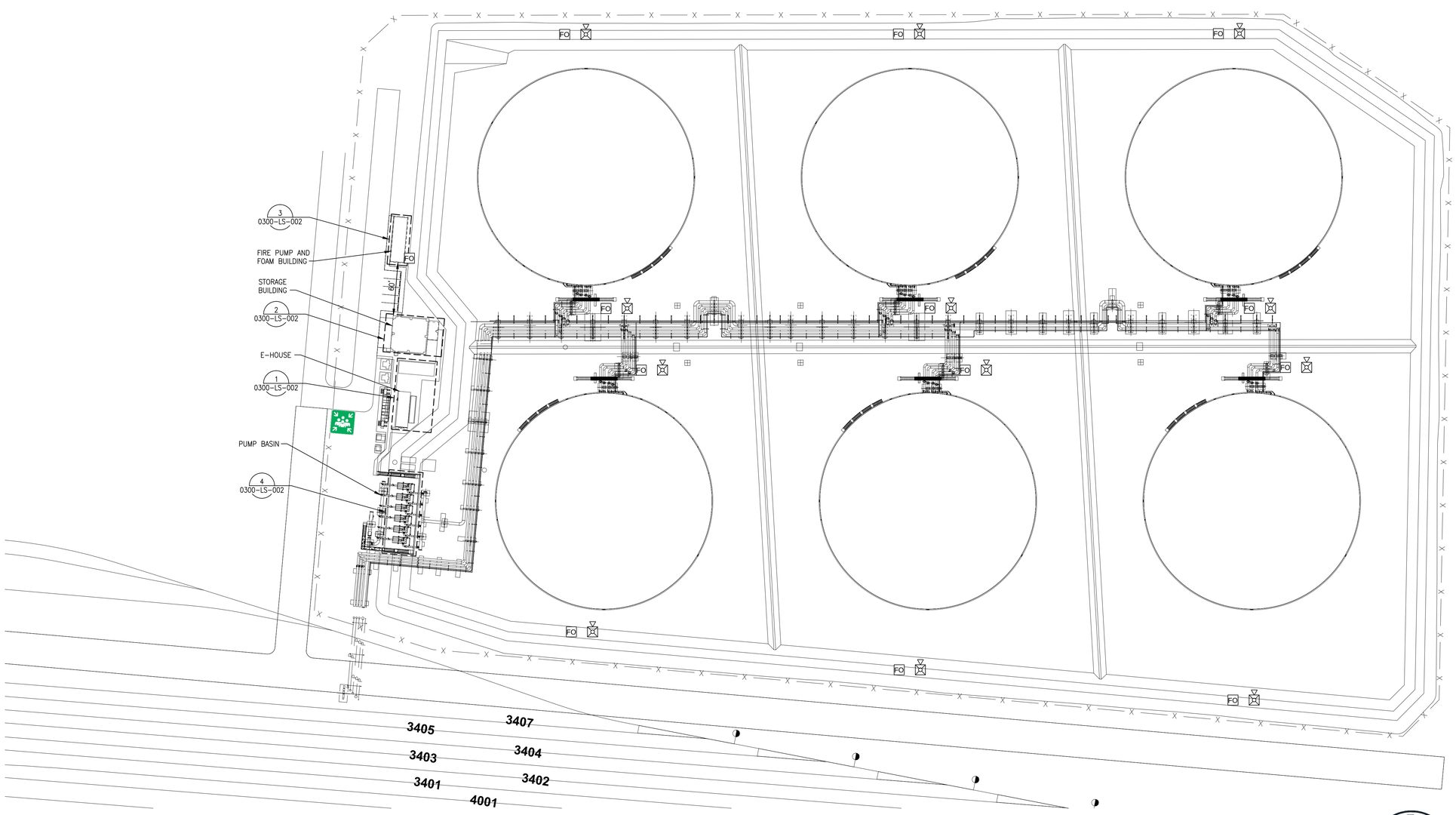
VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

PROJECT:
TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
AREA 200 – LIFE SAFETY PLANS

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36
DRAWING NUMBER				SHEET	REV.
0200-LS-003				1/1	A



1 AREA 300 – LIFE SAFETY SITE PLAN

SCALE: 1" = 60'

0 60' 120'

TRUE NORTH

PLAN NORTH

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JOHN W. POOLE III
STATE OF WASHINGTON
34993
REGISTERED
PROFESSIONAL ENGINEER

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PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
AREA 300 – LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
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DRAWING NUMBER	SHEET	REV.
0300-LS-001	1/1	A

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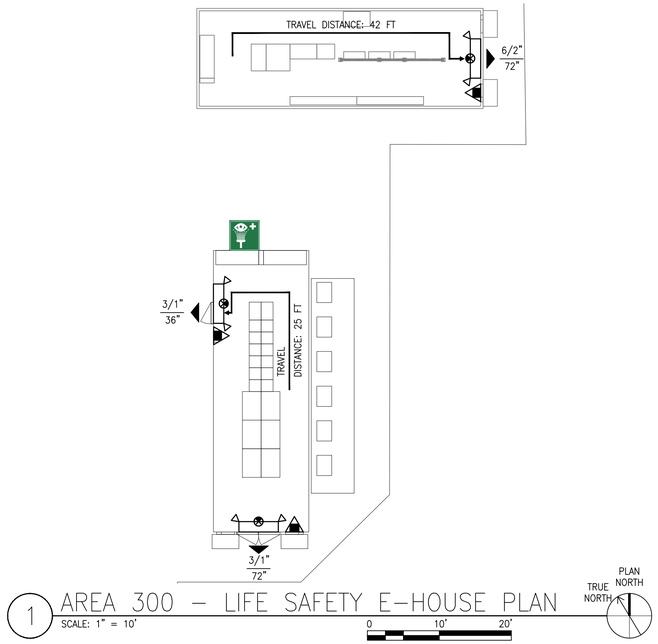
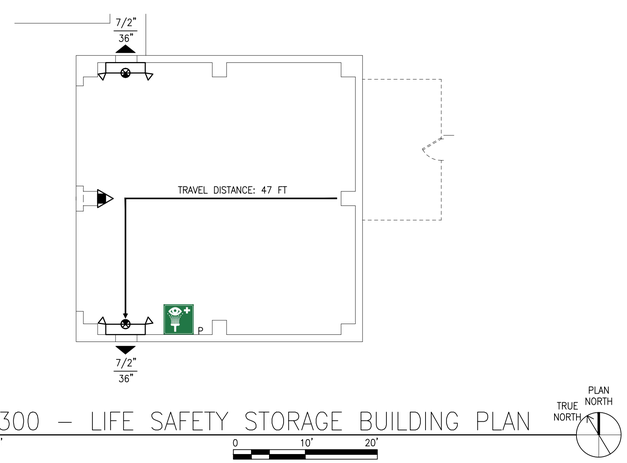
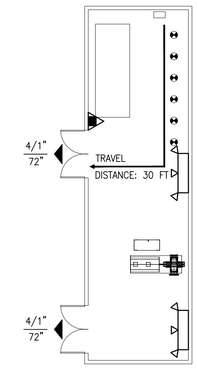


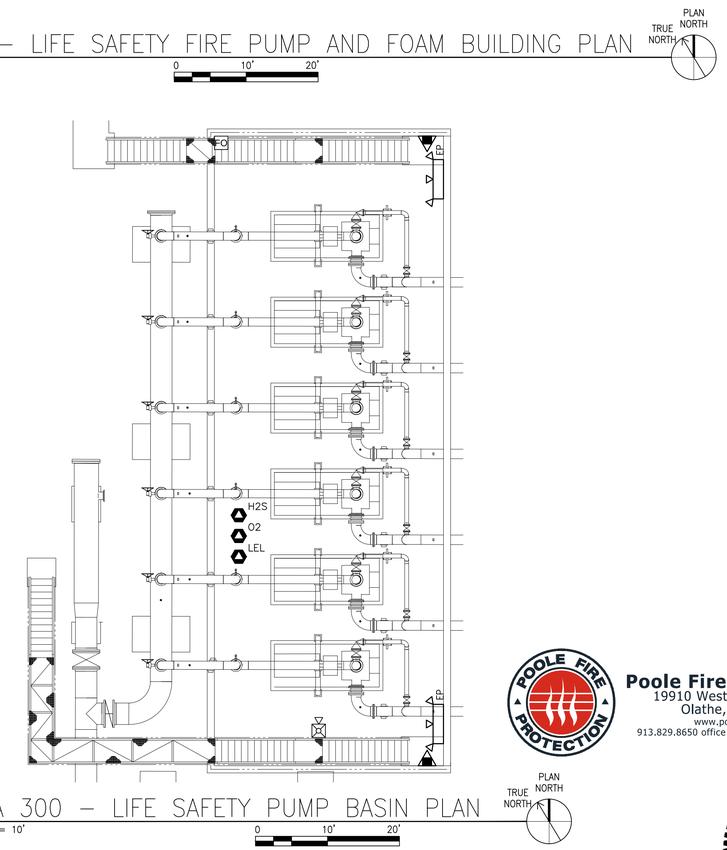
1 AREA 300 – LIFE SAFETY E-HOUSE PLAN
SCALE: 1" = 10'



2 AREA 300 – LIFE SAFETY STORAGE BUILDING PLAN
SCALE: 1" = 10'



3 AREA 300 – LIFE SAFETY FIRE PUMP AND FOAM BUILDING PLAN
SCALE: 1" = 10'



4 AREA 300 – LIFE SAFETY PUMP BASIN PLAN
SCALE: 1" = 10'

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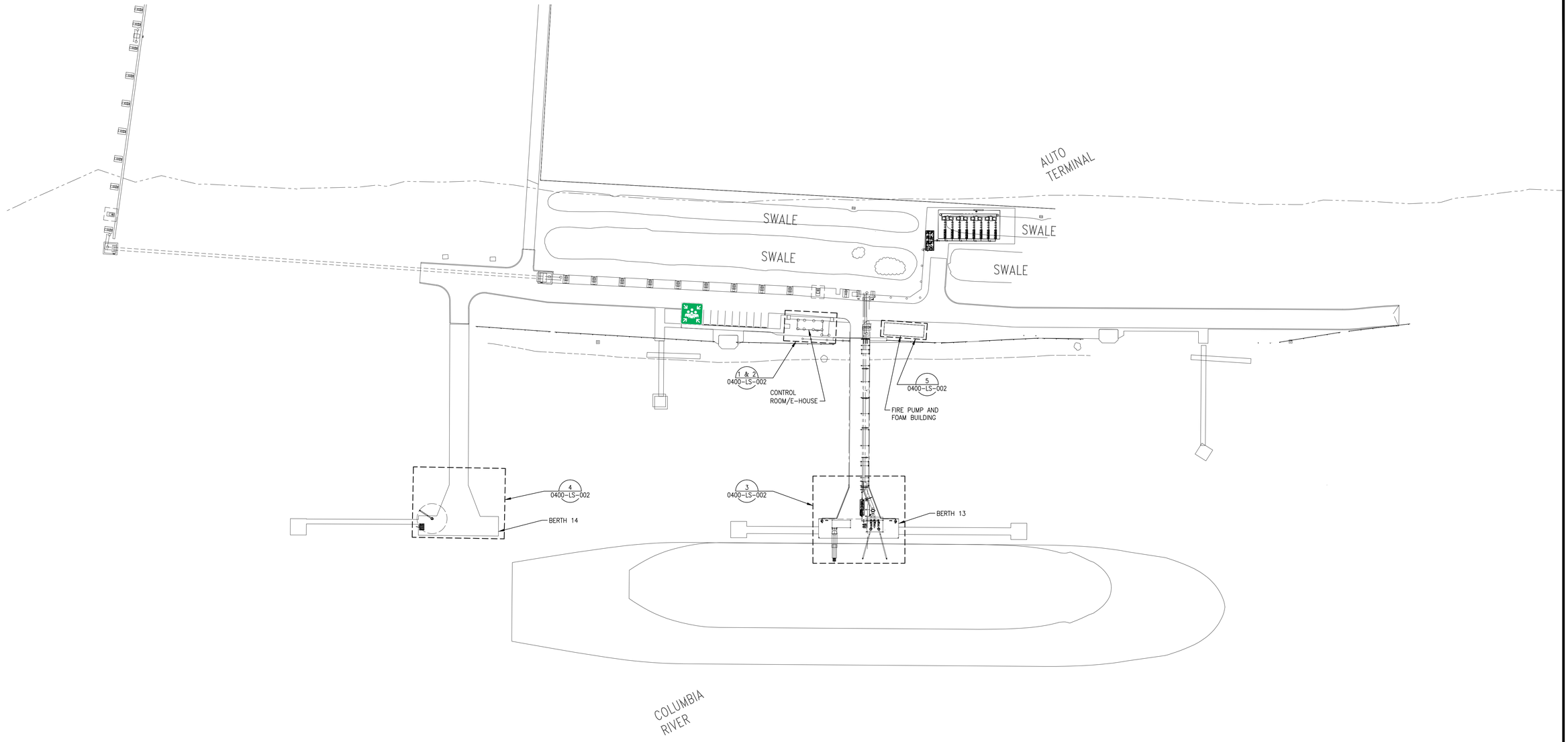
VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

PROJECT:
TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
AREA 300 – LIFE SAFETY PLANS

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36
DRAWING NUMBER				SHEET	REV.
0300-LS-002				1/1	A



1 AREA 400 – LIFE SAFETY SITE PLAN

SCALE: 1" = 60'

0 60' 120'

TRUE NORTH

PLAN NORTH

Poole Fire Protection
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JOHN W. POOLE III
STATE OF WASHINGTON
14993
REGISTERED
PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

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Portland, Oregon 97232-4189
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VANCOUVER ENERGY
Tesoro Savage Petroleum Terminal LLC

PROJECT: TESORO SAVEAG VANCOUVER ENERGY DISTRIBUTION TERMINAL
PORT OF VANCOUVER, WASHINGTON

DESCRIPTION: AREA 400 – LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	4/29/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
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DRAWING NUMBER	SHEET	REV.
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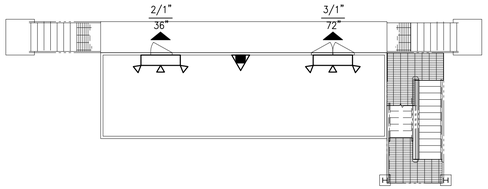
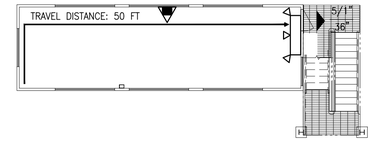


1 AREA 400 – LIFE SAFETY CONTROL ROOM/E-HOUSE BOTTOM FLOOR PLAN

SCALE: 1" = 10'

0 10' 20'

TRUE NORTH PLAN NORTH

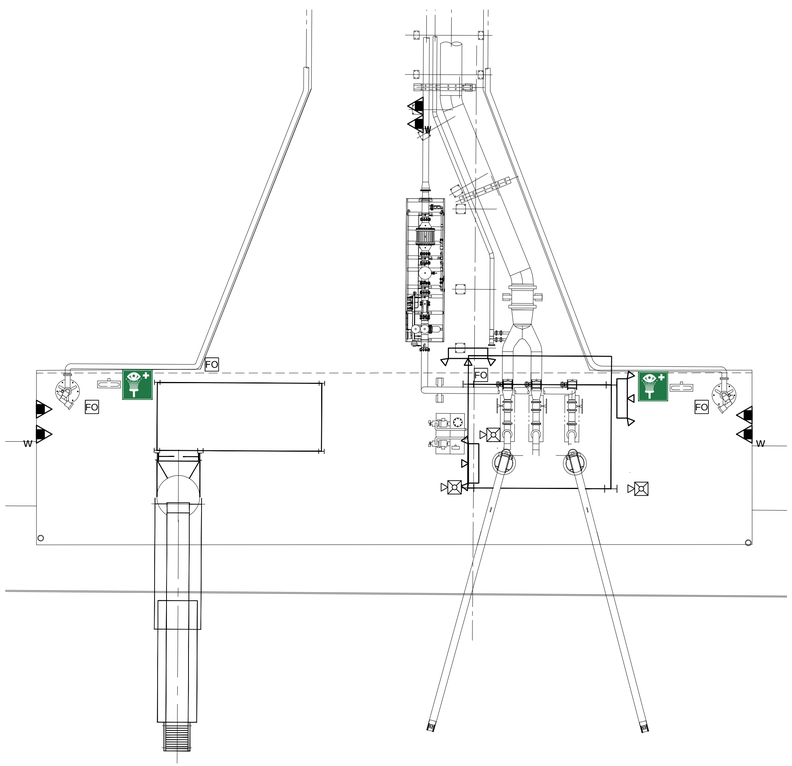


2 AREA 400 – LIFE SAFETY CONTROL ROOM/E-HOUSE UPPER FLOOR PLAN

SCALE: 1" = 10'

0 10' 20'

TRUE NORTH PLAN NORTH

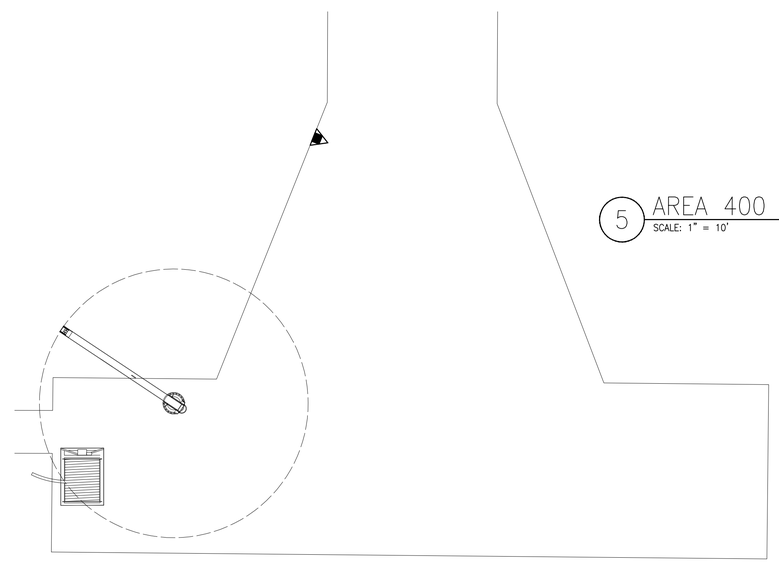


3 AREA 400 – LIFE SAFETY BERTH 13 PLAN

SCALE: 1" = 10'

0 10' 20'

TRUE NORTH PLAN NORTH

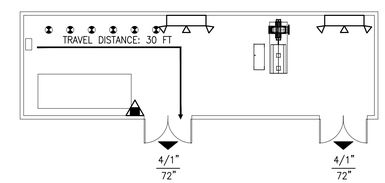


4 AREA 400 – LIFE SAFETY BERTH 14 PLAN

SCALE: 1" = 10'

0 10' 20'

TRUE NORTH PLAN NORTH



5 AREA 400 – LIFE SAFETY FIRE PUMP AND FOAM BUILDING PLAN

SCALE: 1" = 10'

0 10' 20'

TRUE NORTH PLAN NORTH

Poole Fire Protection
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JOHN W. POOLE III
STATE OF WASHINGTON
24993
REGISTERED PROFESSIONAL ENGINEER

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Tesoro Savage Petroleum Terminal LLC

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PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
AREA 400 – LIFE SAFETY PLANS

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
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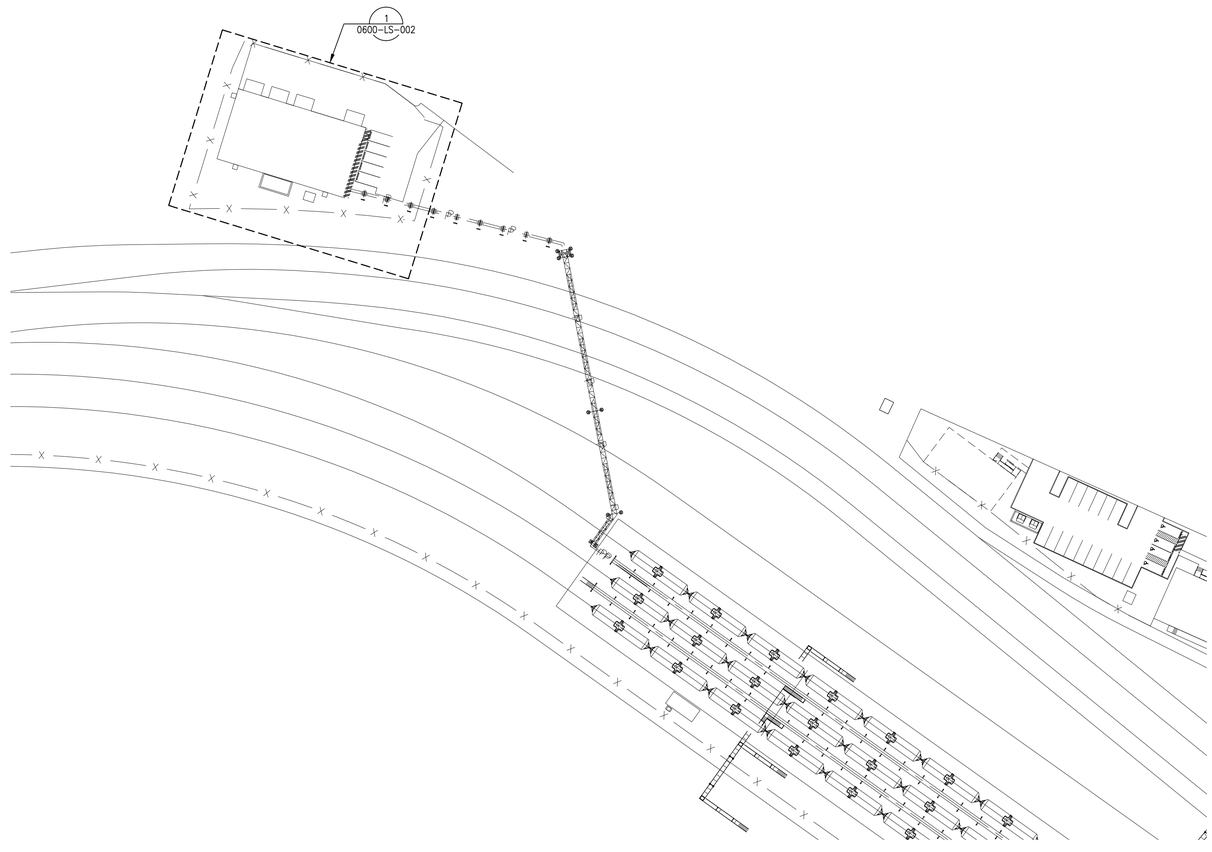
CHECKED:	J. POOLE	APPROVED:	J. POOLE	SIZE:	24x36
DRAWING NUMBER				SHEET	REV.
0400-LS-002				1/1	A



1 AREA 600 – LIFE SAFETY SITE PLAN

SCALE: 1" = 60'

0 60' 120'

TRUE NORTH

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PORT OF VANCOUVER, WASHINGTON

DESCRIPTION:
AREA 600 – LIFE SAFETY SITE PLAN

DESIGN:	R. BENNETT	START DATE:	3/30/2015	SCALE:	AS NOTED
DRAWN:	D. FLAGOR	PRINT DATE:	04-30-2015	PROJECT MANAGER:	L. POOLE
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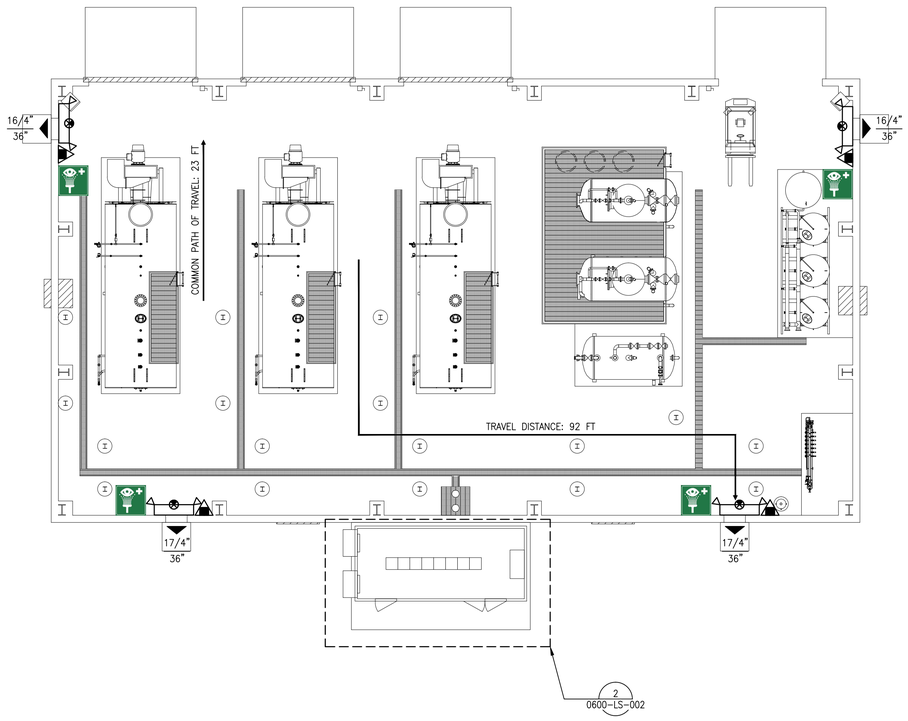


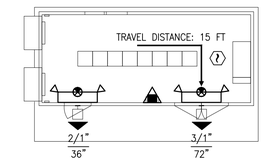
EVACUATE TO AREA 200 ASSEMBLY AREA

1 AREA 600 – LIFE SAFETY BOILER HOUSE PLAN

SCALE: 1" = 10'

0 10' 20'

TRUE NORTH / PLAN NORTH



2 AREA 600 – LIFE SAFETY E-HOUSE PLAN

SCALE: 1/8" = 1'-0"

0 4' 8' 16'

TRUE NORTH / PLAN NORTH

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PORT OF VANCOUVER, WASHINGTON

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1.3 Purpose/Scope

This emergency response plan (ERP) is to be utilized by all personnel at the Facility (including Savage and Tesoro personnel) in the event of a fire, explosion, accidental release, or other natural or man-made emergencies. The purpose of this plan is to minimize hazards to human health, the environment and property, and to protect the work force, the surrounding community, the environment and property from fire, explosion, or any unplanned sudden or non-sudden accidental release of hazardous or flammable commodities at this location, or other natural disasters. This plan covers the entire Vancouver Energy Terminal. BNSF is responsible for railcar emergency response up until the point where the BNSF engineer parks the railcars at the Facility. Once parked, the Facility is responsible for railcar emergency response until BNSF engineers take control of the empty railcars to move them off site. This ERP does not include vessels docked at the Marine Terminal or adjacent properties; however, notification and evacuation resulting from a serious emergency will be coordinated with potentially impacted parties, including BNSF, vessels, the Port, and adjacent properties.

1.4 Regulatory Mandate

This plan is designed to satisfy the requirements of state and federal emergency response planning regulations.

- WAC 296-824, Emergency Response
- 29 CFR 1910.38, Emergency Action Plan
- 29 CFR 1910.120(q), Hazardous Waste Operations And Emergency Response
- 40 CFR 355, Emergency Planning and Notification (and WAC 118-40-300) requires that facilities that have an extremely hazardous substance (EHS) present at the facility in an amount equal to or greater than its threshold planning quantity (TPQ), or facilities that have been designated for emergency planning purposes by the Governor or the State Emergency Response Commission to provide information and conduct emergency planning with the Local Emergency Planning Committee (LEPC) and State Emergency Planning Committee. This facility has does not have an EHS over the TPQ, or has not been designated for emergency planning. However, the facility will provide a copy of this ERP to the LEPC, which is the CRESA.

Under 29 CFR 1910.120(q)(1), employers who will evacuate their employees from the danger area when an emergency occurs, and who do not permit any of their employees to assist in handling the emergency, are exempt from the requirements of this paragraph if they provide an emergency action plan in accordance with 29 CFR 1910.38.

Under 49 CFR 172, Section G (Emergency Response Information), facilities where hazardous materials are loaded for transportation, stored incidental to transportation or otherwise handled during any phase of transportation must provide emergency response information. This ERP does not address provision of shipping papers for materials shipped. For materials stored and handled at the Facility incidental to transportation, the emergency response information is provided in Section 1.10.

1.5 Plan Review and Update

The Operations Manager is responsible for reviewing, updating, and distributing this ERP. The ERP will be updated frequently throughout Facility construction and updates will be documented in the Management of Change plan. Plan review and updating will be done on an annual basis or more frequently if significant changes occur at the facility that may affect the Facility's emergency response capability. The ERP will also be reviewed and updated as necessary following an incident, per the procedures in Section 3.

1.6 Implementation/Relationship to Other Plans

This ERP is part of the Vancouver Energy Operations Facility Safety Program. Other plans that are part of the Vancouver Energy Operations Facility Safety Program that are referenced herein include

- Vancouver Energy Operations Facility Safety Program Section 3.2: Operations Facility Security Plan
- Vancouver Energy Operations Facility Safety Program Section 16: Fire Protection Plan

The following plans have also been developed for emergency response at the Facility and are referenced herein.

- Vancouver Energy Operations Spill Prevention, Control, and Countermeasures Plan (SPCC)
- Vancouver Energy Operations Facility Oil Spill Contingency Plan (OSCP)

In the event that an emergency situation occurs, this ERP will be implemented immediately. It is envisioned that this ERP would be utilized for the following types of incidents.

- Fire/Explosion: Any fire, potential fire or explosion that involves a commodity which has the potential to spread, or has the potential to release flammable or toxic fumes. Any explosion or potential explosion that occurs in, on, or near the facility.
- Product Spills: Releases or potential releases (small leaks, drips and spills) of hazardous material or any material that may cause undesirable environmental damage. In the event of an oil spill, the OSCP will govern for spill response and this ERP will define procedures if evacuation is required.
- Vapor Release: Any release of flammable or toxic fumes and/or vapors, which may be hazardous to the personnel of the facility or the surrounding community.
- Acts of God (severe weather, earthquake, volcanic activity): Any incidents related to weather or acts of God, which cause the facility to be in imminent danger.
- Medical Emergencies: Injury, illness, or epidemic outbreaks.
- Security Incidents / Suspicious Activities: For security incidents, refer to the Facility Security Plan, and this ERP will define procedures if evacuation is required.
- Railcar Derail: Railcar derail incidents that result in any of the emergencies above or pose an imminent threat of an emergency situation, such as fire or release, will trigger implementation of this ERP.

This ERP is intended to be consistent with the following local plans.

- Emergency Preparedness Plan for the Port of Vancouver
- Clark County Hazardous Materials Emergency Response Plan

1.7 Coordination with Response Agencies

A copy of this ERP will be provided to Vancouver City (for the reference of the Fire Department and Police Department) and the CRESA, which is the LEPC.

The Vancouver Fire Department, Vancouver Police Department, and CRESA will be invited to participate in annual ERP drills, as described in Section 4.4.

1.8 Facility Owner/Operator Information

Facility Information	
Name of Facility:	Vancouver Energy
Site Address:	5501 NW Old Lower River Road
City, State, Zip Code	Vancouver, WA 98660
County:	Clark
Contact Name:	To Be Determined, Operations Manager
Contact Phone:	Office: To Be Determined; Mobile: To Be Determined
Facility Owner/Lessee	
Name:	Tesoro Savage Petroleum Terminal, LLC (dba Vancouver Energy)
Address:	901 W Legacy Center Way
City, State, Zip Code	Midvale, UT 94047
Telephone Number:	(801) 944-6600
Fax Number:	To Be Determined
Email Address:	To Be Determined
Property Owner	
Name:	Port of Vancouver USA
Address:	3103 NW Lower River Road
City, State, Zip Code	Vancouver, WA 98660
Telephone Number:	(360) 922-1120 (24-hour on-duty Security Officer)
Fax Number:	(360) 735-1565
Email Address:	To Be Determined

1.9 Authorization of Resources

I hereby authorize the Incident Commander(s) at this facility to commit the necessary resources in order to prevent and minimize harm to human health, the environment and property in the event of an emergency at the facility.

Name to be determined
Operations Manager
Vancouver Energy

Date

1.10 Materials on Site

The only product transferred at this facility is North American crude oil.

Material Name (Trade Name)	DOT HM Y/N	Description	UN/NA No.	DOT ER Guide No.
Crude Oil	Y	Petroleum crude oil	1267	128
Crude Oil	Y	Combustible or Flammable liquids, n.o.s.	1993	128

For the material above, which is stored and handled incidental to transportation, a copy of DOT ER Guide No.128 is included in Section 4.8.

Smaller quantities of other materials are used/stored on site to facilitate operations, including diesel fuel for operation of fire pumps, lead-acid batteries, hydraulic and engine oils, utility provided natural gas for the boilers, boiler water treatment chemicals, and fire suppression foam. Safety Data Sheets (SDSs) for all products are maintained in the Facility Main Office, Area 400 (Marine Terminal), and Area 300 (Tank Farm).

1.11 Incident Command Structure and Personnel

The Incident Command System (ICS) is a management system designed to enable effective and efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure.

The roles and responsibilities listed below define the initial ICS following an emergency. For incidents that require outside emergency response agency assistance (Vancouver Fire Department, Vancouver Police Department, CRESA, etc.), the response agency ICS will take precedent once they are on site.

1.11.1 Incident Commander (IC)

In the event of an emergency, the Operations Manager or the on-duty Shift Supervisor is empowered to act as the Incident Commander (IC). The IC will coordinate all emergency response unless relieved by an outside response agency, at which time the Shift Supervisor or Operations Manager will manage internal resources, coordination with response agencies, and communications.

The IC is responsible for directing facility personnel and resources to safely mitigate any facility emergency. See Appendix 4.2 for roles and responsibilities.

Name	Title	Office Phone	Home Phone	Cell Phone
TBD	Shift Supervisor	TBD	TBD	TBD
TBD	Shift Supervisor	TBD	TBD	TBD
TBD	Shift Supervisor	TBD	TBD	TBD
TBD	Shift Supervisor	TBD	TBD	TBD
TBD	Operations Manager	TBD	TBD	TBD

There will be an IC available (either on the premises or on call) at ALL times.

1.11.2 Safety Officer

In the event of an emergency, the Safety Manager will act as the Safety Officer. If the Safety Manager is not on site, the IC will designate an alternate Safety Officer.

Name	Title	Office Phone	Home Phone	Cell Phone
TBD	Safety Manager	TBD	TBD	TBD

1.11.3 Communications Clerk

In the event of an emergency, the following individuals are empowered to act as the Communications Clerk (in order of preference).

Name	Title	Office Phone	Home Phone	Cell Phone
TBD	TBD	TBD	TBD	TBD

1.11.4 Facility Initial Response Team

The Facility Initial Response Team (IRT) is comprised of personnel trained in first aid/CPR and fire extinguisher use/incipient fire control. As described in the OSCP, the IRT is also responsible for

- Local planning and preparation activities to enable effective response actions.
- Providing first and sustained response to a spill originating from the Facility.

In the event of an emergency, the IC may direct the IRT to provide immediate assistance to injured personnel until outside emergency services arrive. The IRT may also respond to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release, as long as there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure).

IRT employees are not trained, equipped or qualified to act beyond their training in first aid/CPR and incipient fire control. Firefighting efforts that involve uncontrolled spills of flammable liquids, fires involving ordinary combustibles beyond the incipient stage or that require more than one fire extinguisher will require notification of the Vancouver Fire Department immediately.

The IRT will act under the direction of the Shift Supervisor and Operations Manager, along with receiving guidance from the Safety Manager (SHE&Q Manager). The Safety Manager will be part of the IRT, and lead the IRT preparation and training.

Name	Title	Office Phone	Home Phone	Cell Phone
TBD	TBD	TBD	TBD	TBD

1.12 Emergency Operations Center

The office in Area 200 will serve as the emergency operations center (EOC) for any emergency affecting the Facility. If the office is untenable due to fire, vapor release or Facility evacuation, a temporary EOC will be established at the Port of Vancouver EOC which is located at the Port Commissioner's Chambers.

The EOC will be stocked with the following materials.

1. Copy of this ERP.
2. Copy of Facility SDS book.
3. Customer contact list.
4. Means of communication (cellular telephone, portable radio).
5. Visitor sign-in sheet for personnel accountability at the gathering point in the event of an evacuation.

If an off-site EOC must be established, the IC will take these materials with them to ensure continuity of communications and response.

1.13 Communications Plan

All Facility employees must know how to report an emergency.

ALL EMPLOYEES are authorized to immediately call 911 in the event of an emergency; however, the employee should also immediately initiate the ERP by pulling a manual fire alarm pull or designating someone else to contact the Area 200 Control Room or the IC.

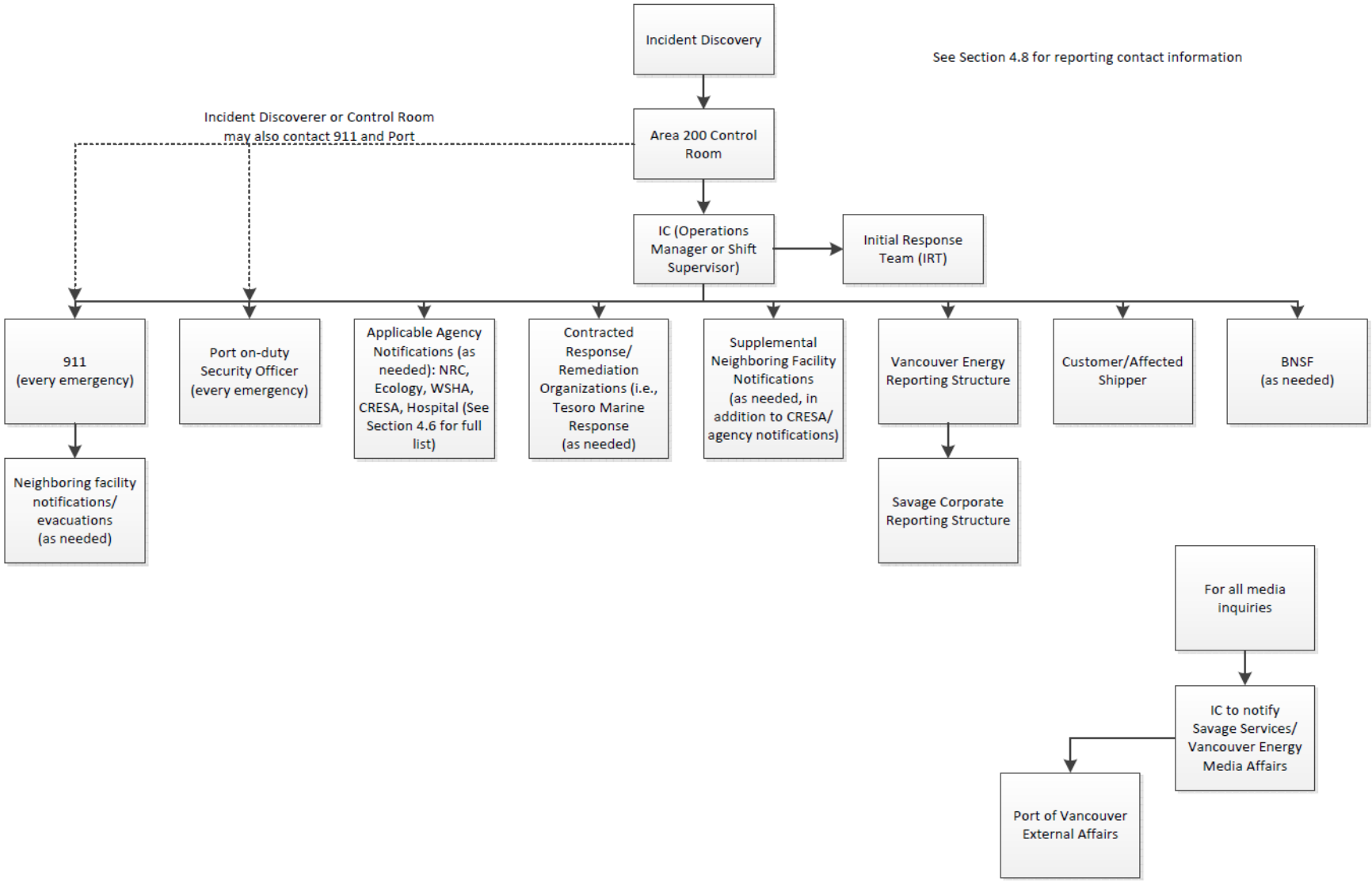
The procedures below are intended to provide for safe and timely evacuation of employees and proper notification of the Port to ensure emergency services are directed to the proper location.

Reporting procedures are outlined below.

- Any employee that discovers an emergency or suspects an emergency is imminent shall **immediately** notify the Area 200 Control Room by radio or telephone.
- The Area 200 Control Room contacts the Operations Manager or on-duty Shift Supervisor (the IC).
- The IC will immediately call (or delegate the following calls to the Area 200 Control Room):
  - 911
  - Port of Vancouver on-duty Security Officer (360-922-1120)
- The IC will make or delegate additional notifications per the Communication Flowchart below.

All employees are authorized to contact 911 and the Port on-duty Security Officer in the event that the Operations Manager, Shift Supervisor, or Control Room cannot be reached or would result in additional delays.

Communications Flowchart



1.13.1 External Communications

1.13.1.1 External Agencies

For all emergencies, the IC or a delegated individual must immediately contact 911 and the Port on-duty Security Officer at 360-922-1120.

Depending on the type of emergency, additional agency notifications may be required (see Section 2, Response Procedures and OSCP). Section 4.8 contains a list of external agencies and contact information.

1.13.1.2 Neighboring Properties

Depending on the type of emergency, notification or evacuation of neighboring properties may be required. CRESA should be involved anytime neighboring facility evacuations are required, and evacuation should be done under the direction of the directing agency, such as Vancouver Fire Department or CRESA. Factors to consider include

- Type of emergency
- Magnitude of emergency
- Location of emergency
- Wind direction
- Potential for escalation (such as a release that may result in a fire or explosion)

The nearest residential facility is the Clark County JWC. The JWC in-custody and work release buildings are housing units with a total of 224 beds, with associated kitchen, warehouse, and laundry facilities, along with occasional visitors. The JWC is located between Area 200 and Area 400, immediately adjacent to the rail loop. Due to the proximity of this facility, the Facility will provide the JWC with a copy of this ERP, will provide information on the alarms and emergency signals, and will invite the JWC to participate in drills.

Section 4.8 contains a list of neighboring property contacts.

1.13.1.3 Corporate Notifications

The communications flowchart and Section 4.8 contain a list of Facility and other corporate contacts that are to be notified in the event of an emergency. The Corporate notifications should take place as soon as possible, but in no circumstances should they be allowed to delay notification to emergency response or external agencies.

1.13.2 Internal Communication/Emergency Notification System

1.13.2.1 Alarms/Notification Codes

The Facility-wide fire and evacuation alarm is an audible alarm with separate tones for fire, evacuation, and all-clear. In addition, the following local alarms exist in various areas of the Facility.

- Area 200: Rail Unloading Building and Administration
- Local alarms (horn / strobe) for initiation of fire suppression system
- Local alarms (horn / strobe) for low and high gas detector settings (LEL, H_2S, O_2)
- Area 300: Storage Area (Tanks)
- Local alarms (horn / strobe) for initiation of fire suppression system.
- Local alarms (horn / strobe) for low and high gas detector settings (LEL, H_2S, O_2)
- Area 400: Marine Terminal
- Local alarms (horn / strobe) for initiation of fire suppression system
- Area 500: Transfer Pipelines
- There are no local alarms for Area 500

- Area 600: West Boiler
- Local alarm for e-house smoke detector

During the initial construction phase, the facility-wide and local alarms may not yet be functional. During this time, an alternate alarm/notification system will be used that may be a combination of radios, air horns, or equivalent method capable of alerting all personnel on site of an emergency condition. All personnel on site must be trained on the notification system and notified of any changes.

Personnel may communicate additional or supplementary emergency information by radio, when necessary. When communicating by radio, the following notification codes will be used. Employees are trained upon hire and will receive re-training at least annually on incident reporting and the notification code system. Records of this training will be maintained as part of the Facility safety training procedures. Prior to being allowed in the Facility, all contractors and visitors will be provided with a safety briefing, which includes this notification system and incident coding.

COLOR CODE	DEFINITION	REQUIRED ACTION
RED	Immediately Evacuate	Shut down all equipment, all personnel assemble at the muster point(s)
YELLOW	Spill Response	Call Vancouver Energy Safety Department. Every available trained person respond to the given location of the incident
BLUE	Fire	Zone C Channel 5 Telephone 911/ (360)293-9145
GREEN	Personal Injury	Closest person respond to the given incident location, contact the Manager
CLEAR	All Clear	Incident has ended, return back to normal work

1.13.2.2 Radios

The Facility uses portable radios for normal operating communications. These radios operate on a designated private frequency. The Facility emergency notification system uses these portable radios to communicate additional or supplementary emergency information, such as for notification of both initial emergency on the Facility and personnel notification of emergency type.

1.13.3 Media Interaction

No person at the Facility is authorized to speak or respond to the media when this plan is enacted. All inquiries by the media shall be referred to the following individuals within the Facility.

- Vancouver Energy: TBD, Phone Number

In addition, for all media inquiries, the following should also be contacted

- Port of Vancouver External Affairs: TBD, Phone Number

The only appropriate response to the media is as follows.

“No one at this facility, including myself, is authorized to respond to a media inquiry”. Any request for information should be addressed to the Public Affairs Contact of Vancouver Energy; refer to the above contact information.

In accordance with Port procedures, media interactions should be set up at a designated location, and media are not allowed on site. The staff at the facility should be in place to keep all spectators, including the media, at a safe distance.

Unless specifically authorized by the above individual, at no time will the media be allowed on the facility property to take photographs, video or audio recordings.

2. Emergency Procedures

Upon notification or realization of an emergency condition, the IC will use the emergency procedures in this section to take protective actions and make notifications to necessary off-site resources and internal chain of command contacts.

Incident Termination: The IC will have the sole authority and responsibility to sound the all clear based upon incident conditions, local responders or other authority.

During ANY emergency condition, the IC's actions must be based upon the following decision factors:

1. Protection of life, health and safety of employees, contractors, visitor and the general public
2. Protection of the environment including surface water, air and land receptors
3. Protection of property, equipment and customer products
4. System and business restoration

In no case will business restoration take priority over the protection of human health and safety, the environment or property protection.

2.1 Evacuation Procedures

2.1.1 Facility Evacuation

All Facility employees must be alert at all times for the warning of an emergency that may require evacuation of the facility.

Upon hearing the facility-wide alarm and/or a notification via radio of CODE RED, all Vancouver Energy Personnel will do the following unless otherwise instructed by the IC:

- Shut down all ongoing systems (valves, motors, pumps, etc.)
- Clear aisles and drives for emergency traffic/vehicles
- If driving a vehicle, pull over to a safe location, turn off the vehicle, and leave the keys in the ignition
- Report to the area assembly locations shown on the figures in Section 1.2

2.1.1.1 Evacuation Routes

The safe evacuation of facility personnel is critical during an emergency. Individual building/area evacuation route maps are posted around meeting places, around the interior of buildings, and in locations frequented by visitors who may be unfamiliar with the facility. The evacuation routes shall not be removed except to be immediately serviced and replaced. The evacuation routes will note the reader's location, the exits, and the assembly locations. Depending on the type of emergency (such as weather emergencies), it may be appropriate for the IC to call for personnel to shelter in place or take shelter in the nearest permanent structure. In such instances, as soon as the danger has passed, the IC should have all personnel report to the nearest assembly area so that personnel can be accounted for.

2.1.1.2 Off-site Evacuation

Although the call for an off-site evacuation is rare, the IC will determine if this is necessary given the conditions of the emergency and will notify all personnel by radio.

The off-site assembly location, as shown or described on Figure 3, is designated to be far enough away from the Facility so as to provide protection from the cause for evacuation. The off-site assembly location for the Facility is along NW Old Lower River Rd, approximately 500 feet northwest of the Main Office at Area 200. As soon as you reach the assembly area, stay close to other personnel and do not re-enter the Facility.

If for some reason the designated assembly location is unsafe, the IC will notify all personnel to move to a location away from the danger at a safe distance, and out of the way of traffic and emergency vehicles. The IC will keep in mind to stay up-wind by observing a wind sock.

2.1.2 Accounting for Personnel

Once employees, contractors, and visitors reach the nearest assembly area, they should scan their badges at the card reader (or manually sign in if a badge cannot be scanned for any reason). The Shift Supervisor will bring a copy of the Facility Main Office sign-in sheet to the assembly area. The designated employee at each assembly area is responsible for contacting the Shift Supervisor (or designee) via radio or cell phone with a list of visitors and contractors, which the Shift Supervisor will check against the sign-in sheet. In the event that a “roll-call” is not available, the IC should question other personnel about any missing personnel.

The IC can then provide emergency response personnel (Police and Fire Departments) with an informed opinion on whether anyone is still in the Facility.

2.1.3 Neighboring Property Evacuation

If the IC judges that the threat may extend outside the facility, the IC will notify, or cause to be notified, the Port of Vancouver and proper authorities for evacuation. Only the proper emergency services (such as CRESA, Vancouver Police Department, or Vancouver Fire Department) will direct evacuation of persons outside this Facility.

2.1.4 All-Clear/Return to Work

Only the IC may determine when the emergency situation has abated and employees may return to work. The “All-Clear” signal will be announced by radio or the facility-wide alarm system, or by direct communication for personnel that are not contacted by radio or the facility-wide alarm system. Depending on the type of emergency (such as fire, release, or earthquake), the integrity of equipment may need to be evaluated prior to restarting transfers.

2.2 Fire and/or Explosion

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Ambulance	911
Port of Vancouver Security	(360) 922-1120
Washington Hazard Material Spill Report	800-472-2121
Vancouver Fire Department Hazardous Material Spill Report (For Marine Dock Response)	800-258-5990 360- 487-7212
National Response Center	800-424-8802
Washington Emergency Management Division	800-258-5990
Washington Department of Ecology	360-407-6300
BNSF Emergency Hotline	800-832-5452
Response Contractors: MSRC	800-259-6772

Procedure

STEP 1: Incident discovery through activation of local alarm (smoke alarm or fire suppression system activation alarm) or through employee observation and notification of Area 200 Control Room via radio or telephone.

STEP 1a: If safe to do so, the incident discoverer may also do the following **ONLY AFTER NOTIFYING THE AREA 200 CONTROL ROOM:**

- Pull a manual fire alarm handle, or for areas covered by foam fire suppression system where system has not automatically activated, pull manual foam release handle (locations shown on maps in Section 1.2).
- For areas not covered by an automatic fire suppression system, the Vancouver Fire Department will respond as needed, such as with manual firefighting including foam suppression.
- For small, incipient fires ("trash-can" sized fires), IRT employees trained in incipient fire control may use a portable fire extinguisher to prevent personal injury or property damage.
- The incident discoverer must then immediately evacuate.

STEP 2: After receiving notification of the incident, the Area 200 Control Room must:

- Notify the IC.
- Activate the Facility-wide evacuation alarm.
- Immediately notify: 911 and Port of Vancouver on-duty Security Officer at: 360-922-1120 (they will help direct emergency services to the correct location).

STEP 3: If any personnel are injured, the IC may call the IRT to initiate first aid until outside responders arrive.

STEP 4: The IC coordinates the Facility evacuation per the evacuation procedures and initiates the communication plan described in Section 1.13 (including calls to additional outside responders to obtain assistance and protect sensitive receptors, as required). The IC may delegate the Communications Clerk or other personnel to make notification telephone calls.

STEP 5: Secure perimeter during response. If necessary, obtain assistance from Port security.

STEP 6: The IC should perform a hazard assessment of the situation considering the following.

- Nature of the situation?
- Accountability for personnel?
- Wind direction?
- Involved equipment?
- Required response equipment?
- Ambulance assistance needed?
- Mutual aid required?
- Have 911 and the Port of Vancouver on-duty Security Officer been notified?

Based on the assessment, the IC may direct off-site evacuation (per evacuation procedures), neighboring facility notification (per communication plan), or call in additional emergency response. The IC may also direct personnel to move loaded railcars away from danger zones, only if safe to do so.

STEP 7: Take steps to direct emergency responders to location of fire. Once the Fire Department arrives on site, the Fire Department will become the IC, and the Vancouver Energy IC will manage internal response, coordination with response agencies, and communications.

STEP 7A: If neighboring facilities are required to evacuate, the evacuation will be under the direction of the response agency (such as CRESA, Vancouver Fire Department, etc.). If directed by the response agency, Vancouver Energy may assist with neighboring facility notifications.

Post-Incident

STEP 1: Terminate Incident

STEP 2: Conduct investigation and complete incident report per procedures in Section 3.

STEP 3: Complete remediation of any spilled materials and assure proper disposal of wastes.

All soil, debris, wastes, and liquids resulting from a release must be treated as Hazardous Waste until testing determines the waste to be non-hazardous. Any hazardous waste must be removed in accordance to Federal, State and Local laws. No waste should be removed without the knowledge and consent of the IC.

Liquid residues from fires or leaks will be solidified with appropriate inert absorbent and placed in appropriate DOT-approved containers for transportation by an authorized disposal firm to permitted disposal facilities. Pumps, absorbents, and salvage containers are to be maintained at the facility for these purposes.

STEP 4: Prior to resuming any transfer operations, equipment integrity will be evaluated. Safety equipment used in an emergency will also be inspected, cleaned and/or replaced and returned to a state of readiness.

NOTE: The Facility is equipped with portable A/B/C fire extinguishers and IRT employees receive documented annual fire extinguisher training.

IRT employees are not trained, equipped or qualified to act beyond their training in first aid/CPR and incipient fire control. Firefighting efforts that involve uncontrolled spills of flammable liquids, fires involving ordinary combustibles beyond the incipient stage or that require more than one fire extinguisher will require notification of the Vancouver Fire Department in a timely manner.

Delay in notification will result in a larger fire and possible injury to Facility personnel.

In no case will the IC direct or allow employees to perform spill containment, fire suppression, clean up or offensive leak control beyond their training or personal protective equipment (PPE) capability. Only properly equipped and trained responders will be used for these activities.

2.3 Product Spill

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Ambulance	911
Washington Hazard Material Spill Report	800-472-2121
Port of Vancouver Security	(360) 922-1120
National Response Center	800-424-8802
Washington Emergency Management Division	800-258-5990
Washington Department of Ecology	360-407-6300
BNSF Emergency Hotline	800-832-5452
Response Contractors: MSRC	800-259-6772

Procedure

In the event of a release of oil or releases of hazardous materials, follow the procedures described in the SPCC Plan and the OSCP. For releases that may result in a vapor cloud, follow the procedures in Section 2.4 Vapor/Gas Release or H2S, LEL, or O2 Gas Alarm in addition to the release response procedures in the SPCC Plan and OSCP.

For other releases not covered by the OSCP (such as very small leaks, drips, and spills – whether crude oil or another fluid) follow these steps:

STEP 1: Incident discovery through employee observation and notification of Area 200 Control Room via radio or telephone. The Area 200 Control Room will notify the IC.

STEP 2: The IC will determine whether the release is an “incidental release” that may be safely cleaned up by employees who are familiar with the hazards of the chemicals with which they are working with available PPE, or a release that requires emergency response. For incidental releases, trained employees may clean up the release as long as it is safe to do so.

An incidental release is a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee cleaning it up, nor does it have the potential to become an emergency within a short time frame.

STEP 3: For releases that require an emergency response:

The IC must:

- Activate the Facility-wide evacuation alarm
- Immediately notify: 911 and Port of Vancouver on-duty Security Officer at: 360-922-1120 (they will help direct emergency services to the correct location).

STEP 3A: The IC coordinates the Facility evacuation per the evacuation procedures and initiates the communication plan described in Section 1.11 (including calls to additional outside responders to obtain assistance and protect sensitive receptors, as required). The IC may delegate the Communications Clerk or other personnel to make notification telephone calls.

STEP 3B: If any personnel are injured, the IC may call the IRT to initiate first aid until outside responders arrive.

STEP 3C: Secure perimeter during response. If necessary, obtain security.

STEP 3D: The IC should perform a hazard assessment of the situation considering the following. Based on the assessment, the IC may direct off-site evacuation (per evacuation procedures), neighboring facility notification (per communication plan), or call in additional emergency response. The IC may also direct personnel to move full railcars away from danger zones, only if safe to do so.

- What is the nature of the situation
- Accountability for personnel
- Wind direction
- What equipment is involved?
- What response equipment will be required?
- Do we need ambulance assistance?
- Will mutual aid be required?
- Have 911 and the Port of Vancouver on-duty Security Officer been notified?

STEP 3E: Take steps to direct emergency responders to location of product release.

STEP 3F: If neighboring facility evacuations are required to evacuate, the IC will directly notify them by telephone.

Post-Incident

STEP 1: Terminate Incident.

STEP 2: Conduct investigation, completes incident report per procedures in Section 3.

STEP 3: Complete remediation of any spilled materials and assure proper disposal of wastes.

All soil, debris, wastes, and liquids resulting from the release must be treated as Hazardous Waste until testing determines the waste to be non-hazardous. Any hazardous waste must be removed in accordance to Federal, State and Local laws. No waste should be removed without the knowledge and consent of the IC.

Residues from leaks will be solidified with appropriate inert absorbent and placed in appropriate DOT approved containers for transportation by an authorized disposal firm to permitted disposal facilities. Pumps, absorbents, and salvage containers are to be maintained at the facility for these purposes.

STEP 4: Prior to resumption of any transfer operation, equipment integrity will be evaluated and any safety equipment used in an emergency will be cleaned or replaced and returned to a state of readiness.

NOTE: In no case will the IC direct or allow employees to perform spill containment, fire suppression, clean up or offensive leak control beyond their training or PPE capability. Only properly equipped and trained responders will be used for these activities.

2.4 Vapor/Gas Release or H_2S, LEL, or O_2 Gas Alarm

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Port of Vancouver Security	(360) 922-1120
Ambulance	911
Washington Hazard Material Spill Report	800-472-2121
National Response Center	800-424-8802
BNSF Emergency Hotline	800-832-5452
Response Contractors: MSRC	800-259-6772

Procedure

Note: For releases that result or would likely result in a vapor cloud, eliminate all ignition sources. Vancouver Energy personnel are authorized to pull manual foam release handles while evacuating, when it is safe to do so. For areas not covered by an automatic fire suppression system, the Vancouver Fire Department will respond with foam suppression as per their judgement of the situation.

STEP 1: Incident discovery through automatic LEL/H_2S/O_2 alarms, personal H_2S monitors, or through employee observation and notification of Area 200 Control Room via radio or telephone.

STEP 2: After receipt of alarm or notification, the Area 200 Control Room must:

- Verify the type of alarm (LEL or H_2S) and notify the IC of alarm type
- Activate the Facility-wide evacuation alarm for vapor clouds/gas releases, high level LEL or H_2S detection alerts
- Immediately notify: 911 and Port of Vancouver on-duty Security Officer at: 360-922-1120 (they will help direct emergency services to the correct location).

STEP 3: In the event of a crude oil release that results or would likely result in a vapor cloud:

- If the release is in an area covered by a foam suppression system, and it is safe to do so, an employee in the area should pull a manual foam release handle to begin covering the area with foam.
- If it is safe to do so, turn off all electrical and eliminate potential ignition sources (including turning off vehicles in the affected area).
- Evacuate the area (If driving a vehicle, pull over to a safe location, turn off the vehicle, and leave the keys in the ignition).

STEP 4A: <u>If Low Level LEL alarm alerts</u>, the incident discoverer may do the following:

- Inspect the work area(s) for liquid leaks, possible vapor leaks and/or used absorbent pads in the area of the LEL/H_2S detectors before continuing operations.
- Report findings to IC.

STEP 4B: <u>If High Level LEL alarm alerts</u>, the incident discoverer **<u>must immediately evacuate</u>** the affected area following evacuation procedures in Section 2.1.

STEP 5: <u>If H_2S detection alarm alerts (regardless of whether it is an area monitor or a personal monitor)</u>, the incident discoverer **<u>must immediately evacuate</u>** the affected area following evacuation procedures in Section 2.1. In the event of a personal H_2S monitor alarm, the

employee should also verbally alert others in the immediate vicinity to evacuate and once out of the area, notify the Area 200 Control Room.

- The IC or designee will sweep the affected building with the hand held 4 Gas monitor. Self-contained breathing apparatus (SCBAs) are available on site and are only to be used by trained and authorized personnel.
- Once IC has ensured no H_2S remains in the building, they will issue an “ALL CLEAR” over the radio.
- All personnel may then return to normal duties.

STEP 6: The IC coordinates the Facility evacuation per the evacuation procedures and initiates the communication plan described in Section 1.11 (including calls to additional outside responders to obtain assistance and protect sensitive receptors, as required). The IC may delegate the Communications Clerk or other personnel to make notification telephone calls.

STEP 6A: The IC should consider wind direction (see figures in Section 1.2 for wind sock locations) in directing the evacuation.

STEP 7: If any personnel are injured, the IC may call the IRT to initiate first aid until outside responders arrive.

STEP 8: Secure perimeter during response. If necessary, obtain assistance from Port security.

STEP 9: The IC should perform a hazard assessment of the situation considering the following. Based on the assessment, the IC may direct off-site evacuation (per evacuation procedures), neighboring facility notification (per communication plan), or call in additional emergency response. The IC may also direct personnel to move full railcars away from danger zones, only if safe to do so.

- What is the nature of the situation
- Accountability for personnel
- Wind direction
- What equipment is involved?
- What response equipment will be required?
- Do we need ambulance assistance?
- Will mutual aid be required?
- Have 911 and the Port of Vancouver on-duty Security Officer been notified?

STEP 10: Take steps to direct emergency responders to location of release.

STEP 10A: If neighboring facility evacuations are required to evacuate, the IC will directly notify them by telephone.

Post-Incident

STEP 1: Terminate incident

STEP 2: Conduct investigation, completes incident report per procedures in Section 3.

STEP 3: Complete remediation of any spilled materials and assure proper disposal of wastes.

STEP 4: Prior to resumption of any transfer operation, any safety equipment used in an emergency will be cleaned or replaced and returned to a state of readiness.

NOTE: In no case will the IC direct or allow employees to perform spill containment, fire suppression, clean up or offensive leak control beyond their training or PPE capability. Only properly equipped and trained responders will be used for these activities.

2.5 Severe Weather

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Ambulance	911
Port of Vancouver Security	(360) 922-1120
Washington Hazard Material Spill Report	800-472-2121
National Response Center	800-424-8802
BNSF Emergency Hotline	800-832-5452
Response Contractors: Clean Harbors	800-259-6772

Procedure

STEP 1: In times of potential severe weather including thunderstorms, high winds, dangerous lightning, hail, tornadoes, and flash flooding, the IC will monitor the local weather broadcasts (NOAA Weather Radio) and severe weather additional advisories and will report watches and warnings to the Area 200 Control Room.

STEP 1A: In the event of severe weather, personnel will be updated by radio, or directly by the Shift Supervisor or IRT. The following precautions to be taken by personnel could include:

- Work on top of storage tanks, columns, or isolated structures will be terminated.
- Loading or unloading of flammable liquids will be stopped.

STEP 1B: In the event of a tornado **warning**, or the sighting of a tornado, immediate action needs to be taken. Tornado **watches** will be handled in the same manner as other severe weather.

- Area 200 Control Room will sound the emergency alarm and notify personnel via the radio system, or directly by the Shift Supervisor or IRT.
- Personnel are advised to shelter-in-place until the danger has passed. Personnel are to shelter in small rooms if possible, and stay away from glass windows and doors. If personnel cannot get to a shelter area, they should proceed to a low-lying area (such as a ditch). All personnel should evacuate vehicles.

STEP 1C: In the event of a **flood**, personnel should move immediately to higher ground

- Do not wait for instructions to move.
- Do not walk through moving water. For example, six inches of moving water can readily make you fall. If you have to walk in water, walk where the water is not moving. Use a stick to check the firmness of the ground in front of you.
- If located in a vehicle at the time of the alarm, do not drive into flooded areas. If floodwaters rise around your vehicle, abandon the vehicle and move to higher ground if you can do so safely. You and the vehicle can be swept away quickly.

STEP 1D: In the event of a **thunderstorm** which can produce strong wind, hail, and dangerous lightning, personnel will be updated by radio. Personnel are advised to

- Avoid contact with power cords.
- Seek covered shelter from hail.
- Watch for flying debris.

- **FOR SEVERE THUNDERSTORM OR DANGEROUS LIGHTNING**: USE 30/30 Lightning Safety Rule: Personnel shall seek covered shelter if, after seeing lightning, you cannot count to 30 before hearing thunder. Stay under covered shelter for 30 minutes after hearing the last clap of thunder per the 30/30 Lightning Safety Rule.

Post-Incident

STEP 1: Terminate incident.

STEP 2: Inspect the Facility for damaged equipment; secure damaged equipment as necessary.

STEP 3: Conduct investigation, completes incident report per procedures in Section 3.

STEP 2: Complete a report describing property and equipment damage, customer product damage or possible contaminations, theft of Vancouver Energy equipment, or other loss and damages.

STEP 4: Conduct investigation, completes incident report per procedures in Section 3.

2.6 Earthquake or Volcanic Activity

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Ambulance	911
Port of Vancouver Security	(360) 922-1120
Washington Hazard Material Spill Report	800-472-2121
National Response Center	800-424-8802
BNSF Emergency Hotline	800-832-5452
Response Contractors: Clean Harbors	800-259-6772

Procedure

STEP 1: In the event of an earthquake or volcanic activity (ash fall), personnel shall immediately find shelter. If in a vehicle, personnel should stay inside the vehicle.

STEP 1A: For an earthquake, personnel should DROP, COVER, and HOLD. Stay away from windows. Desks, tables, or supported doorways may provide protection. Do not attempt to exit a building while tremors are occurring. When tremors have stopped, personnel should evacuate to the nearest assembly area immediately.

STEP 1B: For volcanic activity, if ash is falling personnel should stay indoors until the ash settles, unless there is a risk of the roof collapsing.

STEP 2: Once the ground movement or ash fall has subsided the IC will take the following actions:

- Direct employees to remain sheltered or at the designated evacuation assembly areas until directed otherwise. Once the danger has passed, the IC should direct personnel to report to an assembly area or find an alternate means to account for all personnel.
- Monitor local and regional media sources and emergency frequency scanners for up-to-minute information and instruction.
- Dispatch a damage assessment team to survey the damage.

STEP 3: Any needed life/safety threatening damages must be stabilized or repaired before allowing the work force to return to the affected areas.

Post-Incident

STEP 1: Terminate incident.

STEP 2: Inspect the Facility for damaged equipment; secure damaged equipment as necessary.

STEP 3: Conduct investigation, completes incident report per procedures in Section 3.

STEP 2: Complete a report describing property and equipment damage, customer product damage or possible contaminations, theft of Vancouver Energy equipment, or other loss and damages.

STEP 4: Conduct investigation, completes incident report per procedures in Section 3.

2.7 Medical Emergencies

Entity/Agency Name	Phone Nos.
Vancouver Energy Health Services	TBD
Fire Department	911
Police Department	911
Ambulance	911
Medical Facilities: PeaceHealth Southwest Medical Center, 400 Northeast Mother Joseph Place, Vancouver, WA 98664	911; 360-299-1300

Procedure

STEP 1: In the event of any personal injury or first aid emergency, the incident discoverer shall notify the Area 200 Control Room via radio or telephone.

If the Area 200 Control Room cannot be reached and urgent medical care is required, dial "911" on the closest telephone, and inform the operator of the emergency and facility location. Follow-up with the Area 200 Control Room and call to Port of Vancouver on-duty Security Officer so they are aware of the emergency and the arrival of medical services, and Port Security can direct emergency services to the correct location within the Port.

STEP 2: The Area 200 Control Room will call "911" (and Port of Vancouver on-duty Security Officer) if the situation warrants outside medical services or will notify IC to respond to the emergency. They will also sound the appropriate Emergency Code throughout the Facility.

CODE: GREEN

STEP 3: IC sends TRAINED First Aid/CPR personnel to assess and assist the injured. First aid kits and automated external defibrillator (AED) locations are noted on the Figures in Section 1.2. AED locations and use should be kept away from crude oil and potential vapors, to avoid the potential risk of fire.

STEP 4: The personnel assisting injured communicates to IC on the condition and need for outside assistance.

STEP 5: IC notifies outside assistance, if necessary OR injured is transported to nearest medical facility (PeaceHealth Southwest Medical Center, 400 Northeast Mother Joseph Place, Vancouver, WA 98664) if injury is not serious.

STEP 7: IC notifies family or employee's company.

Post-Incident

STEP 1: IC completes initial injury/accident report and begins investigations as per Vancouver Energy incident investigation process before resuming operation or use of equipment involved in the injury.

2.8 Communicable Disease/Illnesses

Entity/Agency Name	Contact Info
Vancouver Energy Health Services	360-293-9142
Centers for Disease Control (CDC)	800-232-4636 cdcinfo@cdc.gov http://www.cdc.gov
World Health Organization	http://www.who.int/en
Vancouver Energy Employee Assistance Program	(866) 468-9461 http://www.shepellfgi.com
Medical Facilities: PeaceHealth Southwest Medical Center, 400 Northeast Mother Joseph Place, Vancouver, WA 98664	911 or (360) 256-2000

Procedure

STEP 1: The media alerts the public of severe health risk, such as a government declaration of a health emergency, threat of a local epidemic or widespread pandemic.

STEP 2: Vancouver Energy People Development Department issues notification to IC, including relevant facts, list of potential symptoms, and resources.

STEP 3: The IC communicates this information to all employees at the Facility via radio communication.

STEP 4: The IC ensures all appropriate precautions are taken, as recommended by applicable and credible sources.

STEP 5: If an employee at the Facility is ill, the IC notifies Savage corporate for support and to ensure the following:

- Any ill employee affected by the specific symptoms of a communicable disease/illness is immediately sent home.
- An employee sent home for symptoms is not allowed to return to work without written medical clearance from a doctor or medical clinic.
- An ill employee experiencing symptoms that are not specific to a communicable disease/illness may be allowed to continue handling non-sensitive commodities, at the discretion of the manager. The employee should be advised that he/she will be observed under close scrutiny for any developing symptoms and may be sent home if conditions warrant. An employee affected by any illness is not allowed to perform transfers of sensitive products such as food-grade commodities.

STEP 6: If any employee is properly diagnosed/confirmed with the communicable disease/illness, the IC immediately puts the Epidemic/Pandemic Outbreak Response Plan into action.

2.9 Epidemic/Pandemic Outbreak

Entity/Agency Name	Contact Info
Vancouver Energy Health Services	360-293-9142
Centers for Disease Control (CDC)	800-232-4636 cdcinfo@cdc.gov http://www.cdc.gov
World Health Organization	http://www.who.int/en
Vancouver Energy People Development	801-944-6600
Vancouver Energy Employee Assistance Program	(866) 468-9461 http://www.shepellfgi.com
Medical Facilities: PeaceHealth Southwest Medical Center, 400 Northeast Mother Joseph Place, Vancouver, WA 98664	911; (360) 256-2000

Procedure

STEP 1: An employee is properly diagnosed/confirmed with the communicable disease/illness.

STEP 2: The IC notifies Savage corporate for support. The Operations Manager or Savage corporate notify all customers and all carriers, informing them of the estimated down time while the Facility is decontaminated.

STEP 3: The IC immediately contracts a janitorial/cleaning service to conduct a thorough decontamination/sanitation/sterilization of the potentially affected office(s), break room, equipment, work stations, and/or personal protective equipment using antibacterial cleaning supplies. At the Operations Manager's discretion, all operational activities may be temporarily ceased and employees may be sent home until the completion of this process.

STEP 4: Upon completion of the decontamination process, Vancouver Energy Management shall coordinate and assemble an emergency coverage team to staff the operation during the recovery of the normal staff. This emergency coverage team shall be comprised of individuals (e.g. Regional Operations Management, Operations Management, CSRs/Coordinators, Transfer Operators) who have the capabilities of managing the day-to-day administrative and operational duties to handle the transfer and accessorial services. Vancouver Energy Management will ensure the emergency coverage team has adequate computer access and training to perform their assigned duties, as well as a list of primary and alternate phone numbers for each team member.

STEP 5: Any staff that is diagnosed/confirmed with the communicable disease/illness shall not be allowed to return to work without written medical clearance from a doctor or medical clinic.

2.10 Security Incident and/or Suspicious Activity

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Ambulance	911
Port of Vancouver Security	(360) 922-1120

Anyone that becomes aware of a bomb, terrorist, or hostage situation will immediately contact Port Security at: 360-922-1120 and "911." THEN, notify the Area 200 Control Room so that they can notify all personnel at the facility.

Note: Refer to Site Security Plan for specific procedures to be followed.

2.11 Bomb and/or Terrorism Threat

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Ambulance	911
Port of Vancouver Security	(360) 922-1120

Anyone that becomes aware of a bomb, terrorist, or hostage situation will immediately contact Port Security at: 360-922-1120 and "911." THEN, notify the Area 200 Control Room so that they can notify all personnel at the facility.

Note: Refer to Site Security Plan for specific procedures to be followed.

2.12 Railcar Derail

Entity/Agency Name	Phone Nos.
Vancouver Energy Radio Channel	5
Control Room (Area 200)	TBD
Fire Department	911
Police Department	911
Ambulance	911
Port of Vancouver Security	(360) 922-1120
BNSF Emergency Hotline	800-832-5452
Rerailing Services: RFC Rick Franklin Corporation, Lebanon, OR Hulcher Services, Pasco, WA	 (541) 451-1275 (509) 545-4040

This procedure is intended to respond to railcar derailing incidents that are or will likely result in an emergency situation. In an non-emergency situation, such as a wheel that comes off a track in an area where the railcar is unlikely to overturn, be struck by another railcar or vehicle, or result in a spill, personnel shall block off the area and call a rerailing service.

PROCEDURE

STEP 1: Incident discovery through employee observation and notification of Area 200 Control Room via radio or telephone.

NOTE: If railcar incident results in a fire/explosion, spill, vapor cloud, or injury, refer to procedures in Sections 2.2, 2.3, 2.4 and 2.8, respectively.

STEP 2: After receipt of notification, Area 200 Control Room must:

- Notify the IC
- Sound the appropriate Emergency Warning Notification throughout the Facility
- Immediately notify: 911 and Port of Vancouver on-duty Security Officer at: 360-922-1120 (they will help direct emergency services to the correct location).

STEP 3: The IC coordinates the Facility evacuation per the evacuation procedures and initiates the communication plan described in Section 1.11 (including calls to additional outside responders to obtain assistance and protect sensitive receptors, as required). The IC may delegate the Communications Clerk or other personnel to make notification telephone calls.

STEP 4: The IC should perform a hazard assessment of the situation considering the following. Based on the assessment, the IC may direct off-site evacuation (per evacuation procedures), neighboring facility notification (per communication plan), or call in additional emergency response. The IC may also direct personnel to move full railcars away from danger zones, only if safe to do so.

- What is the nature of the situation
- Accountability for personnel
- Wind direction
- What equipment is involved?
- What response equipment will be required?

- Do we need ambulance assistance?
- Will mutual aid be required?
- Have 911 and the Port of Vancouver on-duty Security Officer been notified?

STEP 7: Take steps to direct emergency responders to location of emergency communications.

Post-Incident

STEP 1: Terminate Incident

STEP 2: Conduct investigation, completes incident report per procedures in Section 3.

STEP 3: Prior to resumption of any transfer operation, equipment integrity will be evaluated and any safety equipment used in an emergency will be cleaned or replaced and returned to a state of readiness.

3. Post Incident Activity

3.1 Incident Documentation

Required Reports - Written Notification

Within 24 to 36 hours of an incident necessitating implementation of the ERP, the IC shall prepare an initial written report and forward it to the Facility, where it will be distributed internally within 10 days. The required reports for this site are to be made to:

Savage corporate Safety Director: TBD

Copies of the incident report will be maintained with the facility operating record. The report shall include:

A. Name, Address and Telephone number for Vancouver Energy management

B. Name, Address and Telephone number of the facility

C. Date, Time and Type of incident (for example; fire, spill, explosion, etc.)

D. Name and quantity of materials involved

E. Extent of injuries, if any

F. An assessment of actual or potential hazards to human health of the environment, where applicable

G. Estimated quantity and disposition of recovered material that resulted from the incident

H. A report of all notifications that were made including who was called, time of calls, and any other information obtained or derived from the notification calls

Written reports will be filed to State and Federal government agencies as required, with copies provided to the person(s) above.

3.2 Response Critique and Plan Modification

After all response and mitigation activities have been completed the Facility and associated owner/operator management will complete an incident response critique to identify elements of the response system that failed or were ineffective and elements that worked well. The critique and corrective actions will be documented. Documentation of corrective actions must include the corrective action taken to resolve any findings, the date of the corrective action, and the signature of the Operations Manager.

Key baseline rules for any critique:

- To be effective as learning tools critiques must be honest.
- A clear review of the facts leading to the incident must be established.
- A step-by-step review of response actions or timeline should be established.
- Critical control points such as incident discovery, reporting, communication/notification and response activities need to identified and measured for timeliness, completeness and effectiveness.
- Critical control points that were not effective should be flagged for review and modification as necessary.
- Corrective action plans and responsibility for implementing corrective action are established and tracked until completed.
- Applicability to other terminals or facilities should be identified.
- All participant interaction must be done to find ways to make improvements, not to find fault or blame those persons who performed incident management roles.

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4. Appendices

4.1 Emergency Equipment

The following is a list of emergency equipment maintained by this facility (additional oil spill response equipment is listed in the SPCC Plan and OSCP). Locations of equipment are noted. A site plan located in Section 1.2 identifies all major buildings at the facility. Any response equipment that is utilized in an emergency must be replenished as quickly as possible.

A. Personal Protective Equipment

The maximum level of personal protective clothing employees are trained to use is EPA and OSHA Level D (as per 1910.120 HAZWOPER regulations).

The personal protective equipment used at this facility is:

1. Chemical protective clothing (compatible with products handled in the Facility)
2. Fire-resistant protective clothing
3. Personal H_2S monitors
4. Hard Hats
5. Goggles and Face shields
6. Hearing protection
7. Chemical resistant gloves
8. Chemical resistant steel toed boots

B. Facility Spill and Response Materials – See OSCP for

1. Windsocks at several locations in Facility
2. Safety Data Sheet Book(s)
3. Bulk Chemical Inventory list
4. A current National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards
5. A current DOT Emergency Response Guidebook

C. First Aid Kit(s)/AED

To provide care for sick or injured personnel prior to transportation for treatment (if required), First Aid Kit(s) can be found in the Office, Training/Locker building, Railcar Unloading Building, and various light vehicles at the facility. An AED will be located in the main office at Area 200.

D. Non-sparking bung wrench and 36” pipe wrench

E. Non-sparking synthetic brush brooms

If cleaning up loose absorbents used on small spills.

F. Non sparking (plastic) grain /scoop shovel

For cleanup of loose absorbents used for small spills.

G. Oil Sorb to absorb spills

Oil sorbs is located in 85 Gallon over pack drums at several accessible locations

H. Absorbent Pillows/Socks/Dikes/Sheets

To create temporary dikes to retain and absorb any liquid commodity. Absorbent Pillows/Sock/Dikes are located inside over pack drums at several accessible locations

I. 85 Gallon over pack drums

To provide containment for absorbent used to contain spills. Over pack drums can be found at several accessible locations

NOTE: Any drums used to contain or clean up spilled hazardous materials must be properly labeled with DOT warning label, product name, UN number, date placed into container and fully sealed.

J. *4 – SCBAs with 4500 psi cylinders

The SCBAs are located: To Be Determined

* = emergency response equipment that is not on site for start-up.

K. 4-Gas Monitors (H_2S, oxygen (O_2), carbon monoxide (CO), LEL)

4.2 Employee Emergency Responsibilities

4.2.1 Incident Commander(s)

- Evaluate and assess the hazards of an incident and direct the appropriate emergency response
- Coordinate with external response agencies
- Direct internal resources in the event of an emergency
- Initiate facility evacuations, accounting for employees, and determining when to sound the “all clear”
- Notifying emergency contacts and external agencies (see Communication Plan)
- If an incident grows in size and complexity the IC will be augmented with corporate employees and outside agency representatives
- Participate in annual exercises

4.2.2 Safety Manager (SHE&Q Manager)

- Assist the IC with hazard assessment, PPE selection
- Leads IRT preparation, planning, and training

4.2.3 Communication Clerk (Coordinator)

- Assist with documentation of internal and external communications

4.2.4 All Employees

- Be familiar with this ERP and know the initial actions to be taken in an emergency
- Track and maintain adequate stocks of response materials
- Check all release containment devices monthly
- Know the evacuation routes and command post locations

4.2.5 Initial Response Team

- Understand what to do when an emergency occurs
- Keep first aid and CPR training up to date
- Monitor activities by other agencies
- Maintain adequate stocks of response materials
- Know the evacuation routes and command post locations
- Maintain portable eyewash units
- Participate in an annual ERP exercise
- Be available to respond during operations hours
- Contact 911 and Port Security using procedures in this ERP in case of emergency

4.2.6 Operations Manager

- Ensure personnel are sufficiently trained to perform transfers
- Train all employees, including new employees or those with new responsibilities (with documentation of training)
- Check communications systems monthly (with documentation)
- Ensure that adequate stocks of response material are available
- Contact appropriate agencies identified in ERP contact list
- Conduct post emergency review and documentation (documented timeline of events)
- Initiate ERP exercise at least annually
- Contact the railroad as necessary
- Ensure remediation is completed, including proper disposal of wastes generated
- Be available during routine operating hours
- Be the primary point of contact with the First Responder
- Report all findings to the personnel identified in the Incident Documentation Section within two business days

- Perform the functions of the Director of Operations / General Manager (or equivalent) in their absence
- Ensure all necessary immediate and written follow-up reporting (EPA, DOT, State & Local) is completed in the prescribed time

4.2.7 Director of Operations/General Manager

- Be able to be contacted during normal operations hours
- Perform the functions of the Operations Manager in his/her absence
- Contact the customer and primary contact for the customer
- Make a reasonable effort to contact the Manager
- Participate in the annual ERP exercise

4.2.8 Savage Corporate Structure

- Communicate all relative information to the company senior management
- Assist in the post incident review process
- Participate in the annual ERP exercise

4.3 Training

All contractors and visitors will receive a general facility awareness training that includes:

- Hazard awareness
- Contents of this ERP
- Incident notification, alarms
- Evacuation procedures

All employees of Vancouver Energy are trained according to the policies outlined below:

1. DOT HM-126C Hazardous Materials Worker

- Hazard awareness
- Safety training
- Function specific training

2. OSHA 1910.1200/WISHA WAC 296-800-170: Hazard Communication Awareness:

- What constitutes a hazardous commodity?
- What hazardous materials are handled at this Facility?
- How are each of these transferred?
- How is hazardous waste handled and disposed of?
- Which chemicals/commodities are present at the Facility?
- How are materials identified by the placard?
- What are the hazards of the materials located at this Facility?
- How to read a MSDS (Material Safety Data Sheet)

3. OSHA 1910.38/WISHA WAC 296-824 Emergency Response Plan:

- Implementation
- Emergency Response Procedures
- Emergency Equipment
- Coordination Agreements
- Evacuation Plan
- Storage/treatment of spilled materials
- Incompatible Wastes
- Emergency Notification
- Fire and Response Drills

4. OSHA 1910.57 Fire Extinguishers/WISHA WAC 296-800-300: Annual fire extinguisher training
5. OSHA 1910.120/WISHA WAC 296-843: Hazardous Waste Operations and Emergency Response: Facility employees are trained to the Awareness level only.
6. First Aid, CPR, and Bloodborne Pathogens: For Trained Response Personnel Only
7. Incipient Fire Response: For Trained Response Personnel Only

Training is conducted initially, with refresher training at least annually.

RECORD KEEPING: All training records must be kept on file and retained at the Facility, in the individuals training files.

4.4 Drills

In addition to drills specified in the OSCP, the Facility will conduct annual drills (each calendar year) of this ERP. The Port, the JWC, BNSF Railway, and relevant response agencies (such as Vancouver Fire Department, Vancouver Police Department, and CRESA) will be invited to participate in annual drills. Tabletop drills may be conducted more frequently.

Drills will be critiqued and documented in the same manner as the post-incident critique described in Section 3.2

4.5 Definitions and Acronyms

List of Definitions

Communications Clerk (CC): That person designated to make notifications, manage communications with outside resources and agencies and to document response activities and notifications during an emergency.

Emergency Operations Center (EOC): A location identified pre-emergency to serve as a communications, command, and control point during the emergency. This is the location where the EC and Communication clerk will management incident from and where outside responders and resources will stage during the emergency.

Emergency Notification System: A code spoken over the paging or Facility radio communication system, recognized by all personnel, to mean general alarm requiring immediate response. A General Alarm for this facility is;

CODE RED	EVACUATE IMMEDIATELY
CODE YELLOW	SPILL RESPONSE
CODE BLUE	FIRE
CODE GREEN	INJURY
CODE CLEAR	ALL CLEAR

Emergency Response Plan (ERP): This plan.

Incident Commander (IC): That person designated to act in the event of an emergency to bring events under control, and to notify or cause to be notified the proper authorities. The IC is empowered to commit all resources that are needed, including commitment of funds for outside help.

Incipient Fire: "Incipient stage fire" means a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

Incipient Fire Responder: An individual who is knowledgeable, trained, and skilled in fire extinguisher use and responding to an incipient stage fire.

Oil Spill Contingency Plan (OSCP): Plan developed to satisfy Washington State statutes and the federal oil spill planning requirements of the U.S. Coast Guard (USCG) and Environmental Protection Agency (EPA) as set forth by the Oil Pollution Act of 1990. The purpose of the OSCP is to provide guidelines to respond to a spill that originates from the facility.

Over Pack Drum: A drum or drums, which are large enough to hold an entire 55-gallon, drum of material. The Over pack drums used at BIDS facilities are filled with various haz sorbs and spill containment and clean up materials and equipment.

Director of Operations/General Manager (DO/GM): An employee of Vancouver Energy who oversees the operations of the various terminals in a given geographic area or region. The DO/GM's function is to oversee that the terminals operate the facilities in accordance with the standards set by Vancouver Energy and its customers.

Reportable Quantity (RQ): A quantity of material, which when spilled causes a Legal requirement of the person in charge, to call the National Response Center. Different commodities will have different RQs. See appropriate MSDS (Material Safety Data Sheets) for RQ (reportable quantity) amounts.

Spill Prevention, Control, and Countermeasures (SPCC) Plan: Plan developed to comply with 40 CFR Part 112.

Wind Sock: A lightweight material, which is usually mounted to a pole for the purposes of determining direction and strength of the wind, for emergencies involving vapor releases.

List of Acronyms

AED: automated external defibrillator

API: American Petroleum Institute

AST: Aboveground storage tank

CC: communications clerk

CDC: Centers for Disease Control

CFR: Code of Federal Regulations

CRESA: Clark Regional Emergency Response Agency

DO/GM: Director of Operations/General Manager

DOT: Department of Transportation

EHS: extremely hazardous substance

EOC: emergency operations center

EPA: Environmental Protection Agency

ER: Emergency Response

ERP: Emergency Response Plan

Facility: Vancouver Energy

H_2S: hydrogen sulfide

HAZWOPER: Hazardous Waste Operations and Emergency Response

IC: Incident Commander

ICS: Incident Command System

IRT: Initial Response Team

JWC: Jail Work Center

LEL: Lower explosive limit

LEPC: Local Emergency Planning Committee

MSDSs: Material Safety Data Sheets

NFPA: National Fire Protection Association

NOAA: National Oceanic and Atmospheric Administration

O_2: oxygen

OSCP: Oil Spill Contingency Plan

OSHA: Occupational Safety and Health Administration

Port: Port of Vancouver USA

PPE: Personal protective equipment

RQ: reportable quantity

SCBA: self-contained breathing apparatus

SDSs: Safety Data Sheets

SHE&Q: Safety, Health, Environment, and Quality

SPCC: Spill Prevention, Control, and Countermeasures

SR 501: State Route 501

TPQ: threshold planning quantity

USCG: U.S. Coast Guard

WAC: Washington Administrative Code

WISHA: Washington Industrial Safety and Health Act

WSDOT: Washington State Department of Transportation

4.6 Information Record

Name: _____ Date/Time: _____

Telephone Numbers: _____

Physical Location: _____

_____

Type of Incident: Accidental Release, Fire, or Explosion _____

Name/Quantity of Material Released: _____

Potential Health/Environmental Hazards: _____

Injuries, (Number, and type) if any: _____

Reporting Log:

Local Fire/Rescue/Police Notification: _____

Spill Hotline Report: _____

Vancouver Energy DO/GM: _____

Vancouver Energy Support Center: _____

4.7 Emergency Phone Listing

Primary Contact List

Contacts	Day Time Numbers	After Hour Numbers
FIRST RESPONDER		
TBD, Operations Manager Vancouver Energy Services Corporation	---------- (Office) (Mobile)	(Mobile)
BNSF Emergency Hotline (e.g., reporting unusual or suspicious activity on BNSF trains or property)	(800) 832-5452	
Vancouver Police Department 605 E Evergreen Blvd, Vancouver, WA 98661	911 (360) 487-7400	
Vancouver Fire Department 7110 NE 63rd St, Vancouver, WA 98661	911 (360)487-7212	
AMBULANCE	911	
PeaceHealth Southwest Medical Center 400 NE Mother Joseph Pl, Vancouver, WA 98664	911 (360) 256-2000	
NATIONAL RESPONSE CENTER	(800) 424-8802	
CHEMTREC	(800) 262-9300	
STATE/MUNICIPAL REGULATORY AGENCY	State of Washington DOE (Southwest Regional Office) 360-407-6300	
	Washington Division of Emergency Management 800-258-5990	
	Clark Regional Emergency Services Agency (360)-737-1911	
	Washington State Department Labor & Industries (800)-423-7233	
	Vancouver USCG Recruiting Office (360)-699-1045	
Clark Regional Emergency Services Agency (CRESA) - LEPC	360-737-1911	
RESPONSE/REMEDIATION CONTRACTORS TBD	Emergency: Office:	

Secondary Contact List

Contacts	Day Time Numbers	After Hour Numbers
TBD Director of Operations / General Manager, Vancouver Energy	(Office Direct) (Mobile)	(Mobile)
TBD Savage corporate structure	(Office Direct) (Mobile)	(Mobile)
TBD Div Trainmaster, BNSF Railroad	(Office Direct) (Mobile)	(Mobile)
SHIPPER	Shippers Contact will be notified of any severe security breach involving their respective products	

Customer Emergency Contact List

Note: if any customers on this list are contacted in the event of an emergency, operations manager is to be contacted immediately.

Additional Contacts

BNSF Response	Patrick M Brady	(817) 740-7358 (Office) (817) 821-1325 (Mobile)
Tesoro Response	Eric. A. Haugstad	(210) 626-4636 (Office) (210) 865-9018 (Mobile)
Port of Vancouver USA	Mike Schiller	(360) 992-1113 (Office) (360) 518-1257 (Mobile)

Stakeholder/Neighboring Facility Contact List

Contacts	Primary Contact #1 (e.g. name, address, phone, email)	Alternative Contact
BNSF Railway	1310 West 11th Street, Vancouver, WA 98660; 360-418-6233	
City of Vancouver	415 West 6th Street, Vancouver, WA 98660; 360-487-8600	
Clark County Jail Work Center	5197 NW Lower River Road, Vancouver, WA 98660; 360-397-2138; sheriff@clark.wa.gov	
Clark County Sheriff's Boat House	707 West 13th Street, Vancouver, WA 98660; 360-397-2211; ccsomarine@clark.wa.gov	
Clark Public Utilities	1200 Fort Vancouver Way, Vancouver, WA 98660; 360-992-3000; mailbox@clarkpud.com	
Clark Regional Emergency Services Agency (CRESA)	710 West 13th Street, Vancouver, WA 98660; 360-737-1911; cresa@clark.wa.gov	
Farwest Steel	3703 NW Gateway Avenue, Vancouver, WA 98660; 360-735-8744	

Contacts	Primary Contact #1 (e.g. name, address, phone, email)	Alternative Contact
Glacier NW/CalPortland	2327 West Mill Plain Blvd, Vancouver, WA 98660; 360-892-5100	360-907-9607; 360-694-9420, ext. 1
NGL Supply Terminal Company	5701 NW Old Lower River Road, Vancouver, WA 98660; 360-694-2844	
Port of Vancouver USA	3103 NW Lower River Road, Vancouver, WA 98660; 360-693-3611	
Port of Vancouver Security	3103 NW Lower River Road, Vancouver, WA 98660; 360-992-1120	
Subaru	3309 NW Gateway Avenue, Vancouver, WA 98660; 360-737-7630	
TriStar	3702 NW Gateway Avenue, Vancouver, WA 98660; 360-823-1000	503-807-2952 (24-hour)
United Harvest	1927 Elevator Way #A, Vancouver, WA 98682; 360-693-1521	
Washington Department of Transportation	11018 NE 51st Circle, Vancouver, WA 98682; 360-905-2000	

4.8 Emergency Response Guidebook (ERG) Guide

See attached.

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Flammable Liquids (Non-Polar/Water-Immiscible)

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **(P)** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.
- Substance may be transported hot.
- For UN3166, if Lithium ion batteries are involved, also consult GUIDE 147.
- **If molten aluminum is involved, refer to GUIDE 169.**

HEALTH

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

CAUTION: For mixtures containing alcohol or polar solvent, alcohol-resistant foam may be more effective.

Small Fire

- Dry chemical, CO_2, water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- **Do not use straight streams**.
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor; but may not prevent ignition in closed spaces.

FIRST AID

- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Vancouver Energy
3.2 - Operations Site Security Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590
30 April 2015

Prepared for

Tesoro Savage Petroleum Terminal LLC
5501 NW Old Lower River Road
Vancouver, Washington 98660

Prepared by

Mark A. Burris
Regional Security Manager, NW
Tesoro Companies Inc. LLC

Revision Summary

No.	Date	Edits/Comments
00	30 April 2015	Submittal for Application Review

Vancouver Energy
Operations Site Security Plan (Section 3.2)

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1. Introduction and Background

Vancouver Energy (Facility) provides transloading services for pipeline quality crude oil from railcars to marine vessels. The Facility is located at 5501 NW Old Lower River Road, Vancouver, Washington; it is situated at the Port of Vancouver USA (Port) on the north bank of the Columbia River at approximately River Mile 103.5. The Facility site is approximately 47.4 acres in size and comprises elements within the following "area" groupings, as illustrated in Figure 1 and Figure 2.

- Area 200 – Rail Unloading – located at Terminal 5 of the Port
- Area 300 – Storage – located at Parcel 1A of the Port
- Area 400 – Marine Terminal – located at berths 13 and 14 at the Port
- Area 500 – Transfer Pipelines – located in locations between areas 200, 300, and 400
- Rail Infrastructure – located at Terminal 5 of the Port

The Facility receives an average of four unit trains per day and unloads an average of 360,000 barrels (bbl) of crude oil per day. Six nominal capacity 400,000 bbl tanks are used to store crude oil on site. A transfer pipeline system is used to convey crude oil from Area 200 to Area 300 for storage, and from Area 300 to Area 400 for vessel loading. The transfer pipeline system can also be operated to move crude oil from Area 200 directly to Area 400. The Facility operates 24 hours per day, 7 days per week.

1.1 Purpose of Plan

The operations security plan describes security measures and procedures implemented at the Facility to secure equipment and operations[1]. This plan covers post-construction operational security.

1.2 Regulatory Requirements

Regulatory determination assumptions have been made based on terminal facilities with similar attributes but are subject to final determination of the federal regulators. It is assumed the entire Facility is subject to the Maritime Transportation Security Act of 2002, 33 CFRs 101 and 105 (MTSA).

Security plans for facilities subject to these regulations are considered Security Sensitive Information (SSI) under 49 CFR 1520 and subject to protection from general release. See Appendix A. Where applicable, this plan provides a general description of how the Facility meets these requirements without disclosure of SSI.

The Marine Terminal (Area 400) lies within the MTSA-regulated area of the Port and is also subject to the Port Facility Security Plan on file with the U.S. Coast Guard (USCG) in accordance with 33 CFR 105. This Facility Security Plan is SSI and not subject to release. General reference to the requirements are made without disclosure of Port SSI.

[1] This plan has been prepared in response to the review of the Application for Site Certification (ASC). It is a preliminary plan based on the Applicant's current understanding of the Facility, as described in the ASC submitted to EFSEC. It is a draft and subject to change as the project develops. Changes in engineering and construction may impact later versions and editions of this security plan. This plan is current as of the date as listed in the footer.

Further, the Port is a vibrant dynamic economic engine with multiple tenants and customers. The Port makes changes to physical and procedural security to facilitate their various customers and tenants. The Facility would be only one of these tenants. Changes to physical and procedural security are subject to change and may impact later versions and editions of this plan. For example, perimeter fencing or gates may be changed or added. Security routes may be changed or added.

Figure 1 - Vicinity Map

LEGEND

- Project Boundary
- Vancouver, WA
- Portland, Oregon

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Date: April 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

N

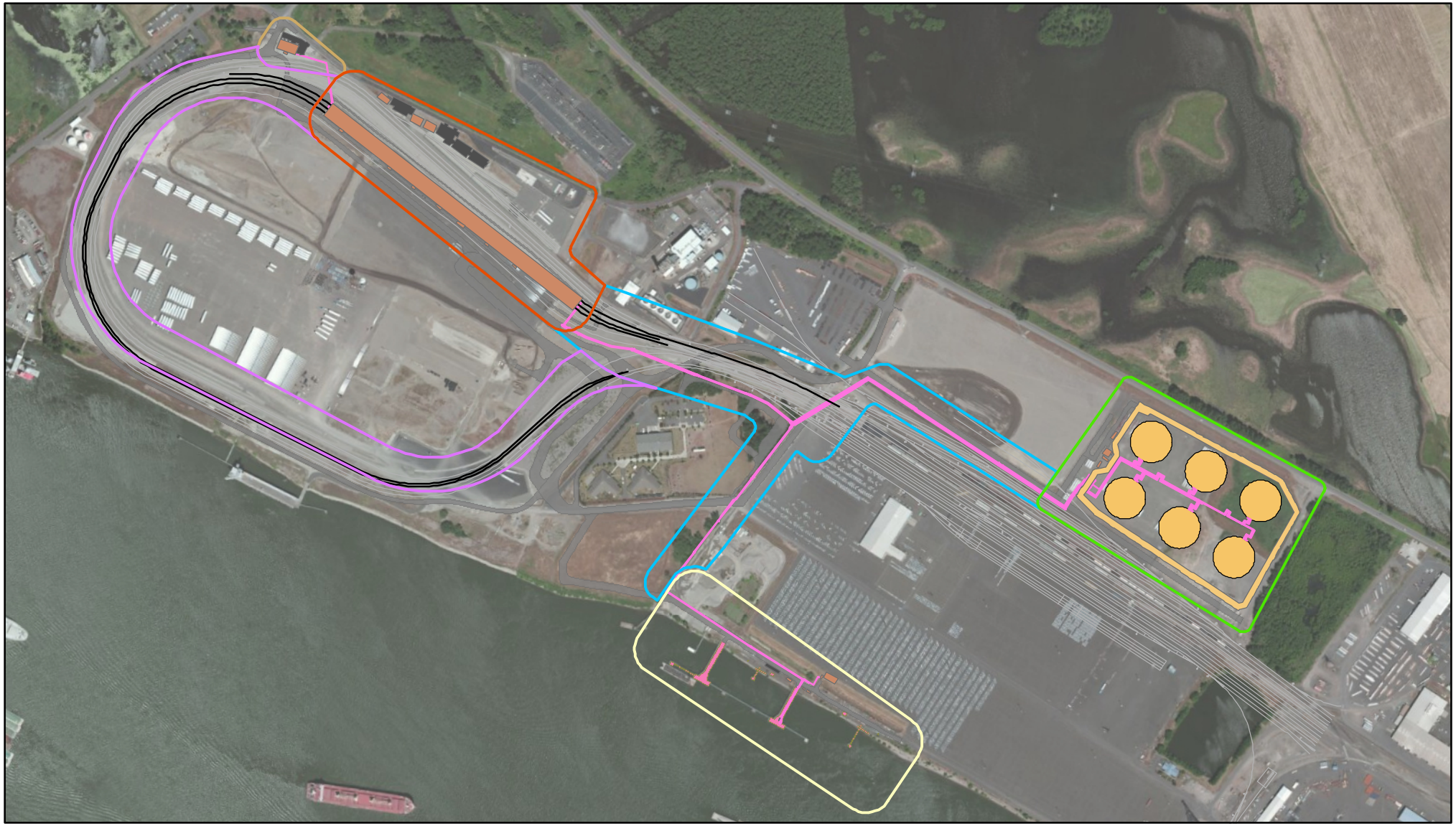

Figure 2 - Site Plan

VANCOUVER ENERGY

Tesoro Savage Petroleum Terminal LLC

Proposed Project Facilities

- Containment Berm
- Rail
- Parking
- Building
- Transfer Pipeline
- Storage Tank
- Roads
- Marine Terminal

TSPT Improvement Areas

- 200 - Unloading and Office
- 300 - Storage
- 400 - Marine Terminal
- 500 - Transfer Pipelines
- 600 - West Boiler
- Rail Infrastructure

0 250 500 1,000 Feet

N

Date: February 2015

Map Notes: Aerial photo dated July 2010, courtesy of ESRI World Imagery service

1.3 Related Plans and Documents

Other plans prepared for the Facility that address components related to security during operations include the following.

- Oil Spill Contingency Plan – This plan includes security measures to be implemented during oil spill response activities.

2. Threat Assessment

The basis for measures and mitigations proposed in this security plan is a result of a basic threat assessment of the proposed facility location at the Port. Various tools were used in assessing the threats.

2.1 International and National Assessment

Various Department of Homeland Security (DHS) products were reviewed to assess the national level threat to Vancouver Energy. The “DHS Energy Sector – Specific Plan, an Annex to the National Infrastructure Plan 2010,” and the DHS “Homeland Security Threat Assessment: Evaluating Threats 2008-2013” were reviewed.

Extra national terror organizations have focused on U.S. domestic targets that would maximize damage and loss of life. U.S. transportation and energy sectors and U.S. iconic targets remain the most likely targets. No specific threats to U.S. domestic energy infrastructure were listed nor were any specific geographic references made to the Pacific Northwest.

2.2 Local Assessment

Vancouver Police Department crime statistics and Crime Map were referenced for historical criminal threat data. A Crimecast CAP index report for 2014 for the Port was reviewed. Port Security staff were consulted regarding past incidents. Vancouver Energy is located in an area with statistically average general crime threats. General property crimes are the most common but at national averages. The general crime threat has been evaluated as low severity and low likelihood. See Appendix B. The protest threat has been evaluated as likely but with a low level of severity .

2.3 Summary

With no specific threat, mitigations and measures as required by MTSA are deemed adequate mitigations to general threats to critical energy infrastructure. General crime and protest disruption mitigation measures are exceeded by the regulatory requirements of MTSA.

3. Roles and Responsibilities

3.1 Operators

Vancouver Energy is staffed 24/7/365 by professional operators. These operators conduct safety and security rounds as part of their shift routines.

3.2 Management

Vancouver Energy management have responsibility for day-to-day implementation of security plans and procedures. Suspicious event and incident reporting to regulatory authorities are conducted by site management in a timely manner consistent with regulatory expectations.

3.3 Corporate Security

Savage Companies and Tesoro Companies Inc. LLC corporate security support the Facility with regulatory compliance support through intelligence sharing, security plan reviews, site visits, and audits.

Operational Security Potential threats include property crimes related to equipment and materials as detailed in the threat assessment.

After review of similar terminal operations, it is assumed the Facility is subject to MTSA security regulations as detailed 33 CFRs 101 and 105. Terminal 4, berths 13 and 14, are within the Port MTSA-regulated area. A facility security plan (FSP) to meet the specific requirements of 33 CFR 105 will be developed and submitted to the USCG for approval prior to commissioning of the Facility. This FSP is SSI as detailed in the Scope section and not releasable. The following is an outline of the basic 18-part FSP requirements as detailed in 33 CFR 105. Each section of the plan must be addressed. If the section is not applicable due to the nature of the operations of the Facility, it must be detailed as to how the section requirements will not apply.

3.4 Security Administration and Organization of the Facility

1. Introduction
2. Purpose
3. Facility Profile
4. Facility Plot Plan
5. Security Organization of Facility, Points Of Contact (POCs)
6. Facility Security Officer Duties

The submitted FSP provides a general description of the facility with a plot plan. The FSP defines the security organizational structure. The points of contact for the facility, including manager and facility security officer (FSO) if different from the manager, are listed with contact information. This section also includes a specific listing of duties to be performed by the FSO.

33§105.200 Owner or operator[2]

(a) Each facility owner or operator must ensure that the facility operates in compliance with the requirements of this part.

(b) For each facility, the facility owner or operator must:

(1) Define the security organizational structure and provide each person exercising security duties and responsibilities within that structure the support needed to fulfill those obligations;

(2) Designate, in writing, by name or by title, a Facility Security Officer (FSO) and identify how the officer can be contacted at any time

3.5 Personnel Training

1. Facility Personnel with Security Duties
2. Facility Security Officers (FSOs)
3. Security Training for All Other Facility Personnel

The submitted FSP details the required training for the various positions at the facility. It is anticipated that Vancouver Energy will not retain Facility Personnel with Security Duties (Security Officers) but as a tenant will rely on the Port to provide perimeter security and random security patrols. This facility has a named

[2] Text in blue italics is directly excerpted from 33 CFR.

FSO and each employee receives security training. This training is recorded as detailed in Section 4 Records and Documentation.

33§105.205 Facility Security Officer (FSO).

(a) General. (1) The FSO may perform other duties within the owner's or operator's organization, provided he or she is able to perform the duties and responsibilities required of the FSO.

(2) The same person may serve as the FSO for more than one facility, provided the facilities are in the same COTP[3] zone and are not more than 50 miles apart. If a person serves as the FSO for more than one facility, the name of each facility for which he or she is the FSO must be listed in the Facility Security Plan (FSP) of each facility for which or she is the FSO.

(3) The FSO may assign security duties to other facility personnel; however, the FSO retains the responsibility for these duties.

(4) The FSO must maintain a TWIC.

(b) Qualifications. (1) The FSO must have general knowledge, through training or equivalent job experience, in the following:

(i) Security organization of the facility;

(ii) General vessel and facility operations and conditions;

(iii) Vessel and facility security measures, including the meaning and the requirements of the different MARSEC Levels;

(iv) Emergency preparedness, response, and contingency planning;

(v) Security equipment and systems, and their operational limitations; and

(vi) Methods of conducting audits, inspections, control, and monitoring techniques.

(2) In addition to knowledge and training required in paragraph (b)(1) of this section, the FSO must have knowledge of and receive training in the following, as appropriate:

(i) Relevant international laws and codes, and recommendations;

(ii) Relevant government legislation and regulations;

(iii) Responsibilities and functions of local, State, and Federal law enforcement agencies;

(iv) Security assessment methodology;

(v) Methods of facility security surveys and inspections;

(vi) Instruction techniques for security training and education, including security measures and procedures;

(vii) Handling sensitive security information and security related communications;

(viii) Current security threats and patterns;

(ix) Recognizing and detecting dangerous substances and devices;

(x) Recognizing characteristics and behavioral patterns of persons who are likely to threaten security;

[3] COTP = Captain of the Port

(xi) Techniques used to circumvent security measures;

(xii) Conducting physical searches and non-intrusive inspections;

(xiii) Conducting security drills and exercises, including exercises with vessels; and

(xiv) Assessing security drills and exercises.

(xv) Knowledge of TWIC requirements.

(c) Responsibilities. In addition to those responsibilities and duties specified elsewhere in this part, the FSO must, for each facility for which he or she has been designated:

(1) Ensure that the Facility Security Assessment (FSA) is conducted;

(2) Ensure the development and implementation of a FSP;

(3) Ensure that an annual audit is conducted, and if necessary that the FSA and FSP are updated;

(4) Ensure the FSP is exercised per §105.220 of this part;

(5) Ensure that regular security inspections of the facility are conducted;

(6) Ensure the security awareness and vigilance of the facility personnel;

(7) Ensure adequate training to personnel performing facility security duties;

(8) Ensure that occurrences that threaten the security of the facility are recorded and reported to the owner or operator;

(9) Ensure the maintenance of records required by this part;

(10) Ensure the preparation and the submission of any reports as required by this part;

(11) Ensure the execution of any required Declarations of Security with Masters, Vessel Security Officers or their designated representatives;

(12) Ensure the coordination of security services in accordance with the approved FSP;

(13) Ensure that security equipment is properly operated, tested, calibrated, and maintained;

(14) Ensure the recording and reporting of attainment changes in MARSEC Levels to the owner or operator and the cognizant COTP;

(15) When requested, ensure that the Vessel Security Officers receive assistance in confirming the identity of visitors and service providers seeking to board the vessel through the facility;

(16) Ensure notification, as soon as possible, to law enforcement personnel and other emergency responders to permit a timely response to any transportation security incident;

(17) Ensure that the FSP is submitted to the cognizant COTP for approval, as well as any plans to change the facility or facility infrastructure prior to amending the FSP; and

(18) Ensure that all facility personnel are briefed of changes in security conditions at the facility.

(19) Ensure the TWIC program is being properly implemented.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003; USCG-2006-24196, 72 FR 3583, Jan. 25, 2007]

§105.210 Facility personnel with security duties.

Facility personnel responsible for security duties must maintain a TWIC, and must have knowledge, through training or equivalent job experience, in the following, as appropriate:

(a) Knowledge of current security threats and patterns;

(b) Recognition and detection of dangerous substances and devices;

(c) Recognition of characteristics and behavioral patterns of persons who are likely to threaten security;

(d) Techniques used to circumvent security measures;

(e) Crowd management and control techniques;

(f) Security related communications;

(g) Knowledge of emergency procedures and contingency plans;

(h) Operation of security equipment and systems;

(i) Testing, calibration, and maintenance of security equipment and systems;

(j) Inspection, control, and monitoring techniques;

(k) Relevant provisions of the Facility Security Plan (FSP);

(l) Methods of physical screening of persons, personal effects, baggage, cargo, and vessel stores; and

(m) The meaning and the consequential requirements of the different MARSEC Levels.

(n) Familiar with all relevant aspects of the TWIC program and how to carry them out.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended by USCG-2006-24196, 72 FR 3583, Jan. 25, 2007]

§105.215 Security training for all other facility personnel.

All other facility personnel, including contractors, whether part-time, full-time, temporary, or permanent, must have knowledge of, through training or equivalent job experience, in the following, as appropriate:

(a) Relevant provisions of the Facility Security Plan (FSP);

(b) The meaning and the consequential requirements of the different MARSEC Levels as they apply to them, including emergency procedures and contingency plans;

(c) Recognition and detection of dangerous substances and devices;

(d) Recognition of characteristics and behavioral patterns of persons who are likely to threaten security; and

(e) Techniques used to circumvent security measures.

(f) Familiar with all relevant aspects of the TWIC program and how to carry them out.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003; USCG-2006-24196, 72 FR 3583, Jan. 25, 2007]

3.6 Drills and Exercises

1. General
2. Drills
3. Exercises

The submitted FSP details how often the facility conducts drills and exercises. This section details how a drill tests select parts of the FSP at least every 90 days. The facility exercises multiple parts of the FSP at least annually. These drills and exercises are evaluated to determine if the FSP should be revised. These drills and exercises are recorded as detailed in Section 4 Records and Documentation. All functional areas of the Facility are included in the required drills and exercises. Drills and Excercises are coordinated with Port safety and security staff when applicable.

33§105.220 Drill and exercise requirements.

(a) General. (1) Drills and exercises must test the proficiency of facility personnel in assigned security duties at all MARSEC Levels and the effective implementation of the Facility Security Plan (FSP). They must enable the Facility Security Officer (FSO) to identify any related security deficiencies that need to be addressed.

(2) A drill or exercise required by this section may be satisfied with the implementation of security measures required by the FSP as the result of an increase in the MARSEC Level, provided the facility reports attainment to the cognizant COTP.

(b) Drills. (1) The FSO must ensure that at least one security drill is conducted every 3 months. Security drills may be held in conjunction with non-security drills, where appropriate.

(2) Drills must test individual elements of the FSP, including response to security threats and incidents. Drills should take into account the types of operations of the facility, facility personnel changes, the type of vessel the facility is serving, and other relevant circumstances. Examples of drills include unauthorized entry to a restricted area, response to alarms, and notification of law enforcement authorities.

(3) If a vessel is moored at the facility on the date the facility has planned to conduct any drills, the facility cannot require the vessel or vessel personnel to be a part of or participate in the facility's scheduled drill.

(c) Exercises. (1) Exercises must be conducted at least once each calendar year, with no more than 18 months between exercises.

(2) Exercises may be:

(i) Full scale or live;

(ii) Tabletop simulation or seminar;

(iii) Combined with other appropriate exercises; or

(iv) A combination of the elements in paragraphs (c)(2)(i) through (iii) of this section.

(3) Exercises may be facility-specific or part of a cooperative exercise program with applicable facility and vessel security plans or comprehensive port exercises.

(4) Each exercise must test communication and notification procedures, and elements of coordination, resource availability, and response.

(5) Exercises are a full test of the security program and must include substantial and active participation of FSOs, and may include government authorities and vessels visiting the facility.

Requests for participation of Company and Vessel Security Officers in joint exercises should consider the security and work implications for the vessel.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.7 Records and Documentation

1. Requirements

The submitted FSP details that the FSO must keep records of the activities for at least two years and makes them available to the USCG upon request. These records include training, drills and exercises, security incidents and breaches of security, changes in MARSEC level, security equipment repairs and maintenance, threats, declarations of security, and audits. These records are SSI and must be safeguarded in accordance with 49 CFR 1520.

33§105.225 Facility recordkeeping requirements.

(a) Unless otherwise specified in this section, the Facility Security Officer (FSO) must keep records of the activities as set out in paragraph (b) of this section for at least 2 years and make them available to the Coast Guard upon request.

(b) Records required by this section may be kept in electronic format. If kept in an electronic format, they must be protected against unauthorized deletion, destruction, or amendment. The following records must be kept:

(1) Training. For training under §105.210, the date of each session, duration of session, a description of the training, and a list of attendees;

(2) Drills and exercises. For each drill or exercise, the date held, description of drill or exercise, list of participants, and any best practices or lessons learned which may improve the Facility Security Plan (FSP);

(3) Incidents and breaches of security. For each incident or breach of security, the date and time of occurrence, location within the facility, description of incident or breaches, to whom it was reported, and description of the response;

(4) Changes in MARSEC Levels. For each change in MARSEC Level, the date and time of notification received, and time of compliance with additional requirements;

(5) Maintenance, calibration, and testing of security equipment. For each occurrence of maintenance, calibration, and testing, record the date and time, and the specific security equipment involved;

(6) Security threats. For each security threat, the date and time of occurrence, how the threat was communicated, who received or identified the threat, description of threat, to whom it was reported, and description of the response;

(7) Declaration of Security (DoS) A copy of each single-visit DoS and a copy of each continuing DoS for at least 90 days after the end of its effective period; and

(8) Annual audit of the FSP. For each annual audit, a letter certified by the FSO stating the date the audit was completed.

(c) Any record required by this part must be protected from unauthorized access or disclosure.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.8 Response to Change in MARSEC Level

1. General
2. MARSEC Security Level I
3. MARSEC Security Level II
4. MARSEC Security Level III

The submitted FSP details what actions the facility takes in response to an increase in MARSEC level. This section details reporting to the cognizant USCG COTP compliance or noncompliance with MARSEC measures within 12 hours of a change in MARSEC level.

33§105.230 Maritime Security (MARSEC) Level coordination and implementation.

(a) The facility owner or operator must ensure the facility operates in compliance with the security requirements in this part for the MARSEC Level in effect for the port.

(b) When notified of an increase in the MARSEC Level, the facility owner and operator must ensure:

(1) Vessels moored to the facility and vessels scheduled to arrive at the facility within 96 hours of the MARSEC Level change are notified of the new MARSEC Level and the Declaration of Security is revised as necessary;

(2) The facility complies with the required additional security measures within 12 hours; and

(3) The facility reports compliance or noncompliance to the COTP.

(c) For MARSEC Levels 2 and 3, the Facility Security Officer must inform all facility personnel about identified threats, and emphasize reporting procedures and stress the need for increased vigilance.

(d) An owner or operator whose facility is not in compliance with the requirements of this section, must inform the COTP and obtain approval prior to interfacing with a vessel or continuing operations.

(e) At MARSEC Level 3, in addition to the requirements in this part, a facility owner or operator may be required to implement additional measures, pursuant to 33 CFR part 6, 160, or 165, as appropriate, which may include but are not limited to:

(1) Use of waterborne security patrol;

(2) Use of armed security personnel to control access to the facility and to deter, to the maximum extent practical, a transportation security incident; and

(3) Examination of piers, wharves, and similar structures at the facility for the presence of dangerous substances or devices underwater or other threats. [USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.9 Procedures for Interfacing with Vessels

1. Requirements
2. Procedures
3. Vessel Arrival & Security Procedures While Moored at Dock
4. Coordination of crew shore leave and access

The submitted FSP details procedures for vessel interfaces at all MARSEC levels. This section details that Terminal 4, berths 13 and 14 lie within the Port MTSA-regulated area and are subject to the Port FSP on file with the USCG. This section details coordination of vessel crew exchanges and shore leave with the Port, Vancouver Energy, and any moored vessel.

33§105.240 Procedures for interfacing with vessels.

The facility owner or operator must ensure that there are measures for interfacing with vessels at all MARSEC Levels. [USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.10 Declaration of Security (DOS)

1. Requirements

The submitted FSP details when and how a Declaration of Security (DOS) is completed between Vancouver Energy and any visiting vessel. The DOS makes clear roles and responsibilities for security between the facility and visiting vessels. Vancouver Energy implements Tesoro Marine policy which exceeds MTSA requirements in that a DOS will be completed at all MARSEC levels to ensure security protocols are clearly understood at all times. It is anticipated that no continuing DOS will be issued by the Facility.

33§105.245 Declaration of Security (DoS).

(a) Each facility owner or operator must ensure procedures are established for requesting a DoS and for handling DoS requests from a vessel.

(b) At MARSEC Level 1, a facility receiving a cruise ship or a manned vessel carrying Certain Dangerous Cargo, in bulk, must comply with the following:

(1) Prior to the arrival of a vessel to the facility, the Facility Security Officer (FSO) and Master, Vessel Security Officer (VSO), or their designated representatives must coordinate security needs and procedures, and agree upon the contents of the DoS for the period of time the vessel is at the facility; and

(2) Upon the arrival of the vessel at the facility, the FSO and Master, VSO, or their designated representative, must sign the written DoS.

(c) Neither the facility nor the vessel may embark or disembark passengers, nor transfer cargo or vessel stores until the DoS has been signed and implemented.

(d) At MARSEC Levels 2 and 3, the FSOs, or their designated representatives, of facilities interfacing with manned vessels subject to part 104, of this subchapter must sign and implement DoSs as required in (b)(1) and (2) of this section.

(e) At MARSEC Levels 1 and 2, FSOs of facilities that frequently interface with the same vessel may implement a continuing DoS for multiple visits, provided that:

(1) The DoS is valid for a specific MARSEC Level;

(2) The effective period at MARSEC Level 1 does not exceed 90 days; and

(3) The effective period at MARSEC Level 2 does not exceed 30 days.

(f) When the MARSEC Level increases beyond that contained in the DoS, the continuing DoS is void and a new DoS must be executed in accordance with this section.

(g) A copy of all currently valid continuing DoSs must be kept with the Facility Security Plan.

(h) The COTP may require, at any time, at any MARSEC Level, any facility subject to this part to implement a DoS with the VSO prior to any vessel-to-facility interface when he or she deems it necessary.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.11 Communications

1. General

The submitted FSP details how security communications occur within the facility. Radio and telephones are most common methods of timely communication. Appendix C provides a sample security incident reporting call list used to provide timely and comprehensive notification of any security incident. Current 24-hour contact numbers with name and title are included in the reporting procedure. Telephonic threats or bomb threats are reported to law enforcement. A bomb threat record sheet is kept near the public or main listed telephone for the construction site. See Appendix D.

33§105.235 Communications.

(a) The Facility Security Officer must have a means to effectively notify facility personnel of changes in security conditions at the facility.

(b) Communication systems and procedures must allow effective and continuous communications between the facility security personnel, vessels interfacing with the facility, the cognizant COTP, and national and local authorities with security responsibilities.

(c) At each active facility access point, provide a means of contacting police, security control, or an emergency operations center, by telephones, cellular phones, and/or portable radios, or other equivalent means.

(d) Facility communications systems must have a backup means for both internal and external communications. [USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.12 Security Systems and Equipment Maintenance

1. General
2. Procedures for Repair of Failed or Malfunctioning Security Equipment

The submitted FSP details how security systems and equipment must be in good working order and inspected, tested, calibrated, and maintained according to manufacturer's recommendations. Records of maintenance and repair are maintained to IAW Section 4 Records.

33§105.250 Security systems and equipment maintenance.

(a) Security systems and equipment must be in good working order and inspected, tested, calibrated, and maintained according to manufacturers' recommendations.

(b) Security systems must be regularly tested in accordance with the manufacturers' recommendations; noted deficiencies corrected promptly; and the results recorded as required in §105.225 of this subpart.

(c) The FSP must include procedures for identifying and responding to security system and equipment failures or malfunctions. [USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.13 Security Measures for Access Control, including designated public access areas

1. General
2. Acceptable Identification Documents
3. TWIC Validation
4. Escorts

5. Vehicle Access Controls
6. Deliveries
7. Designated Public Access Areas

The submitted FSP details security measures for access control. This section details what identification documents, including a Transportation Workers Identification Credential (TWIC) are acceptable. This section includes validation methods of acceptable documents. A valid TWIC is required for unescorted access to the MTSA-regulated portions of Vancouver Energy. This section details conditions for when escorts of non TWIC holders are accepted and the provisions of escort. This section details personnel and vehicle screening at access points to the facility. Random entry screening of personnel and vehicles is conducted to prevent the introduction of unauthorized individuals, substances, and devices to Vancouver Energy. Screening rates are in alignment with current MARSEC levels and directives. It is anticipated that Vancouver Energy will NOT have designated public access areas.

§105.255 Security measures for access control.

(a) General. The facility owner or operator must ensure the implementation of security measures to:

(1) Deter the unauthorized introduction of dangerous substances and devices, including any device intended to damage or destroy persons, vessels, facilities, or ports;

(2) Secure dangerous substances and devices that are authorized by the owner or operator to be on the facility;

(3) Control access to the facility; and

(4) Prevent an unescorted individual from entering an area of the facility that is designated as a secure area unless the individual holds a duly issued TWIC and is authorized to be in the area.

(b) The facility owner or operator must ensure that the following are specified:

(1) The locations where restrictions or prohibitions that prevent unauthorized access are applied for each MARSEC Level, including those points where TWIC access control provisions will be applied. Each location allowing means of access to the facility must be addressed;

(2) The types of restrictions or prohibitions to be applied and the means of enforcing them;

(3) The means used to establish the identity of individuals not in possession of a TWIC, in accordance with §101.515 of this subchapter, and procedures for escorting them;

(4) Procedures for identifying authorized and unauthorized persons at any MARSEC level; and

(5) The locations where persons, personal effects and vehicle screenings are to be conducted. The designated screening areas should be covered to provide for continuous operations regardless of the weather conditions.

(c) The facility owner or operator must ensure that a TWIC program is implemented as follows:

(1) All persons seeking unescorted access to secure areas must present their TWIC for inspection before being allowed unescorted access, in accordance with §101.514 of this subchapter. Inspection must include:

(i) A match of the photo on the TWIC to the individual presenting the TWIC;

(ii) Verification that the TWIC has not expired; and

(iii) A visual check of the various security features present on the card to determine whether the TWIC has been tampered with or forged.

(2) If an individual cannot present a TWIC because it has been lost, damaged or stolen, and he or she has previously been granted unescorted access to the facility and is known to have had a valid TWIC, the individual may be given unescorted access to secure areas for a period of no longer than 7 consecutive calendar days if:

(i) The individual has reported the TWIC as lost, damaged, or stolen to TSA as required in 49 CFR 1572.19(f);

(ii) The individual can present another identification credential that meets the requirements of §101.515 of this subchapter; and

(iii) There are no other suspicious circumstances associated with the individual's claim of loss or theft.

(3) If an individual cannot present his or her TWIC for any other reason than outlined in paragraph (c)(2) of this section, he or she may not be granted unescorted access to the secure area. The individual must be under escort, as that term is defined in part 101 of this subchapter, at all times when inside of a secure area.

(4) With the exception of persons granted access according to paragraph (c)(2) of this section, all persons granted unescorted access to secure areas of the facility must be able to produce his or her TWIC upon request.

(5) There must be disciplinary measures in place to prevent fraud and abuse.

(6) The facility's TWIC program should be coordinated, when practicable, with identification and TWIC access control measures of vessels or other transportation conveyances that use the facility.

(d) If the facility owner or operator uses a separate identification system, ensure that it complies and is coordinated with TWIC provisions in this part.

(e) The facility owner or operator must establish in the approved Facility Security Plan (FSP) the frequency of application of any access controls, particularly if they are to be applied on a random or occasional basis.

(f) MARSEC Level 1. The facility owner or operator must ensure the following security measures are implemented at the facility:

(1) Implement TWIC as set out in paragraph (c) of this section.

(2) Screen persons, baggage (including carry-on items), personal effects, and vehicles, for dangerous substances and devices at the rate specified in the approved FSP, excluding government-owned vehicles on official business when government personnel present identification credentials for entry;

(3) Conspicuously post signs that describe security measures currently in effect and clearly state that:

(i) Entering the facility is deemed valid consent to screening or inspection; and

(ii) Failure to consent or submit to screening or inspection will result in denial or revocation of authorization to enter.

(4) Check the identification of any person not holding a TWIC and seeking entry to the facility, including vessel passengers, vendors, personnel duly authorized by the cognizant government authorities, and visitors. This check shall include confirming the reason for boarding by examining at least one of the following:

(i) Joining instructions;

(ii) Passenger tickets;

(iii) Boarding passes;

(iv) Work orders, pilot orders, or surveyor orders;

(v) Government identification; or

(vi) Visitor badges issued in accordance with an identification system implemented under paragraph (d) of this section.

(5) Deny or revoke a person's authorization to be on the facility if the person is unable or unwilling, upon the request of facility personnel or a law enforcement officer, to establish his or her identity in accordance with this part or to account for his or her presence. Any such incident must be reported in compliance with this part;

(6) Designate restricted areas and provide appropriate access controls for these areas;

(7) Identify access points that must be secured or attended to deter unauthorized access;

(8) Deter unauthorized access to the facility and to designated restricted areas within the facility;

(9) Screen by hand or device, such as x-ray, all unaccompanied baggage prior to loading onto a vessel; and

(10) Secure unaccompanied baggage after screening in a designated restricted area and maintain security control during transfers between the facility and a vessel.

(g) MARSEC Level 2. In addition to the security measures required for MARSEC Level 1 in this section, at MARSEC Level 2, the facility owner or operator must ensure the implementation of additional security measures, as specified for MARSEC Level 2 in their approved FSP. These additional security measures may include:

(1) Increasing the frequency and detail of the screening of persons, baggage, and personal effects for dangerous substances and devices entering the facility;

(2) X-ray screening of all unaccompanied baggage;

(3) Assigning additional personnel to guard access points and patrol the perimeter of the facility to deter unauthorized access;

(4) Limiting the number of access points to the facility by closing and securing some access points and providing physical barriers to impede movement through the remaining access points;

(5) Denying access to visitors who do not have a verified destination;

(6) Deterring waterside access to the facility, which may include, using waterborne patrols to enhance security around the facility; or

(7) Except for government-owned vehicles on official business when government personnel present identification credentials for entry, screening vehicles and their contents for dangerous substances and devices at the rate specified for MARSEC Level 2 in the approved FSP.

(h) MARSEC Level 3. In addition to the security measures required for MARSEC Level 1 and MARSEC Level 2, at MARSEC level 3, the facility owner or operator must ensure the implementation of additional security measures, as specified for MARSEC Level 3 in their approved FSP. These additional security measures may include:

(1) Screening all persons, baggage, and personal effects for dangerous substances and devices;

(2) Performing one or more of the following on unaccompanied baggage:

(i) Screen unaccompanied baggage more extensively; for example, x-raying from two or more angles;

(ii) Prepare to restrict or suspend handling of unaccompanied baggage; or

(iii) Refuse to accept unaccompanied baggage.

(3) Being prepared to cooperate with responders and facilities;

(4) Granting access to only those responding to the security incident or threat thereof;

(5) Suspending access to the facility;

(6) Suspending cargo operations;

(7) Evacuating the facility;

(8) Restricting pedestrian or vehicular movement on the grounds of the facility; or

(9) Increasing security patrols within the facility.

[USCG-2006-24196, 72 FR 3583, Jan. 25, 2007]

3.14 Security Measures for Restricted Areas

1. Restricted Areas
2. Security Measures for Restricted Areas Implemented at Increased MARSEC Level

The submitted FSP details what areas are Restricted Areas within Vancouver Energy. This section details additional security measures implemented at each MARSEC level within these designated restricted areas.

33§105.260 Security measures for restricted areas.

(a) General. The facility owner or operator must ensure the designation of restricted areas in order to:

(1) Prevent or deter unauthorized access;

(2) Protect persons authorized to be in the facility;

(3) Protect the facility;

(4) Protect vessels using and serving the facility;

(5) Protect sensitive security areas within the facility;

(6) Protect security and surveillance equipment and systems; and

(7) Protect cargo and vessel stores from tampering.

(b) Designation of Restricted Areas. The facility owner or operator must ensure restricted areas are designated within the facility. They must also ensure that all restricted areas are clearly marked and indicate that access to the area is restricted and that unauthorized presence within the area constitutes a breach of security. The facility owner or operator may also designate the entire facility as a restricted area. Restricted areas must include, as appropriate:

(1) Shore areas immediately adjacent to each vessel moored at the facility;

(2) Areas containing sensitive security information, including cargo documentation;

(3) Areas containing security and surveillance equipment and systems and their controls, and lighting system controls; and

(4) Areas containing critical facility infrastructure, including:

(i) Water supplies;

(ii) Telecommunications;

(iii) Electrical system; and

(iv) Access points for ventilation and air-conditioning systems;

(5) Manufacturing or processing areas and control rooms;

(6) Locations in the facility where access by vehicles and personnel should be restricted;

(7) Areas designated for loading, unloading or storage of cargo and stores; and

(8) Areas containing cargo consisting of dangerous goods or hazardous substances, including certain dangerous cargoes.

(c) The owner or operator must ensure that all restricted areas have clearly established security measures to:

(1) Identify which facility personnel are authorized to have access;

(2) Determine which persons other than facility personnel are authorized to have access;

(3) Determine the conditions under which that access may take place;

(4) Define the extent of any restricted area;

(5) Define the times when access restrictions apply;

(6) Clearly mark all restricted areas and indicate that access to the area is restricted and that unauthorized presence within the area constitutes a breach of security;

(7) Control the entry, parking, loading and unloading of vehicles;

(8) Control the movement and storage of cargo and vessel stores; and

(9) Control unaccompanied baggage or personal effects.

(d) MARSEC Level 1. At MARSEC Level 1, the facility owner or operator must ensure the implementation of security measures to prevent unauthorized access or activities within the area. These security measures may include:

(1) Restricting access to only authorized personnel;

(2) Securing all access points not actively used and providing physical barriers to impede movement through the remaining access points;

(3) Assigning personnel to control access to restricted areas;

(4) Verifying the identification and authorization of all persons and all vehicles seeking entry;

(5) Patrolling or monitoring the perimeter of restricted areas;

(6) Using security personnel, automatic intrusion detection devices, surveillance equipment, or surveillance systems to detect unauthorized entry or movement within restricted areas;

(7) Directing the parking, loading, and unloading of vehicles within a restricted area;

(8) Controlling unaccompanied baggage and or personal effects after screening;

(9) Designating restricted areas for performing inspections of cargo and vessel stores while awaiting loading; and

(10) Designating temporary restricted areas to accommodate facility operations. If temporary restricted areas are designated, the FSP must include a requirement to conduct a security sweep of the designated temporary restricted area both before and after the area has been established.

(e) MARSEC Level 2. In addition to the security measures required for MARSEC Level 1 in this section, at MARSEC Level 2, the facility owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in their approved FSP. These additional security measures may include:

(1) Increasing the intensity and frequency of monitoring and access controls on existing restricted access areas;

(2) Enhancing the effectiveness of the barriers or fencing surrounding restricted areas, by the use of patrols or automatic intrusion detection devices;

(3) Reducing the number of access points to restricted areas, and enhancing the controls applied at the remaining accesses;

(4) Restricting parking adjacent to vessels;

(5) Further restricting access to the restricted areas and movements and storage within them;

(6) Using continuously monitored and recorded surveillance equipment;

(7) Enhancing the number and frequency of patrols, including waterborne patrols undertaken on the boundaries of the restricted areas and within the areas; or

(8) Establishing and restricting access to areas adjacent to the restricted areas.

(f) MARSEC Level 3. In addition to the security measures required for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the facility owner or operator must ensure the implementation of additional security measures, as specified for MARSEC Level 3 in their approved FSP. These additional security measures may include:

(1) Restricting access to additional areas;

(2) Prohibiting access to restricted areas, or

(3) Searching restricted areas as part of a security sweep of all or part of the facility.

3.15 Security Measures for Handling Cargo

1. General
2. Security measures at each MARSEC level
    - MARSEC Level I
    - MARSEC Level II
    - MARSEC Level III

The submitted FSP details Security measures for handling of cargo. The facility handles bulk liquid crude oil as cargo. Cargo interface occurs within MTSA regulated areas of the Port. Cargo storage is within anticipated MTSA-regulated areas of Vancouver Energy. This section details security measures for cargo handling at each MARSEC level.

33§105.265 Security measures for handling cargo.

(a) General. The facility owner or operator must ensure that security measures relating to cargo handling, some of which may have to be applied in liaison with the vessel, are implemented in order to:

(1) Deter tampering;

(2) Prevent cargo that is not meant for carriage from being accepted and stored at the facility without the knowing consent of the facility owner or operator;

(3) Identify cargo that is approved for loading onto vessels interfacing with the facility;

(4) Include cargo control procedures at access points to the facility;

(5) Identify cargo that is accepted for temporary storage in a restricted area while awaiting loading or pick up;

(6) Restrict the entry of cargo to the facility that does not have a confirmed date for loading, as appropriate;

(7) Ensure the release of cargo only to the carrier specified in the cargo documentation;

(8) When there are regular or repeated cargo operations with the same shipper, coordinate security measures with the shipper or other responsible party in accordance with an established agreement and procedure; and

(9) Create, update, and maintain a continuous inventory of all dangerous goods and hazardous substances from receipt to delivery within the facility, giving the location of those dangerous goods and hazardous substances.

(b) MARSEC Level 1. At MARSEC Level 1, the facility owner or operator must ensure the implementation of measures to:

(1) Unless unsafe to do so, routinely check cargo, cargo transport units, and cargo storage areas within the facility prior to, and during, cargo handling operations for evidence of tampering;

(2) Check that cargo, containers, or other cargo transport units entering the facility match the delivery note or equivalent cargo documentation;

(3) Screen vehicles; and

(4) Check seals and other methods used to prevent tampering upon entering the facility and upon storage within the facility.

(c) MARSEC Level 2. In addition to the security measures required for MARSEC Level 1 in this section, at MARSEC Level 2, the facility owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in the approved FSP. These additional security measures may include:

(1) Conducting check of cargo, containers or other cargo transport units, and cargo storage areas within the facility for evidence of tampering;

(2) Intensifying checks, as appropriate, to ensure that only the documented cargo enters the facility, is temporarily stored there, and then loaded onto the vessel;

(3) Intensifying the screening of vehicles;

(4) Increasing frequency and detail in checking of seals and other methods used to prevent tampering;

(5) Coordinating enhanced security measures with the shipper or other responsible party in accordance with an established agreement and procedures;

(6) Increasing the frequency and intensity of visual and physical inspections; or

(7) Limiting the number of locations where dangerous goods and hazardous substances, including certain dangerous cargoes, can be stored.

(d) MARSEC Level 3. In addition to the security measures required for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the facility owner or operator must ensure the implementation of additional security measures, as specified for MARSEC Level 3 in the approved FSP. These additional security measures may include:

(1) Restricting or suspending cargo movements or operations within all or part of the facility or specific vessels;

(2) Being prepared to cooperate with responders and vessels; or

(3) Verifying the inventory and location of any dangerous goods and hazardous substances, including certain dangerous cargoes, held within the facility and their location.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60541, Oct. 22, 2003]

3.16 Security Measures for Delivery of Vessel Stores and Bunkers

1. General
2. Areas for Loading or Unloading of Bunkers
3. Loading or Unloading of Vessel Stores
    - MARSEC Level I
    - MARSEC Level II
    - MARSEC Level III

The submitted FSP details security measures for delivery of vessel stores and bunkers. It is anticipated this facility will not allow vessel stores to be delivered to a vessel. This facility will not deliver bunkers.

33§105.270 Security measures for delivery of vessel stores and bunkers.

(a) General. The facility owner or operator must ensure that security measures relating to the delivery of vessel stores and bunkers are implemented to:

(1) Check vessel stores for package integrity;

(2) Prevent vessel stores from being accepted without inspection;

(3) Deter tampering;

(4) For vessels that routinely use a facility, establish and execute standing arrangements between the vessel, its suppliers, and a facility regarding notification and the timing of deliveries and their documentation; and

(5) Check vessel stores by the following means:

(i) Visual examination;

(ii) Physical examination;

(iii) Detection devices, such as scanners; or

(iv) Canines.

(b) MARSEC Level 1. At MARSEC Level 1, the facility owner or operator must ensure the implementation of measures to:

(1) Screen vessel stores at the rate specified in the approved Facility Security Plan (FSP);

(2) Require advance notification of vessel stores or bunkers delivery, including a list of stores, delivery vehicle driver information, and vehicle registration information;

(3) Screen delivery vehicles at the frequencies specified in the approved FSP; and

(4) Escort delivery vehicles within the facility at the rate specified by the approved FSP.

(c) MARSEC Level 2. In addition to the security measures required for MARSEC Level 1 in this section, at MARSEC Level 2, the facility owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in the approved FSP. These additional security measures may include:

(1) Detailed screening of vessel stores;

(2) Detailed screening of all delivery vehicles;

(3) Coordinating with vessel personnel to check the order against the delivery note prior to entry to the facility;

(4) Ensuring delivery vehicles are escorted within the facility; or

(5) Restricting or prohibiting the entry of vessel stores that will not leave the facility within a specified period.

(d) MARSEC Level 3. In addition to the security measures for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the facility owner and operator must ensure implementation of additional security measures, as specified for MARSEC Level 3 in the approved FSP. Examples of these additional security measures may include:

(1) Checking all vessel stores more extensively;

(2) Restricting or suspending delivery of vessel stores; or

(3) Refusing to accept vessel stores on the facility.

3.17 Security Measures for Monitoring

1. General
2. Monitoring of the Facility and Approaches
3. Security Patrols (‘Routine Rounds’)

The submitted FSP details how monitoring of the facility is accomplished. Vancouver Energy lies within the Port. The Port uses CCTV, fixed, and mobile security to monitor the Port and approaches to the Port. This section details the partnership between Vancouver Energy operations and Port security.

33§105.275 Security measures for monitoring.

(a) General. The facility owner or operator must ensure the implementation of security measures in this section and have the capability to continuously monitor, through a combination of lighting, security guards, waterborne patrols, automatic intrusion-detection devices, or surveillance equipment, as specified in the approved Facility Security Plan (FSP), the:

(1) Facility and its approaches, on land and water;

(2) Restricted areas within the facility; and

(3) Vessels at the facility and areas surrounding the vessels.

(b) MARSEC Level 1. At MARSEC Level 1, the facility owner or operator must ensure the security measures in this section are implemented at all times, including the period from sunset to sunrise and periods of limited visibility. For each facility, ensure monitoring capability that:

(1) When automatic intrusion-detection devices are used, activates an audible or visual alarm, or both, at a location that is continuously attended or monitored;

(2) Is able to function continually, including consideration of the possible effects of weather or of a power disruption;

(3) Monitors the facility area, including shore and waterside access to it;

(4) Monitors access points, barriers and restricted areas;

(5) Monitors access and movements adjacent to vessels using the facility, including augmentation of lighting provided by the vessel itself; and

(6) Limits lighting effects, such as glare, and their impact on safety, navigation, and other security activities.

(c) MARSEC Level 2. In addition to the security measures for MARSEC Level 1 in this section, at MARSEC Level 2, the facility owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in the approved FSP. These additional measures may include:

(1) Increasing the coverage and intensity of surveillance equipment, including the provision of additional surveillance coverage;

(2) Increasing the frequency of foot, vehicle or waterborne patrols;

(3) Assigning additional security personnel to monitor and patrol; or

(4) Increasing the coverage and intensity of lighting, including the provision of additional lighting and coverage.

(d) MARSEC Level 3. In addition to the security measures for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the facility owner or operator must also ensure implementation of additional security measures, as specified for MARSEC Level 3 in the approved FSP. These additional security measures may include:

(1) Switching on all lighting within, or illuminating the vicinity of, the facility;

(2) Switching on all surveillance equipment capable of recording activities within or adjacent to the facility;

(3) Maximizing the length of time such surveillance equipment can continue to record; or

(4) Complying with the instructions issued by those responding to the security incident.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60542, Oct. 22, 2003]

3.18 Security Incident Procedures

1. General
2. Incident-Specific Threat Procedures
3. Reporting of Incidents

The submitted FSP details security incident response and reporting. Security incident reporting is completed in a timely manner to include Vancouver Energy management, the Port, law enforcement, and regulators. Security incident response evaluates Vancouver Energy operations, including possible securing of noncritical operations and possible facility evacuation.

33§105.280 Security incident procedures.

For each MARSEC Level, the facility owner or operator must ensure the Facility Security Officer and facility security personnel are able to:

(a) Respond to security threats or breaches of security and maintain critical facility and vessel-to-facility interface operations;

(b) Evacuate the facility in case of security threats or breaches of security;

(c) Report security incidents as required in §101.305 of this subchapter;

(d) Brief all facility personnel on possible threats and the need for vigilance, soliciting their assistance in reporting suspicious persons, objects, or activities; and

(e) Secure non-critical operations in order to focus response on critical operations.

3.19 Audits and Security Plan Amendments

1. Audits
2. Security Plan Amendments

The submitted FSP details annual audits of the FSP. This section details the circumstances when an amendment to the existing FSP is required. Tesoro Corporate Security schedules annual audits and follow audit findings to closure.

§105.415 Amendment and audit.

(a) Amendments. (1) Amendments to a Facility Security Plan (FSP) that is approved by the cognizant COTP may be initiated by:

(i) The facility owner or operator; or

(ii) The cognizant COTP upon a determination that an amendment is needed to maintain the facility's security. The cognizant COTP, who will give the facility owner or operator written notice and request that the facility owner or operator propose amendments addressing any matters specified in the notice. The facility owner or operator will have at least 60 days to submit its proposed amendments. Until amendments are approved, the facility owner or operator shall ensure temporary security measures are implemented to the satisfaction of the COTP.

(2) Proposed amendments must be submitted to the cognizant COTP. If initiated by the facility owner or operator, the proposed amendment must be submitted at least 30 days before the amendment is to take effect unless the cognizant COTP allows a shorter period. The cognizant COTP will approve or disapprove the proposed amendment in accordance with §105.410 of this subpart.

(3) Nothing in this section should be construed as limiting the facility owner or operator from the timely implementation of such additional security measures not enumerated in the approved FSP as necessary to address exigent security situations. In such cases, the owner or operator must notify the cognizant COTP by the most rapid means practicable as to the nature of the additional measures, the circumstances that prompted these additional measures, and the period of time these additional measures are expected to be in place.

(4) If there is a change in the owner or operator, the Facility Security Officer (FSO) must amend the FSP to include the name and contact information of the new facility owner or operator and submit the affected portion of the FSP for review and approval in accordance with §105.410 if this subpart.

(b) Audits. (1) The FSO must ensure an audit of the FSP is performed annually, beginning no later than one year from the initial date of approval, and attach a letter to the FSP certifying that the FSP meets the applicable requirements of this part.

(2) The FSP must be audited if there is a change in the facility's ownership or operator, or if there have been modifications to the facility, including but not limited to physical structure, emergency response procedures, security measures, or operations.

(3) Auditing the FSP as a result of modifications to the facility may be limited to those sections of the FSP affected by the facility modifications.

(4) Unless impracticable due to the size and nature of the company or the facility, personnel conducting internal audits of the security measures specified in the FSP or evaluating its implementation must:

(i) Have knowledge of methods for conducting audits and inspections, and security, control, and monitoring techniques;

(ii) Not have regularly assigned security duties; and

(iii) Be independent of any security measures being audited.

(5) If the results of an audit require amendment of either the FSA or FSP, the FSO must submit, in accordance with §105.410 of this subpart, the amendments to the cognizant COTP for review and approval no later than 30 days after completion of the audit and a letter certifying that the amended FSP meets the applicable requirements of this part.

[USCG-2003-14732, 68 FR 39322, July 1, 2003, as amended at 68 FR 60542, Oct. 22, 2003]

3.20 Facility Security Assessment (FSA) Report

1. FSA Summary
2. On-Scene Survey Descriptions
3. On-Scene Survey Elements
4. Supplemental FSA Information

The submitted FSP includes a completed USCG Facility Security Assessment report. This report is completed to IAW USCG Navigation and Inspection Circular, NVIC, 11-02 Enclosure 5. The report details critical facility assets to protect, including personnel and infrastructure. This report details existing security measures to protect those assets.

§105.300 General.

(a) The Facility Security Assessment (FSA) is a written document that is based on the collection of background information, the completion of an on-scene survey and an analysis of that information.

(b) A common FSA may be conducted for more than one similar facility provided the FSA reflects any facility-specific characteristics that are unique.

(c) Third parties may be used in any aspect of the FSA if they have the appropriate skills and if the Facility Security Officer (FSO) reviews and accepts their work.

(d) Those involved in a FSA must be able to draw upon expert assistance in the following areas, as appropriate:

(1) Knowledge of current security threats and patterns;

(2) Recognition and detection of dangerous substances and devices;

(3) Recognition of characteristics and behavioral patterns of persons who are likely to threaten security;

(4) Techniques used to circumvent security measures;

(5) Methods used to cause a security incident;

(6) Effects of dangerous substances and devices on structures and facility services;

(7) Facility security requirements;

(8) Facility and vessel interface business practices;

(9) Contingency planning, emergency preparedness, and response;

(10) Physical security requirements;

(11) Radio and telecommunications systems, including computer systems and networks;

(12) Marine or civil engineering; and

(13) Facility and vessel operations.

3.21 Facility Vulnerability and Security Measures Summary

The submitted FSP includes a completed Form CG 6025. This form lists facility vulnerabilities as described in section 17, their vulnerability category, and mitigations.

4. List of Acronyms and Abbreviations

Applicant: Tesoro Savage Petroleum Terminal LLC

ASC: Application for Site Certification

CCTV: closed-circuit television

CFR: Code of Federal Regulations

COTP: Captain of the Port

DHS: Department of Homeland Security

DOS: Declaration of Security

EFSEC: Energy Facility Site Evaluation Council

FSO: facility security officer

FSA: facility security assessment

FSP: facility security plan

MARSEC: Maritime Security

MTSA: Maritime Transportation Security Act

Port: Port of Vancouver USA

SSI: Security Sensitive Information

TSA: Transportation Security Administration

TWIC: Transportation Workers Identification Credential

USCG: U.S. Coast Guard

VPD: Vancouver Police Department

Vancouver Energy
Operations Site Security Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590

Appendix A
49 CFR 1520 SSI

WARNING: This record contains SSI that is controlled under 49 CFR, Parts 15 and 1520. No part of this record may be disclosed to persons without a “need to know,” as defined in 49 CFR, Parts 15 and 1520, except with the written permission of the Administrator of the Transportation Security Administration or the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 USC 552 and 49 CFR, Parts 15 and 1520.

SUBCHAPTER B—SECURITY RULES FOR ALL MODES OF TRANSPORTATION

PART 1520—PROTECTION OF SENSITIVE SECURITY INFORMATION

Sec.
1520.1 Scope.
1520.3 Terms used in this part.
1520.5 Sensitive security information.
1520.7 Covered persons.
1520.9 Restrictions on the disclosure of SSI.
1520.11 Persons with a need to know.
1520.13 Marking SSI.
1520.15 SSI disclosed by TSA or the Coast Guard.
1520.17 Consequences of unauthorized disclosure of SSI.
1520.19 Destruction of SSI.

AUTHORITY: 46 U.S.C. 70102–70106, 70117; 49 U.S.C. 114, 40113, 44901–44907, 44913–44914, 44916–44918, 44935–44936, 44942, 46105.

SOURCE: 69 FR 28082, May 18, 2004, unless otherwise noted.

§ 1520.1 Scope.

(a) *Applicability*. This part governs the maintenance, safeguarding, and disclosure of records and information that TSA has determined to be Sensitive Security Information, as defined in § 1520.5. This part does not apply to the maintenance, safeguarding, or disclosure of classified national security information, as defined by Executive Order 12968, or to other sensitive unclassified information that is not SSI, but that nonetheless may be exempt from public disclosure under the Freedom of Information Act. In addition, in the case of information that has been designated as critical infrastructure information under section 214 of the Homeland Security Act, the receipt, maintenance, or disclosure of such information by a Federal agency or employee is governed by section 214 and any implementing regulations, not by this part.

(b) *Delegation*. The authority of TSA and the Coast Guard under this part may be further delegated within TSA and the Coast Guard, respectively.

§ 1520.3 Terms used in this part.

In addition to the terms in § 1500.3 of this chapter, the following terms apply in this part:

Administrator means the Under Secretary of Transportation for Security referred to in 49 U.S.C. 114(b), or his or her designee.

Coast Guard means the United States Coast Guard.

Covered person means any organization, entity, individual, or other person described in § 1520.7. In the case of an individual, *covered person* includes any individual applying for employment in a position that would be a covered person, or in training for such a position, regardless of whether that individual is receiving a wage, salary, or other form of payment. *Covered person* includes a person applying for certification or other form of approval that, if granted, would make the person a covered person described in § 1520.7.

DHS means the Department of Homeland Security and any directorate, bureau, or other component within the Department of Homeland Security, including the United States Coast Guard.

DOT means the Department of Transportation and any operating administration, entity, or office within the Department of Transportation, including the Saint Lawrence Seaway Development Corporation and the Bureau of Transportation Statistics.

Federal Flight Deck Officer means a pilot participating in the Federal Flight Deck Officer Program under 49 U.S.C. 44921 and implementing regulations.

Maritime facility means any facility as defined in 33 CFR part 101.

Rail facility means ''rail facility'' as defined in 49 CFR 1580.3.

Rail hazardous materials receiver means ''rail hazardous materials receiver'' as defined in 49 CFR 1580.3.

Rail hazardous materials shipper means ''rail hazardous materials shipper'' as defined in 49 CFR 1580.3.

Rail secure area means ''rail secure area'' as defined in 49 CFR 1580.3.

Rail transit facility means ''rail transit facility'' as defined in 49 CFR 1580.3.

Rail transit system or *Rail Fixed Guideway System* means ''rail transit system'' or ''Rail Fixed Guideway System'' as defined in 49 CFR 1580.3.

Railroad means ''railroad'' as defined in 49 U.S.C. 20102(1).

Railroad carrier means ''railroad carrier'' as defined in 49 U.S.C. 20102(2).

Record includes any means by which information is preserved, irrespective of format, including a book, paper, drawing, map, recording, tape, film, photograph, machine-readable material, and any information stored in an electronic format. The term *record* also includes any draft, proposed, or recommended change to any record.

Security contingency plan means a plan detailing response procedures to address a transportation security incident, threat assessment, or specific threat against transportation, including details of preparation, response, mitigation, recovery, and reconstitution procedures, continuity of government, continuity of transportation operations, and crisis management.

Security screening means evaluating a person or property to determine whether either poses a threat to security.

SSI means sensitive security information, as described in § 1520.5.

Threat image projection system means an evaluation tool that involves periodic presentation of fictional threat images to operators and is used in connection with x-ray or explosives detection systems equipment.

TSA means the Transportation Security Administration.

Vulnerability assessment means any review, audit, or other examination of the security of a transportation infrastructure asset; airport; maritime facility, port area, or vessel; aircraft; railroad; railroad carrier, rail facility; train; rail hazardous materials shipper or receiver facility; rail transit system; rail transit facility; commercial motor vehicle; or pipeline; or a transportation-related automated system or network to determine its vulnerability to unlawful interference, whether during the conception, planning, design, construction, operation, or decommissioning phase. A vulnerability assessment may include proposed, recommended, or directed actions or countermeasures to address security concerns.

[69 FR 28082, May 18, 2004, as amended at 70 FR 41599, July 19, 2005; 73 FR 72172, Nov. 26, 2008; 74 FR 47695, Sept. 16, 2009]

§ 1520.5 Sensitive security information.

(a) *In general*. In accordance with 49 U.S.C. 114(s), SSI is information obtained or developed in the conduct of security activities, including research and development, the disclosure of which TSA has determined would—

(1) Constitute an unwarranted invasion of privacy (including, but not limited to, information contained in any personnel, medical, or similar file);

(2) Reveal trade secrets or privileged or confidential information obtained from any person; or

(3) Be detrimental to the security of transportation.

(b) *Information constituting SSI*. Except as otherwise provided in writing by TSA in the interest of public safety or in furtherance of transportation security, the following information, and records containing such information, constitute SSI:

(1) *Security programs and contingency plans*. Any security program or security contingency plan issued, established, required, received, or approved by DOT or DHS, including any comments, instructions, or implementing guidance, including—

(i) Any aircraft operator, airport operator, fixed base operator, or air cargo security program, or security contingency plan under this chapter;

(ii) Any vessel, maritime facility, or port area security plan required or directed under Federal law;

(iii) Any national or area security plan prepared under 46 U.S.C. 70103; and

(iv) Any security incident response plan established under 46 U.S.C. 70104.

(2) *Security Directives*. Any Security Directive or order—

(i) Issued by TSA under 49 CFR 1542.303, 1544.305, 1548.19, or other authority;

(ii) Issued by the Coast Guard under the Maritime Transportation Security Act, 33 CFR part 6, or 33 U.S.C. 1221 *et seq*. related to maritime security; or

(iii) Any comments, instructions, and implementing guidance pertaining thereto.

(3) *Information Circulars*. Any notice issued by DHS or DOT regarding a threat to aviation or maritime transportation, including any—

(i) Information circular issued by TSA under 49 CFR 1542.303, 1544.305, 1548.19, or other authority; and

(ii) Navigation or Vessel Inspection Circular issued by the Coast Guard related to maritime security.

(4) *Performance specifications.* Any performance specification and any description of a test object or test procedure, for—

(i) Any device used by the Federal Government or any other person pursuant to any aviation or maritime transportation security requirements of Federal law for the detection of any person, and any weapon, explosive, incendiary, or destructive device, item, or substance; and

(ii) Any communications equipment used by the Federal government or any other person in carrying out or complying with any aviation or maritime transportation security requirements of Federal law.

(5) *Vulnerability assessments.* Any vulnerability assessment directed, created, held, funded, or approved by the DOT, DHS, or that will be provided to DOT or DHS in support of a Federal security program.

(6) *Security inspection or investigative information.* (i) Details of any security inspection or investigation of an alleged violation of aviation, maritime, or rail transportation security requirements of Federal law that could reveal a security vulnerability, including the identity of the Federal special agent or other Federal employee who conducted the inspection or audit.

(ii) In the case of inspections or investigations performed by TSA, this includes the following information as to events that occurred within 12 months of the date of release of the information: the name of the airport where a violation occurred, the airport identifier in the case number, a description of the violation, the regulation allegedly violated, and the identity of any aircraft operator in connection with specific locations or specific security procedures. Such information will be released after the relevant 12-month period, except that TSA will not release the specific gate or other location on an airport where an event occurred, regardless of the amount of time that has passed since its occurrence. During the period within 12 months of the date of release of the information, TSA may release summaries of an aircraft operator's, but not an airport operator's, total security violations in a specified time range without identifying specific violations or locations. Summaries may include total enforcement actions, total proposed civil penalty amounts, number of cases opened, number of cases referred to TSA or FAA counsel for legal enforcement action, and number of cases closed.

(7) *Threat information.* Any information held by the Federal government concerning threats against transportation or transportation systems and sources and methods used to gather or develop threat information, including threats against cyber infrastructure.

(8) *Security measures.* Specific details of aviation, maritime, or rail transportation security measures, both operational and technical, whether applied directly by the Federal government or another person, including—

(i) Security measures or protocols recommended by the Federal government;

(ii) Information concerning the deployments, numbers, and operations of Coast Guard personnel engaged in maritime security duties and Federal Air Marshals, to the extent it is not classified national security information; and

(iii) Information concerning the deployments and operations of Federal Flight Deck Officers, and numbers of Federal Flight Deck Officers aggregated by aircraft operator.

(iv) Any armed security officer procedures issued by TSA under 49 CFR part 1562.

(9) *Security screening information.* The following information regarding security screening under aviation or maritime transportation security requirements of Federal law:

(i) Any procedures, including selection criteria and any comments, instructions, and implementing guidance pertaining thereto, for screening of persons, accessible property, checked baggage, U.S. mail, stores, and cargo, that is conducted by the Federal government or any other authorized person.

(ii) Information and sources of information used by a passenger or property

screening program or system, including an automated screening system.

(iii) Detailed information about the locations at which particular screening methods or equipment are used, only if determined by TSA to be SSI.

(iv) Any security screener test and scores of such tests.

(v) Performance or testing data from security equipment or screening systems.

(vi) Any electronic image shown on any screening equipment monitor, including threat images and descriptions of threat images for threat image projection systems.

(10) *Security training materials.* Records created or obtained for the purpose of training persons employed by, contracted with, or acting for the Federal government or another person to carry out aviation, maritime, or rail transportation security measures required or recommended by DHS or DOT.

(11) *Identifying information of certain transportation security personnel.* (i) Lists of the names or other identifying information that identify persons as—

(A) Having unescorted access to a secure area of an airport, a rail secure area, or a secure or restricted area of a maritime facility, port area, or vessel;

(B) Holding a position as a security screener employed by or under contract with the Federal government pursuant to aviation or maritime transportation security requirements of Federal law, where such lists are aggregated by airport;

(C) Holding a position with the Coast Guard responsible for conducting vulnerability assessments, security boardings, or engaged in operations to enforce maritime security requirements or conduct force protection;

(D) Holding a position as a Federal Air Marshal; or

(ii) The name or other identifying information that identifies a person as a current, former, or applicant for Federal Flight Deck Officer.

(12) *Critical aviation, maritime, or rail infrastructure asset information.* Any list identifying systems or assets, whether physical or virtual, so vital to the aviation, maritime, or rail transportation system (including rail hazardous materials shippers and rail hazardous materials receivers) that the incapacity or destruction of such assets would have a debilitating impact on transportation security, if the list is—

(i) Prepared by DHS or DOT; or

(ii) Prepared by a State or local government agency and submitted by the agency to DHS or DOT.

(13) *Systems security information.* Any information involving the security of operational or administrative data systems operated by the Federal government that have been identified by the DOT or DHS as critical to aviation or maritime transportation safety or security, including automated information security procedures and systems, security inspections, and vulnerability information concerning those systems.

(14) *Confidential business information.* (i) Solicited or unsolicited proposals received by DHS or DOT, and negotiations arising therefrom, to perform work pursuant to a grant, contract, cooperative agreement, or other transaction, but only to the extent that the subject matter of the proposal relates to aviation or maritime transportation security measures;

(ii) Trade secret information, including information required or requested by regulation or Security Directive, obtained by DHS or DOT in carrying out aviation or maritime transportation security responsibilities; and

(iii) Commercial or financial information, including information required or requested by regulation or Security Directive, obtained by DHS or DOT in carrying out aviation or maritime transportation security responsibilities, but only if the source of the information does not customarily disclose it to the public.

(15) *Research and development.* Information obtained or developed in the conduct of research related to aviation, maritime, or rail transportation security activities, where such research is approved, accepted, funded, recommended, or directed by DHS or DOT, including research results.

(16) *Other information.* Any information not otherwise described in this section that TSA determines is SSI under 49 U.S.C. 114(s) or that the Secretary of DOT determines is SSI under

49 U.S.C. 40119. Upon the request of another Federal agency, TSA or the Secretary of DOT may designate as SSI information not otherwise described in this section.

(c) *Loss of SSI designation*. TSA or the Coast Guard may determine in writing that information or records described in paragraph (b) of this section do not constitute SSI because they no longer meet the criteria set forth in paragraph (a) of this section.

[69 FR 28082, May 18, 2004, as amended at 70 FR 41599, July 19, 2005; 71 FR 30507, May 26, 2006; 73 FR 72172, Nov. 26, 2008; 74 FR 47695, Sept. 16, 2009]

§ 1520.7 Covered persons.

Persons subject to the requirements of part 1520 are:

(a) Each airport operator, aircraft operator, and fixed base operator subject to the requirements of subchapter C of this chapter, and each armed security officer under subpart B of part 1562.

(b) Each indirect air carrier (IAC), as described in 49 CFR part 1548; and each certified cargo screening facility and its personnel, as described in 49 CFR part 1549.

(c) Each owner, charterer, or operator of a vessel, including foreign vessel owners, charterers, and operators, required to have a security plan under Federal or International law.

(d) Each owner or operator of a maritime facility required to have a security plan under the Maritime Transportation Security Act, (Pub.L. 107–295), 46 U.S.C. 70101 *et seq.*, 33 CFR part 6, or 33 U.S.C. 1221 *et seq*.

(e) Each person performing the function of a computer reservation system or global distribution system for airline passenger information.

(f) Each person participating in a national or area security committee established under 46 U.S.C. 70112, or a port security committee.

(g) Each industry trade association that represents covered persons and has entered into a non-disclosure agreement with the DHS or DOT.

(h) DHS and DOT.

(i) Each person conducting research and development activities that relate to aviation or maritime transportation security and are approved, accepted, funded, recommended, or directed by DHS or DOT.

(j) Each person who has access to SSI, as specified in § 1520.11.

(k) Each person employed by, contracted to, or acting for a covered person, including a grantee of DHS or DOT, and including a person formerly in such position.

(l) Each person for which a vulnerability assessment has been directed, created, held, funded, or approved by the DOT, DHS, or that has prepared a vulnerability assessment that will be provided to DOT or DHS in support of a Federal security program.

(m) Each person receiving SSI under § 1520.15(d) or (e).

(n) Each railroad carrier, rail hazardous materials shipper, rail hazardous materials receiver, and rail transit system subject to the requirements of part 1580 of this chapter.

[69 FR 28082, May 18, 2004, as amended at 70 FR 41600, July 19, 2005; 73 FR 72173, Nov. 26, 2008; 74 FR 47695, Sept. 16, 2009; 76 FR 51867, Aug. 18, 2011]

§ 1520.9 Restrictions on the disclosure of SSI.

(a) *Duty to protect information*. A covered person must—

(1) Take reasonable steps to safeguard SSI in that person's possession or control from unauthorized disclosure. When a person is not in physical possession of SSI, the person must store it a secure container, such as a locked desk or file cabinet or in a locked room.

(2) Disclose, or otherwise provide access to, SSI only to covered persons who have a need to know, unless otherwise authorized in writing by TSA, the Coast Guard, or the Secretary of DOT.

(3) Refer requests by other persons for SSI to TSA or the applicable component or agency within DOT or DHS.

(4) Mark SSI as specified in § 1520.13.

(5) Dispose of SSI as specified in § 1520.19.

(b) *Unmarked SSI*. If a covered person receives a record containing SSI that is not marked as specified in § 1520.13, the covered person must—

(1) Mark the record as specified in § 1520.13; and

(2) Inform the sender of the record that the record must be marked as specified in § 1520.13.

(c) *Duty to report unauthorized disclosure.* When a covered person becomes aware that SSI has been released to unauthorized persons, the covered person must promptly inform TSA or the applicable DOT or DHS component or agency.

(d) *Additional Requirements for Critical Infrastructure Information.* In the case of information that is both SSI and has been designated as critical infrastructure information under section 214 of the Homeland Security Act, any covered person who is a Federal employee in possession of such information must comply with the disclosure restrictions and other requirements applicable to such information under section 214 and any implementing regulations.

§ 1520.11 Persons with a need to know.

(a) *In general.* A person has a need to know SSI in each of the following circumstances:

(1) When the person requires access to specific SSI to carry out transportation security activities approved, accepted, funded, recommended, or directed by DHS or DOT.

(2) When the person is in training to carry out transportation security activities approved, accepted, funded, recommended, or directed by DHS or DOT.

(3) When the information is necessary for the person to supervise or otherwise manage individuals carrying out transportation security activities approved, accepted, funded, recommended, or directed by the DHS or DOT.

(4) When the person needs the information to provide technical or legal advice to a covered person regarding transportation security requirements of Federal law.

(5) When the person needs the information to represent a covered person in connection with any judicial or administrative proceeding regarding those requirements.

(b) *Federal, State, local, or tribal government employees, contractors, and grantees.* (1) A Federal, State, local, or tribal government employee has a need to know SSI if access to the information is necessary for performance of the employee's official duties, on behalf or in defense of the interests of the Federal, State, local, or tribal government.

(2) A person acting in the performance of a contract with or grant from a Federal, State, local, or tribal government agency has a need to know SSI if access to the information is necessary to performance of the contract or grant.

(c) *Background check.* TSA or Coast Guard may make an individual's access to the SSI contingent upon satisfactory completion of a security background check or other procedures and requirements for safeguarding SSI that are satisfactory to TSA or the Coast Guard.

(d) *Need to know further limited by the DHS or DOT.* For some specific SSI, DHS or DOT may make a finding that only specific persons or classes of persons have a need to know.

[69 FR 28082, May 18, 2004, as amended at 70 FR 1382, Jan. 7, 2005; 73 FR 72173, Nov. 26, 2008]

§ 1520.13 Marking SSI.

(a) *Marking of paper records.* In the case of paper records containing SSI, a covered person must mark the record by placing the protective marking conspicuously on the top, and the distribution limitation statement on the bottom, of—

(1) The outside of any front and back cover, including a binder cover or folder, if the document has a front and back cover;

(2) Any title page; and

(3) Each page of the document.

(b) *Protective marking.* The protective marking is: SENSITIVE SECURITY INFORMATION.

(c) *Distribution limitation statement.* The distribution limitation statement is:

WARNING: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a "need to know", as defined in 49 CFR parts 15 and 1520, except with the written permission of the Administrator of the Transportation Security Administration or the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies,

public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520.

(d) *Other types of records*. In the case of non-paper records that contain SSI, including motion picture films, videotape recordings, audio recording, and electronic and magnetic records, a covered person must clearly and conspicuously mark the records with the protective marking and the distribution limitation statement such that the viewer or listener is reasonably likely to see or hear them when obtaining access to the contents of the record.

§ 1520.15 SSI disclosed by TSA or the Coast Guard.

(a) *In general*. Except as otherwise provided in this section, and notwithstanding the Freedom of Information Act (5 U.S.C. 552), the Privacy Act (5 U.S.C. 552a), and other laws, records containing SSI are not available for public inspection or copying, nor does TSA or the Coast Guard release such records to persons without a need to know.

(b) *Disclosure under the Freedom of Information Act and the Privacy Act*. If a record contains both SSI and information that is not SSI, TSA or the Coast Guard, on a proper Freedom of Information Act or Privacy Act request, may disclose the record with the SSI redacted, provided the record is not otherwise exempt from disclosure under the Freedom of Information Act or Privacy Act.

(c) *Disclosures to committees of Congress and the General Accounting Office*. Nothing in this part precludes TSA or the Coast Guard from disclosing SSI to a committee of Congress authorized to have the information or to the Comptroller General, or to any authorized representative of the Comptroller General.

(d) *Disclosure in enforcement proceedings*—(1) *In general*. TSA or the Coast Guard may provide SSI to a person in the context of an administrative enforcement proceeding when, in the sole discretion of TSA or the Coast Guard, as appropriate, access to the SSI is necessary for the person to prepare a response to allegations contained in a legal enforcement action document issued by TSA or the Coast Guard.

(2) *Security background check*. Prior to providing SSI to a person under paragraph (d)(1) of this section, TSA or the Coast Guard may require the individual or, in the case of an entity, the individuals representing the entity, and their counsel, to undergo and satisfy, in the judgment of TSA or the Coast Guard, a security background check.

(e) *Other conditional disclosure*. TSA may authorize a conditional disclosure of specific records or information that constitute SSI upon the written determination by TSA that disclosure of such records or information, subject to such limitations and restrictions as TSA may prescribe, would not be detrimental to transportation security.

(f) *Obligation to protect information*. When an individual receives SSI pursuant to paragraph (d) or (e) of this section that individual becomes a covered person under § 1520.7 and is subject to the obligations of a covered person under this part.

(g) *No release under FOIA*. When TSA discloses SSI pursuant to paragraphs (b) through (e) of this section, TSA makes the disclosure for the sole purpose described in that paragraph. Such disclosure is not a public release of information under the Freedom of Information Act.

(h) *Disclosure of Critical Infrastructure Information*. Disclosure of information that is both SSI and has been designated as critical infrastructure information under section 214 of the Homeland Security Act is governed solely by the requirements of section 214 and any implementing regulations.

§ 1520.17 Consequences of unauthorized disclosure of SSI.

Violation of this part is grounds for a civil penalty and other enforcement or corrective action by DHS, and appropriate personnel actions for Federal employees. Corrective action may include issuance of an order requiring retrieval of SSI to remedy unauthorized disclosure or an order to cease future unauthorized disclosure.

§ 1520.19 Destruction of SSI.

(a) *DHS*. Subject to the requirements of the Federal Records Act (5 U.S.C. 105), including the duty to preserve

records containing documentation of a Federal agency's policies, decisions, and essential transactions, DHS destroys SSI when no longer needed to carry out the agency's function.

(b) *Other covered persons*—(1) *In general*. A covered person must destroy SSI completely to preclude recognition or reconstruction of the information when the covered person no longer needs the SSI to carry out transportation security measures.

(2) *Exception*. Paragraph (b)(1) of this section does not require a State or local government agency to destroy information that the agency is required to preserve under State or local law.

Vancouver Energy
Operations Site Security Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590

Appendix B
Crime Cast Report (CAP)

CRIMECAST® basic

Site Information

Vancouver Terminal
2111 St. Francis Ln.
Vancouver, WA 98660

Coordinates Latitude: 45.638678, Longitude: -122.699294

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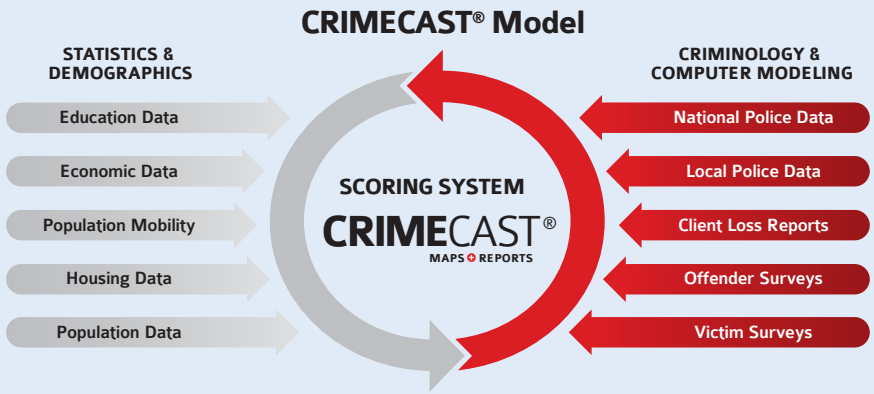
CRIMECAST® basic

Address-Specific Crime and Loss Forecasting

The CAP Index® CRIMECAST Model is based upon the strong relationship that exists between a neighborhood's "social disorganization" and the amount of crime that is perpetrated there. Our advanced evaluation system identifies the risk of personal and property crimes at any location in the United States.

Objective, address-specific CRIMECAST Scores are calculated by correlating a broad array of demographic variables (excluding race, religion and gender) with historical crime data, survey information and other known indicators of crime.



The result? CRIMECAST Reports provide data-driven scores that place any location within the United States in context with national, state and county levels of crime risk.

About CAP Index, Inc.

As the world leader in crime and risk forecasting, CAP Index provides innovative solutions for companies and government agencies looking to minimize losses including shrink, general liability, fraud, lawsuits and crimes against persons and property. CAP Index is a trusted partner to 81 of the Fortune® 100 Companies.

CAP Index's CRIMECAST products are derived from an advanced evaluation system designed to identify the risk of personal and property crimes at any location in the United States, the United Kingdom and Canada. Address-specific CRIMECAST Reports assist clients in ranking and comparing multiple locations, site selection, security resource allocation, litigation and underwriting.

Going beyond CRIMECAST Scores, CAP Index's team of consultants can analyze external CAP Index information in tandem with internal company-specific data in order to create an objective, operationally feasible, cost-effective and fully customized risk identification model.

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CRIMECAST Map - 1:3 Methodology

Tesoro Corporation

CRIMECAST® basic

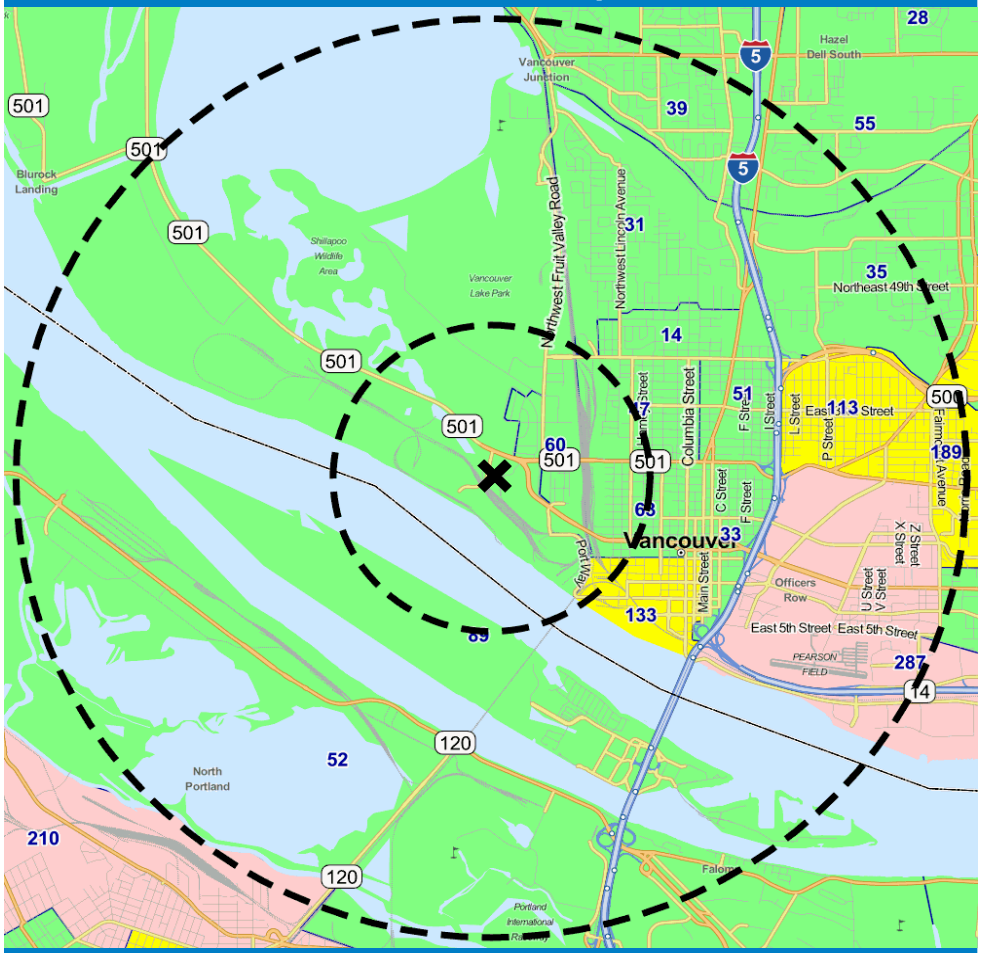
This site's Current 2014 National CAP Index Score is

134

Vancouver Terminal
2111 St. Francis Ln.
Vancouver, WA 98660

Lat: 45.638678, Long: -122.699294

CRIMECAST Map



Inner Radius: 1.0 mi • Outer Radius: 3.0 mi

Score Ranges: 0-99 | 100-199 | 200-399 | 400-799 | 800-2000

1.2 mi

National

CRIMECAST CATEGORY	This Site's Scores CURRENT 2014
CAP Index	134
Homicide	84
Rape	187
Robbery	123
Aggravated Assault	151
Crimes Against Persons	**144**
Burglary	149
Larceny	248
Motor Vehicle Theft	207
Crimes Against Property	**239**

CAP INDEX SCORE	NATIONAL
Past – 2010	135
Current – 2014	134
Projected – 2019	123

CRIMECAST Scores are based on a scale of 0 to 2000, with 0 representing the lowest risk and 2000 the highest - 100 is average. A score of 600 is 6 times higher than average, and a score of 25 indicates that the risk is 1/4 the average.

Creation Date: January 05, 2015

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CRIMECAST Scores - 1:3 Methodology

Tesoro Corporation

CRIMECAST® basic

This site's Current 2014 National CAP Index Score is

134

Vancouver Terminal
2111 St. Francis Ln.
Vancouver, WA 98660

Lat: 45.638678, Long: -122.699294

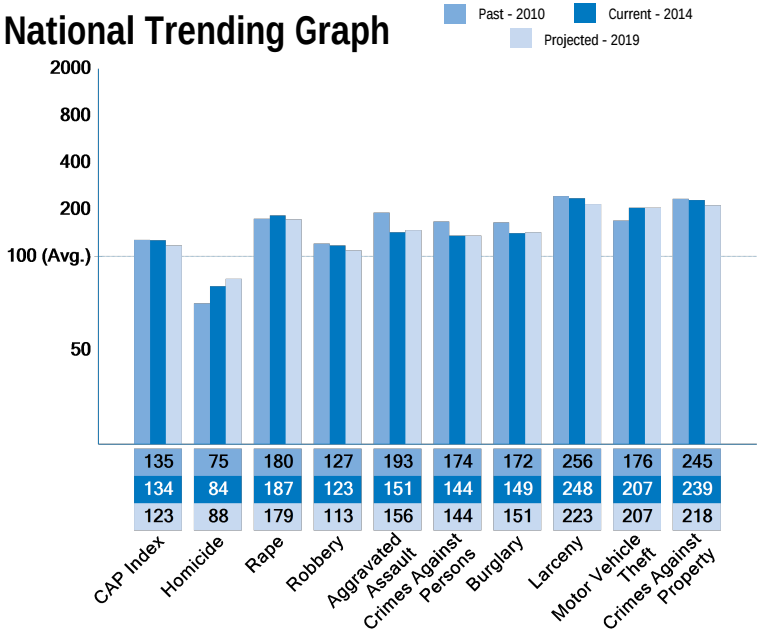
National

CRIMECAST CATEGORY	This Site's Scores PAST 2010	CURRENT 2014	PROJECTED 2019
CAP Index	135	134	123
Homicide	75	84	88
Rape	180	187	179
Robbery	127	123	113
Aggravated Assault	193	151	156
Crimes Against Persons	**174**	**144**	**144**
Burglary	172	149	151
Larceny	256	248	223
Motor Vehicle Theft	176	207	207
Crimes Against Property	**245**	**239**	**218**

State

CRIMECAST CATEGORY	This Site's Scores PAST 2010	CURRENT 2014	PROJECTED 2019
CAP Index	179	180	169
Homicide	172	200	208
Rape	175	188	183
Robbery	178	174	163
Aggravated Assault	248	202	212
Crimes Against Persons	**229**	**196**	**200**
Burglary	172	155	162
Larceny	210	210	191
Motor Vehicle Theft	140	158	159
Crimes Against Property	**205**	**206**	**191**

National Trending Graph



County*

CRIMECAST CATEGORY	This Site's Scores PAST 2010	CURRENT 2014	PROJECTED 2019
CAP Index	311	302	278
Homicide	310	341	348
Rape	326	311	297
Robbery	295	283	260
Aggravated Assault	391	306	310
Crimes Against Persons	**376**	**311**	**306**
Burglary	308	271	267
Larceny	557	535	462
Motor Vehicle Theft	301	317	311
Crimes Against Property	**531**	**512**	**453**

CRIMECAST Scores are based on a scale of 0 to 2000, with 0 representing the lowest risk and 2000 the highest - 100 is average. A score of 600 is 6 times higher than average, and a score of 25 indicates that the risk is 1/4 the average.

*Clark County, WA

Creation Date: January 05, 2015

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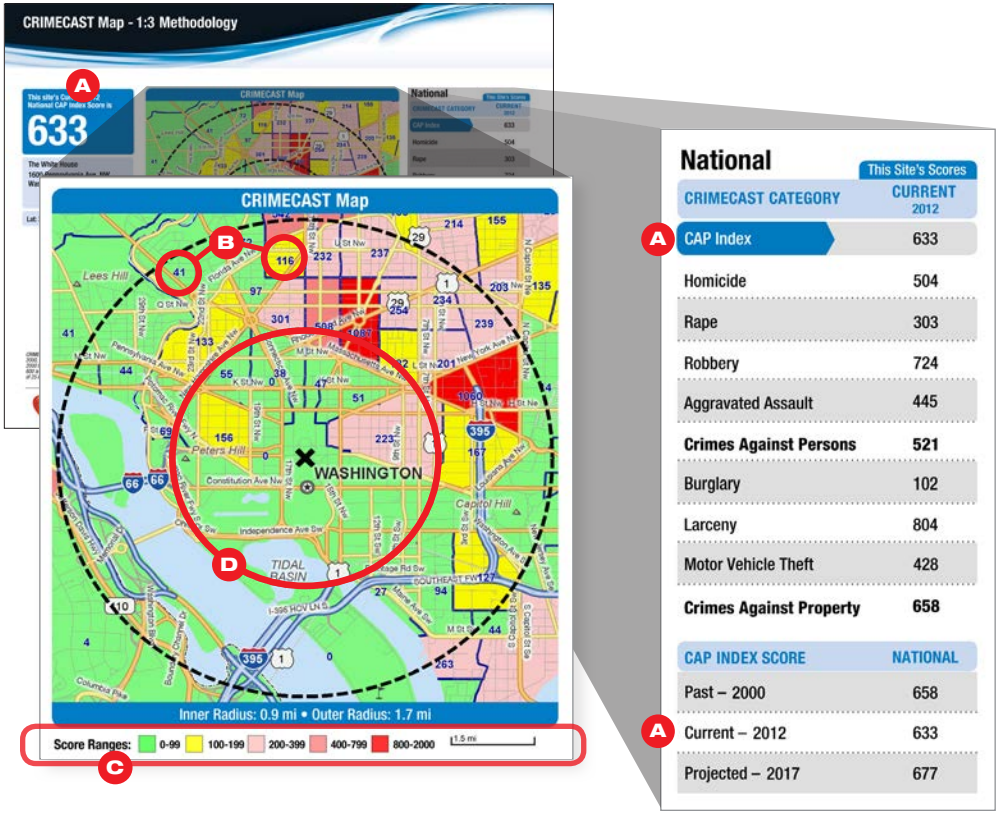
About the CRIMECAST Map & Scores

CRIMECAST® basic

CRIMECAST Reports

With a detailed, color-coded map and a spreadsheet of risk scores, users can identify potential asset protection concerns surrounding an address. A quick glance at the map shows the site in relation to its environment. The CRIMECAST Scores allow for an in-depth analysis of the overall crime risk.



National — This Site's Scores

CRIMECAST CATEGORY	CURRENT 2012
A CAP Index	633
Homicide	504
Rape	303
Robbery	724
Aggravated Assault	445
Crimes Against Persons	**521**
Burglary	102
Larceny	804
Motor Vehicle Theft	428
Crimes Against Property	**658**

CAP INDEX SCORE	NATIONAL
Past – 2000	658
A Current – 2012	633
Projected – 2017	677

CRIMECAST Scores

A The CAP Index Score represents the overall risk of crime at the address.

- CRIMECAST Scores are based on a scale of 0 to 2000, with 0 representing the lowest risk and 2000 the highest – 100 is average.
- A score of 600 is 6 times higher than average, and a score of 25 indicates that the risk is ¼ the average.
- Each CRIMECAST Report contains 90 risk scores provided for 3 geographic levels and 3 time periods:

1. **National** scores provide the site's risk in comparison to the entire U.S.
2. **State** scores compare the site to the average risk of the state in which it resides.
3. **County** scores compare the site to the average risk of the county in which it resides.
4. **Past, Current** and **Projected** risk scores are provided to allow for trending.

CRIMECAST Map

B Census tracts are outlined in blue. There are over 72,000 census tracts in the United States. Each tract contains several thousand residents with similar socioeconomic characteristics. Every census tract is assigned a numeric risk score and a coinciding risk shading.

C The site map is color-coded to depict the level of risk within each tract and identify the potential origin of criminal behavior. CAP Index Score ranges are used to assign risk shading similar to that of the green, yellow and red color scheme found on a traffic light.

D A radius threshold analysis is used to determine a site's overall risk. The inner radius represents 1 mile or a population of 25,000, equaling 2/3 of the overall score. The outer radius represents 3 miles or a population of 100,000, providing the remaining 1/3. In addition to the 1:3 methodology shown to the left, a 2:6 methodology is also available. This methodology applies an inner radius of 2 miles or a population of 100,000 and an outer radius of 6 miles or a population of 400,000.

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CRIMECAST® basic

CRIMECAST Scores

This page contains 90 risk scores provided for 3 geographic levels and 3 time periods.

- **A** **National** scores provide the site's risk in comparison to the entire U.S. and are broken down by CRIMECAST Category. **Past, Current** and **Projected** risk scores are provided to allow for trending.
- **B** **State** scores compare the site to the average risk of the state in which it resides and are broken down by CRIMECAST Category. **Past, Current** and **Projected** risk scores are provided to allow for trending.
- **C** **County** scores compare the site to the average risk of the county in which it resides and are broken down by CRIMECAST Category. **Past, Current** and **Projected** risk scores are provided to allow for trending.
- **D** The **National Past**, **Current** and **Projected** risk scores for the CAP Index Score and each CRIMECAST Category are graphed in order to provide a visual representation of the site's risk pattern over an extended period of time.

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Vancouver Energy
Operations Site Security Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590

Appendix C
Emergency Contacts

Appendix C
Emergency Contacts

IMPORTANT PHONE CONTACTS			
Affiliation	**Phone Number**	**Name of Person Contacted**	**Time Contacted**
Manager	XXX-XXX-XXXX (office) XXX-XXX-XXXX (cell)		
Company Security Officer Director Corporate Security Tesoro Companies Inc. LLC	XXX-XXX-XXXX (office) XXX-XXX-XXXX (cell)		
USCG National Response Center	(800) 424-8802		
USCG MSO, Portland	(503) 240-9301		
State of Washington Department of Emergency Management	(800) 258-5990		
Clark County Emergency Preparedness	(360) 737-1911		
Vancouver Police/Fire/Emergency Services	911		
NEIGHBORING AREA FACILITIES			
Port of Vancouver USA	(360) 693-3611		
OUTSIDE AGENCY PHONE CONTACTS			
FBI Portland	(503) 224-4181		
Washington State Highway Patrol	(360) 449-7900		
Washington State Fire Marshall	(360) 596-3900		

Vancouver Energy
Operations Site Security Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590

Appendix D
Bomb Threat

Appendix D
Bomb Threat Procedures

If You Receive a Telephone Bomb Threat

TIME _____ DATE _____

Be calm – listen carefully – pretend difficulty with hearing – write exact message.

_____

_____

_____

_____

SEX: MALE ☐ FEMALE ☐ ADULT ☐ JUVENILE ☐

VOICE CHARACTERISTICS		SPEECH		LANGUAGE	
☐ LOUD	☐ SOFT	☐ FAST	☐ SLOW	☐ EXCELLENT	☐ GOOD
☐ HIGH PITCH	☐ DEEP	☐ DISTINCT	☐ DISTORTED	☐ FAIR	☐ POOR
☐ RASPY	☐ PLEASANT	☐ STUTTER	☐ NASAL	☐ FOUL	
☐ INTOXICATED		☐ SLURRED	☐ LISP		☐ OTHER
	☐ OTHER				
			☐ OTHER		

ACCENT		MANNER		BACKGROUND NOISES	
☐ LOCAL	☐ NOT LOCAL	☐ CALM	☐ ANGRY	☐ FACTORY	☐ TRAINS
☐ FOREIGN	☐ REGION	☐ RATIONAL	☐ IRRATIONAL	☐ MACHINES	☐ ANIMALS
☐ Other		☐ COHERENT	☐ INCOHERENT	☐ BEDLAM	☐ QUIET
		☐ DELIBERATE	☐ EMOTIONAL	☐ MUSIC	☐ VOICES
		☐ RIGHTEOUS	☐ LAUGHING	☐ OFFICE	☐ AIRPLANES
				☐ MACHINES	☐ PARTY
				☐ MIXED	☐ ATMOSPHERE
				☐ STREET TRAFFI	

Keep caller talking—if caller seems agreeable to further conversation, ask questions like:

When will it go off? Certain hour _____ Time remaining _____

Where is it located? Building _____ Area _____

What kind of bomb? _____ Where are you now? _____

How do you know so much about the bomb? _____

What is your name and address? _____

If the building is occupied, inform caller that detonation could cause injury or death.

Did caller appear familiar with plant or building by his description of the bomb location? _____

Distributed Power Training (Section 4.0)

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1. Introduction to Distributed Power (DP)

This document presents general instructions and requirements for operating and conditioning locomotives equipped with multi-remote control systems. These systems are referred to as Distributed Power or DP. In most crude oil train applications, there will be only one remote consist.

There are two distinct distributed power remote control operating systems:

- Locotrol III system, which is referred to as LIII (Formerly referred to as DP). (Harris box controlled)
- Locotrol IFC, LEB and LSI systems, are referred to as Integrated Distributed Power (IDP). (Locomotive screen controlled)

Each system has a different operator interface, equipment setup steps and consist limitations. However, both systems provide the same control of air brakes, throttle and dynamic braking.

Distributed power systems provide synchronous (mimic) and independent (fenced) control of one to four remote consists (Li ii) or five remote consists (IDP). These consists within a train provide, in addition to the lead consist, power, dynamic braking and air braking as follows:

The system controls the remote units by radio signals transmitted from the lead unit.

During the initial setup and linking of the equipment and continuously during operation, a series of checks and comparisons detect equipment status, communication errors, or procedure sequence errors.

For safety, this equipment becomes operational only when it is properly conditioned, a brake pipe continuity test is confirmed, and the radio links the lead controlling unit and the remote controlled unit(s).

NOTE: An engineer controls each locomotive consist in the distributed power train from the "lead unit". The term "remote unit" applies to the controlling locomotive unit in a remote consist. Locomotives connected through the train lines for multiple unit service to the lead and remote unit(s) are called "trail locomotives.

2. DP System Operating Modes

After completing a brake pipe continuity test, change the system mode to RUN to enable the remote distributed power traction and dynamic brake functions.

NOTE: Brake pipe continuity tests are performed in the system IDLE mode.

Changing System Operating Modes on IDP Controlling Unit

To change the operating mode on an IDP controlling unit:

1. Select DP MAIN MENU
2. Select MODE
3. Select RUN or IDLE
4. Press EXECUTE

The RUN or IDLE status appears in the upper left-hand corner of the No. 2 or left ICE screen.

Changing System Operating Modes on LIII Controlling Unit (Harris Box)

To change the operating mode on a LIII controlling unit:

1. Select the MODE display
2. Select RUN or IDLE 3
3. Press EXECUTE

The RUN or IDLE status appears in the upper right-hand corner of the DP control console.

3. Remote Operating Modes

The system mode and the individual remote modes determine how each remote unit responds to the commands from the lead unit for throttle, air brake conditions, and other operator inputs.

Use the REMOTE display on the lead locomotive to select limiting modes for the individual remote units.

The remote modes are:

- NORMAL - All remote traction and dynamic braking functions are enabled for control. All remote air brake functions are enabled, and the brake valve may be cut in.
- IDLE - The remote throttle remains in IDLE. All remote air brake functions are enabled and the brake valve may be cut in.
- BV OUT - All remote traction and dynamic brake functions are enabled for control. The emergency and independent air brake functions are enabled for control. The remote automatic air brake functions are restricted by cutting out the brake valve.
- ISOLATE - The remote throttle does not respond to commands and remains in Idle. The remote's emergency brake application function and independent brake functions are enabled for control. All other brake functions are disabled, and the brake valve is cut out.
- SET OUT(S/O) - The remote throttle does not respond to commands and remains in Idle. The remote's emergency brake application is enabled for control. The independent brakes are fully applied (72 psi). All other brake functions are disabled, and the brake valve is cut out.

These modes may be selected from the REMOTE display.

Remote Mode NORMAL

When the distributed power system is linked and the brake pipe leakage test is complete, the remote consists are in NORMAL.

1. Returning a Remote Consist to NORMAL mode (Exception: see instructions for return to NORMAL from the SET OUT mode.) If a remote is in other than SET OUT or NORMAL modes, return it to NORMAL as follows:

   - Select NORMAL from the remote display.

   NOTE: Units in the STOP mode must be placed into the ISOLATE mode to be restarted and then may be returned to the NORMAL mode. Units must be manually restarted.

   - After changing the remote consist to NORMAL, you may cut in the automatic brake valve.

2. To Cut in Automatic Brake Valve on Remote: To cut in an automatic brake valve on a remote unit that has been returned to or is in NORMAL or IDLE:

   - Make at least a 10 psi brake pipe reduction with the automatic brake valve.
   - After the brake pipe exhaust has ceased, move the automatic brake valve handle to RELEASE.

   With the lead unit automatic brake valve in RELEASE, the remote brake valve will cut in when the brake pipe pressure increases at least 4 psi at the remote unit.

Remote Mode IDLE

The IDLE mode allows the remote consist to use all brake functions, but disables all power or dynamic braking.

NOTE: A change to this mode can be made while the train is moving or stopped.

If the mode is changed while moving, care must be exercised to assure that slack adjustment is not affected by loss of power or dynamic brakes.

Remote Mode BV OUT

The BRAKE VALVE (BV) OUT mode can be used when troubleshooting air brake problems and when making a brake pipe continuity check. If a consist is operated in the remote BV OUT mode, the consist will not continue to operate in power or dynamic brake (no override) following a communication interruption of 45 seconds or more.

To cut in an automatic brake valve on a remote unit that has been returned to or is in NORMAL or IDLE:

1. Make at least a 10 psi brake pipe reduction with the automatic brake valve.
2. After the brake pipe exhaust has ceased, move the automatic brake handle to RELEASE.

With the lead unit automatic brake valve in RELEASE, the remote brake valve will cut in when the brake pipe pressure increases at least 4 psi at the remote unit.

NOTE: A change to this mode can be made while the train is moving or stopped.

Remote Mode ISOLATE

The remote mode changes to ISOLATE when a communication loss idle down has occurred.

NOTE: A change can be made to this mode while the train is moving or stopped.

See Isolate on page 4.

Remote Mode SET OUT (510)

The SET OUT mode must be used to condition and help secure a remote consist left standing uncoupled from the front portion of a train operating in distributed power. A change to this mode must only be made when the train is stopped. This procedure also applies to an undesired separation (Break-in-two).

A. Separating from Remote Consist to Be Left Standing

To separate the remote consist from the train:

1. Stop the train.
2. Fully apply the independent brakes.
3. Make a 20 psi brake pipe reduction.
4. Apply Red Zone protection.
5. Tie sufficient hand brakes on engines and/or cars to be left standing.
6. From the REMOTE display.
   a. Use the cursor to select the remote consist to be left standing.
   b. Select S/O.
   c. Select EXECUTE.
   d. Wait for the status to change to S/O.
   e. Repeat steps "a" through "d" for each remote consist left standing.
7. Close the angle cock on the last car of the head portion of the train to be moved.
8. Separate the train when ready.
   a. Leave the angle cock OPEN on the detached portion of the train.
   b. Ensure that the detached portion of the train goes into emergency.

B. Returning Remotes to NORMAL after Re-coupling Train

To return the remotes to NORMAL after using the SET OUT mode to separate the train:

1. Re-couple and stretch the train.
2. Apply Red Zone with a full service brake pipe reduction.
3. Do not open the angle cock to recharge the rear portion of the train at this time.
4. From the remote display:
   a. Select the remote consist to be returned to NORMAL.
   b. Select NORMAL and then EXECUTE.
   c. Ensure that the remote consist status changes from S/O to NORMAL.
   d. Repeat steps "a" through "c" for each remote consist re-coupled.
5. Release the hand brakes.
6. Open the angle cock.
7. Place the automatic brake valve in release. NOTE: After a PSC open condition has occurred on a remote consist(s), the following conditions are required before tractive effort will be allowed to be produced by the remote consist(s).
   a. PCS on remote(s) has reset.
   b. Automatic brake valve on remote(s) has cut in.
   c. A minimum brake pipe pressure of 25 psi has been restored at the remote consist(s).

4. Distributed Power Train Handling

The following train handling rules can be applied to both types of equipment (IDP/Llll) and are intended to be generic. The train handling technique is the same for both types of equipment even though the exact steps and indications may vary.

A. Operating Remote Units in Front Group (synchronous mode/mimic)

After a distributed power train has been conditioned and the system has been placed in RUN mode, the system is configured with all remote units in the front group (synchronous mode/mimic) and controlled from the lead unit throttle.

If possible, operate all remote units in the front group when the train is operating on:

- Near-level or gentle undulating grades.
- Continuous descending or ascending grades without severe undulation.

When operating on severely undulating grades or when cresting a grade, use independent control for train handling.

B. Operating Remote Units in Independent Control (back group/fenced)

Caution: Remote unit(s) always have the generator field circuit energized regardless of the position of the generator field switch of the lead unit. The reverser on the lead unit must be centered while the train is standing, until the train is ready to move.

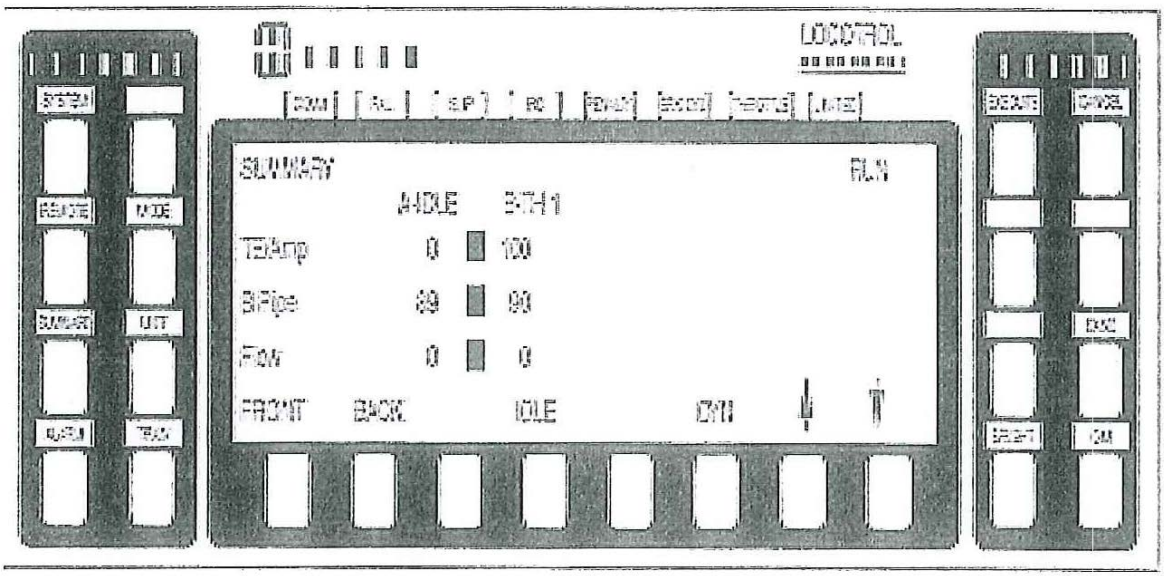
Use the independent control function only when the train is operating in the RUN mode. Control the independent operation for remote consist(s) using function keys displayed on the SUMMARY screen.

- Only the consist(s) displayed in the back group can respond to throttle and dynamic brake commands initiated from the Summary screen.
- Only the consist(s) operating in the front group can respond to throttle and dynamic brake commands made from the lead unit controller.

If a train is operating on undulating terrain, improve the train handling or slack action by operating the remote consist(s) at a power setting different form the front po1 ion of the train (called independent control).

Operate in independent control by moving the remote consist(s) into the back group and providing independent control of the throttle or dynamic braking by pressing the BACK soft key on the Summary screen.

NOTE: A fence (bar) separates the front and back consists. All consists to the right of the fence are in the back group and those on the left are in the front group.



If the consists were operating in power or dynamic braking(synchronous) when the rear remote consist was moved to the back group, the rear remote will remain at its present power setting until it is changed using the soft keys on the Summary screen.

If the consists were in IDLE when the rear remote consist was moved to the back group, it is necessary to select THROTTLE/TRACTION or DYN/BRAKE and to execute the command to take independent control of the back group. Once executed, the throttle or dynamic brake will move to Position 1.

Control the remote consist(s) in the back group as follows:

- From an IDP lead unit, press more or less TRACTION/BRAKING
- From a LIII lead unit, press the up or down arrows for more or less THL or DYN.

To control the throttle or braking of the units in the front group, use the lead unit throttle controller.

To reassign a remote consist from the front group to the back group, press the BACK soft key.

To reassign a remote unit from the back group to the front group, press the FRONT soft key.

NOTE: The Summary screen continues to display both the front and back throttle positions. A remote unit moved to a new group will immediately begin changing throttle or dynamic brake positions to match its new group assignment.

C. Reassigning Remote DP Units to Front Group When in a Different Mode.

When reassigning units between the front and back groups while the front group is in the DYNAMIC BRAKE mode, the back group is in THROTTLE mode, and the reverser is in the forward direction (as when cresting a grade):

1. Press the console's FRONT button to initiate the back-to-front transition. The following sequencing occurs:

   a. The selected remote steps down in throttle at 3 seconds per step. When it reaches IDLE, it pauses.

   b. The console's Summa1y screen indicates that the front group is in DYNAMIC BRAKE mode, the selected remote is in IDLE, and the back group is in the THROTTLE mode.

2. When additional braking in the front group is required as more of the train crests the grade, press the console's FRONT button again. The following sequencing occurs:

   a. The remote configures for dynamic braking and advances at 3 seconds per step to match the lead unit.

   b. The control console's Summary screen indicates that the selected remote is operating in the DYNAMIC BRAKING mode.

   NOTE: Having the front group in the THROTTLE mode and the back group in DYNAMIC BRAKE mode is an invalid condition, unless the front group's reverser switch is in the reverse setting. Then, the sequence in steps 1 and 2 above applies.

5. Unlinking from Remote Consists (Ending Distributed Power Operation)

Before ending LIII or IDP on remote consist(s), end distributed power on the lead consist. Stop and secure the train before ending distributed power, and follow one of the procedures below to unlink a LIII or IDP lead unit.

5.1 Unlinking IDP Lead Unit from Remote Consist(s)

To unlink an IDP lead unit:

1. Stop the train.
2. Fully apply the independent brake.
3. Place throttle in IDLE.
4. Make a 20 pound automatic brake pipe reduction.
5. From the RIGHT screen (or DP Main Menu):
   a. Select the system display key.
   b. Press the UNLINK key followed by the EXECUTE key.
   NOTE: A penalty brake application will reduce brake pipe pressure to 15 psi.
6. Wait to proceed until after the brake pipe exhaust ceases and the distributed power backup emergency valve drops the brake pipe pressure rapidly to zero.

   NOTE: Locotrol LEB IDP lead unit does not perform distributed power backup emergency valve test. On these IDP lead units, recover penalty application and end distributed power to return to conventional operation.

7. If the lead unit will not be re-linked, end distributed power operation as follows:
   a. Select the DP MAIN MENU key. On UPRR IDP locomotives END DIST POWER button should appear after back up emergency valve check without returning to DP menu again.
   b. Press the END DIST POWER key followed by the EXECUTE key.
   c. Turn the DATA RADIO circuit breaker OFF (or Distributed Power and TIM breakers.

   You may now operate the lead consist with normal operating procedures. Be sure to condition remote units for normal operation.

NOTE: Some foreign locomotives with DP equipment unlink with an immediate emergency application and no penalty application. End distributed power on these units after the emergency application upon unlinking.

5.2 Unlinking LIII Lead Unit from Remote Consist(s)

To unlink a LIII lead unit:

1. Stop the train.
2. Fully apply the independent brake.
3. Place throttle in IDLE.
4. Make a 20-pound automatic brake pipe reduction.
5. From the system display, select the UNLK and then EXECUTE.

NOTE: A penalty brake application will reduce brake pipe pressure to approximately 9 psi. UPRR LIII systems will initiate an emergency application.

6. Wait to proceed until after the brake pipe exhaust ceases and the distributed power backup emergency valve drops the brake pipe pressure rapidly to zero.
7. Turn OFF the distributed power breaker located on the engine control panel.
8. At the distributed power setup module in the nose of the unit:
   a. Set thumb wheels to 0000.
   b. Turn OFF the three circuit breakers on the distributed power switch panel labeled ELEC, RELAY, and RADIO.
9. Follow the instructions in the air brake message block to recover the locomotive brakes.

You may now operate the lead consist using normal operating procedures. Be sure to condition remote units for normal operation.

NOTE: Some foreign locomotives with DP equipment unlink with an immediate emergency application and no penalty application. End distributed power on these units after the emergency application upon unlinking.

Ending Distributed Power 011 Remote IDP Units

End distributed power on each remote IDP controlling unit only after it has been unlinked from the lead unit.

On the remote controlling unit:

1. Select the distributed power key.
2. Select END DISTRIBUTED POWER.
3. Turn the DATA RADIO circuit breaker OFF (or Distributed Power and TIM breakers).

Condition the locomotive brakes for normal operation.

Ending Distributed Powel on Remote LIII Units

End distributed power on each remote LIII controlling unit only after it has been unlinked from the lead unit.

On the controlling remote unit:

1. Turn OFF the distributed power breaker located on the engine control panel.
2. At the distributed power setup module located in the nose of the unit, set the thumb wheels to 0000.
3. Turn OFF the three circuit breakers on the distributed power switch panel labeled ELEC, RELAY, and RADIO.

NOTE: You may need to save and confirm LEAD CUT-OUT before changing the air brake system to the desired operation.

6. Preparing for Distributed Power Service

1. Secure consist(s) to prevent movement during conditioning.

All BNSF locomotive s are now equipped with "Brake Pipe Test on Demand" which provides the ability to perform the DP Brake Pipe Test whenever required. This feature eliminates the need to unlink and again perform the initial conditioning procedures. This test is on the locomotive DP set-up display.

NOTE: When automatic brake valve is at a 10 psi reduction or greater, the same button for DP Brake Pipe Test is replaced with "Train Check" (see page 15).

6.1 Locomotive Conditioning Sequence

Condition locomotive for distributed power in the following order:

1. Set up the remote units.
2. Set up the lead unit.
3. Link to remote(s) from the lead unit.
4. Perform a brake pipe test.

Follow this sequence for both IDP and LIII systems. Complete the applicable procedure for the system equipped on each locomotive.

Conditioning Remote IDP Unit

Condition the controlling remote IDP unit in each consist as follows:

A. Switch and Handle Positions

1. "Data radio" circuit breaker - ON

NOTE: On GE IDP locomotive, the Distributed Power/TIM or MTB breakers must be turned on in lieu of "Data Radio"

2. Isolation Switch - RUN
3. Dynamic brake circuit breaker - ON
4. Control and fuel pump switch - ON
5. Engine run switch - ON (some EMD units require switch OFF, follow prompts from screen)
6. Generator field switch - OFF
7. Reverser - Centered (handle removed)
8. Throttle handle - IDLE
9. Automatic brake handle - Continuous Service/Handle Off
10. Independent brake handle - Fully applied (at this time)
11. Air brake setup - Lead (freight) CUT IN

NOTE: Ensure that the PCS and all air brake faults are reset before starting the setup procedure.

B. IDP Setup Procedure

On the right-hand (No. 1) ICE screen or either screen on GE Locotrol IFC, perform the following:

1. Select the MORE menu.
2. Select the DIST POWER key from the menu options.
3. From the Distributed Power Main Menu, choose the REMOTE SETUP key.
4. Enter the LEAD IDP (or DP) unit number.
5. Designate the direction of the remote unit as either SAME as or OPPOSITE of the lead unit.
6. Press ACCEPT.
7. Verify LEAD CUT IN and DP ENABLED (or DP REMOTE).
8. Place the independent brake valve handle in RELEASE.
9. Do not attempt to reset the PCS.

This unit is now set up as a remote unit.

NOTE: If the locomotive is equipped with outer locking hasp and lock, lock remote IDP unit(s) and any trailing units in remote consist(s) after conditioning for service.

7. Conditioning Remote LIII Unit (Harris Box)

Condition the controlling remote Li ii unit in each consist as follows:

A. Switch and Handle Positions

1. Distributed power circuit breaker - OFF (at this time)
2. Isolation switch - RUN
3. Dynamic brake circuit breaker - ON
4. Control and fuel pump switch - ON
5. Engine run switch - ON
6. Generator field switch - OFF
7. Reverser - Centered (handle removed)
8. Throttle handle - IDLE
9. Air brake setup - LEAD (freight)
10. Automatic brake handle - Continuous Service/Handle Off (UPRR LIII with air brake button control console, place ABV in RELEASE position)
11. Independent brake handle - Fully Applied (at this time)

NOTE: Ensure that the PCS and all air brake faults are reset before starting the setup procedure.

B. LIII Setup Procedure

At the LIII setup module in the nose compartment of the unit:

ALL LIII

1. Set the thumb wheels to the lead unit LIII unit number.
2. Set the LEAD/REMOTE switch to REMOTE.
3. Using the SAME/OPPOSITE switch, designate the direction of the remote unit as either SAME as or OPPOSITE of the lead unit.

UPRR LIII ONLY

4. Dual port air brake valve set to CUT IN (on units so equipped).
5. Locotrol/Conventional switch set to Locotrol (on units so equipped).

ALL LIII

6. Turn ON the three circuit breakers labeled ELEC, RELAY, and RADIO.

At the engine control panel:

7. Turn the distributed power circuit breaker ON.

At the control stand:

8. Place the independent brake handle in RELEASE.
9. Verify that the air brake message block reads DIST PWR REMOTE (if IFC screen equipped).
10. Do not attempt to reset the PCS.

This unit is now set up as a remote unit.

NOTE: If the incorrect lead DP unit is identified or the SAME/OPPOSITE switch is in the wrong position at the setup module, turn OFF the distributed power breaker on the engine control panel. After making the correct settings, turn ON the distributed power breaker.

NOTE: If the locomotive is equipped with outer door locking hasp and lock, loci< remote IDP unit(s) and any trailing unit(s) in remote consist(s) after conditioning for service.

8. Conditioning Lead IDP Unit

Before starting the setup procedure, ensure that: PCS and all air brake faults are reset.

Condition the controlling IDP unit as follows:

A. Switch and Handle Positions

1. "Data Radio" circuit breaker - ON

NOTE: On GE Locotrol IFC locomotives, the Distributed Power/TIM or MTB breakers must be turned on in lieu of "Data Radio".

2. Isolation switch - RUN
3. Dynamic brake circuit breaker - ON
4. Control and fuel pump switch - ON
5. Engine run switch - ON
6. Generator field switch - OFF (until ready to move)
7. Reverser - Centered (handle removed)
8. Throttle handle - IDLE
9. Automatic brake handle - Continuous Service/Handle Off
10. Independent brake handle - Fully applied
11. Air brake setup - Lead (freight) CUT IN

B. IDP Setup Procedure

On the right-hand (No. 1) ICE screen or either screen on GE Locotrol IFC, perform the following:

1. Select the MORE menu.
2. Select the DIST POWER key from the menu options.
3. At the Distributed Power Main Menu, select the LEAD SETUP key.

This unit is now conditioned and is ready to begin the linking process (see page 13).

9. Conditioning a Lead LIII Unit (Harris Box)

Before starting the setup procedures, ensure that:

- Equalizing reservoir is adjusted to the required pressure.
- PCS and all air brake faults are reset.

Condition the controlling LIII unit as follows:

A. Switch and Handle Positions

1. Distributed power circuit breaker - OFF (at this time)
2. Isolation switch - RUN
3. Dynamic brake circuit breaker - ON
4. Control and fuel pump switch - ON
5. Engine run switch - ON
6. Generator field switch - OFF (until ready to move)
7. Reverser - Centered (handle removed)
8. Throttle handle - IDLE
9. Air brake setup - LEAD (freight)
10. Automatic brake handle - Continuous Service/Handle Off
11. Independent brake handle - Fully Applied (at this time)

B. LIII Setup Procedure

At the LIII setup module in the nose of the unit:

ALL

1. Set the thumb wheels to the lead unit LIII unit number.
2. Set the LEAD/REMOTE switch to LEAD.
3. Set the SAME/OPPOSITE switch to LEAD.

UPRR LIII ONLY

4. Dual port air brake valve set to CUT IN (on units so equipped).
5. Locotrol/Conventional switch set to Locotrol (on units so equipped).

ALL

6. Turn ON the three circuit breakers labeled ELEC, RELAY, and RADIO.

At the engine control panel:

7. Turn the distributed power circuit breaker ON.

At the control stand:

8. On units so equipped, verify that the IFC displays an air brake message block indicating "DPC Penalty, Place Handle in Supp".

NOTE: The system LIII console should now begin cycling through a self-diagnostic mode. Verify that all lights are working before proceeding to the linking operation. Press any button on the LIII console to stop the diagnostic cycling.

This unit is now set conditioned and is ready to begin the linking process.

10. Linking to Remote Consist(s) from Lead IDP Unit

After completing step 3 of the lead IDP conditioning, the linking process is started by entering the controlling unit number of the remote consist(s). If there is more than one remote consist enter the locomotive remote nearest the lead consist first.

Perform the following:

1. Enter the number of the remote DP unit to be linked and select LINK.

The system will perform a short test.

- Check the System display for LINK OK, which means this step was successful.
- If the System display responds with LINK FAIL, check and re-enter the number of the controlling remote unit. If this step fails again, check the setup of the remote unit.

NOTE: If a "Radio Fail A or B" message is received, unlink and then re-link with remote. If a "Radio Fail A or B" message is received again, continue with linking process. Report the radio defect.

2. Repeat step 1 for each remote consist. Verify that each remote(s) are linked OK and then press the ACCEPT key.

NOTE: Once the consists are accepted, the Distributed Power Main Menu will appear on the right screen and the Distributed Power Main Menu will appear on the left screen. (On GE Locotrol IFC Locomotives, the DP Main Menu may be displayed on either screen, and the DP Operation can then be displayed on the opposite screen)

3. Perform the brake pipe continuity test (see page 14).

11. Linking to Remote Consist(s) from Lead LIII Unit

If the LIII console indicator lights are cycling, press any soft key to reset and display the prompt to enter the controlling unit number of the remote consist nearest the lead consist.

Perform the following:

1. Use the arrow keys to select the number and move the cursor.
2. After the proper unit number is displayed, press the LINK soft key.

NOTE: The status of the linking process will be displayed to the right of the unit number, i.e., TESTING, LINK OK, RADIO, FAIL A or B, LINK FAIL

Ensure that LINK OK is displayed to the right of the remote before proceeding to the next step. If LINK FAIL is displayed, re-enter the unit number and press the LINK soft key. If LINK FAIL is displayed again, check for the proper setup on the remote unit.

NOTE: If a "Radio Fail A or B" message is received, unlink and then re-link with remote. If a "Radio Fail A or B" message is received again, continue with linking process. Report the radio defect.

3. If the train has more than one remote consist, repeat steps 1 and 2 for each consist.
4. After entering all controlling remote engine numbers, press the DONE soft key.
5. Ensure that the automatic brake valve is in SUPPRESSION and wait until the penalty clears (about 2 minutes).
6. When the PCS and air brake message clears (on IFC equipped units), you may move the automatic brake valve handle to RELEASE to charge the brake system.
7. Perform the Brake Pipe Continuity Test.

12. Brake Pipe Continuity Test from IDP Unit

Perform the brake pipe continuity test (BP test) after linking the consists and before moving the locomotive or train. Ensure that the IDP system is in IDLE.

After the correct locomotive(s) have been accepted in the linking process, perform the following.

1. When the message CHARGE TRAIN BEFORE RUNNING BRAKE PIPE TEST appears, place automatic brake valve handle in RELEASE.

NOTE: After linking to remote(s) the left-hand screen on EMO IDP locomotives will automatically display the DP control screen. GE IDP units must be manually set up at this time, on some units, to display DP control screen to left.

Upon releasing brakes on lead unit, observe automatic brake valves on remote(s) cut in and a flow indication for all DP units on the DP control screen. Wait until flow values drop to 20 CFM on the lead and remote unit(s) before proceeding with step 2. This may take several minutes to reach desired rate.

2. Press the BRK PIPE TEST key, followed by the EXECUTE key.
3. When prompted (this is an automated test), move the automatic brake valve handle to MINIMUM REDUCTION.

NOTE: Moving beyond MINIMUM REDUCTION will void the test.

4. Check the system screen for BP TEST OK, which means the test was satisfactorily completed.
5. If the test fails (BP TEST FAIL), RELEASE THE TRAIN BRAKES AND RECHARGE. Return to step 1, wait until the flow has stabilized, and repeat test.
6. See page 3 for step to change the system operating mode to RUN.

EXCEPTION: In extreme cold temperatures, the DP Brake Pipe Test may be initiated when brake pipe charging has stabilized. If the air flow rate does not reduce to 20 CFM and if there is no further decrease in flow rate for a period of at least 90 seconds, then the flow rate is considered to be stabilized and the DP Brake Pipe Test may be initiated as long as the CFM is no higher than 30 CFM on any DP controlling

unit. DP Brake Pipe Leakage test (no more than 5 psi/minute) must be successfully completed before departing.

13. Brake Pipe Continuity Test from LIII Unit

Perform the brake pipe continuity test to properly condition and enable the LIII equipment.

Perform the following:

1. Press the BP TEST soft key.
2. When the BP TEST key begins to flash (this is usually a prompt to press the EXECUTE or CANCEL soft key):

   a. Do not press EXECUTE or CANCEL at this time.
   b. Check the flow valves for the lead and remote consists displayed on the LIII console screen and wait until these values are below 20 CFM.

NOTE: The flow may take several minutes to reach the desired rate.

3. Once the air flow indicated on the lead and remote consists is below 20 CFM, press the EXECUTE soft key to initiate the BP test. (some LIII systems automatically reduce to MINIMUM REDUCTION at this time)
4. When prompted on the LIII console, move the automatic brake valve handle to MINIMUM REDUCTION. Moving beyond MINIMUM REDUCTION will void the test.
5. Check the LIII control console for BP TEST OK, which means the test was satisfactorily completed.
6. If the test fails, release the train brakes and recharge. Wait until the flow has stabilized to a lower flow value than previous attempt, return to step 1, and repeat the test.
7. See page 3 for steps to change system operating mode to RUN.

EXCEPTION: In extreme cold temperatures, the DP Brake Pipe Test may be initiated when brake pipe charging has stabilized. If the air flow rate does not reduce to 20 CFM and if there is no further decrease in flow rate for a period of at least 90 seconds, then the flow rate is considered to be stabilized and the DP Brake Pipe Test may be initiated as long as the CFM is no higher than 30 CFM on any DP controlling unit. DP Brake Pipe Leakage test (no more than 5 psi/minute) must be successfully completed before departing.

14. Linking process

The train check operating feature verifies that the brake pipe is open and unrestricted between the lead consist and the remote consist(s).

Perform the train check in the following instance:

- Just before movement any time the train has been stopped or the train's brake pipe may have been compromised (cars set-out).

Train Check is NOT required when:

- Required to stop very briefly for lining switches such as entering or departing a track or siding followed by an immediate movement.

Performing Train Check from IDP or·LIII Unit

The conditions and procedure for this brake pipe system check are identical for both types of distributed power equipment.

Perform the check as follows:

1. Ensure that the train is standing.
2. Apply the train air brakes (make at least a 10 pound reduction).
3. Wait until the brake pipe exhaust has ceased before initiating the train check.

NOTE: During extremely cold temperatures, do not initiate the train check until just before departure.

4. From the system display, select TRAIN CHECK.
5. Select EXECUTE.
6. Verify that the brake valves cut out on the remote consist(s) by checking the status of the remotes or by seeing the prompt appear to release the brakes.
7. Move the automatic brake handle to RELEASE when ready to depart.

The results of the train check will appear on the display as PASS or FAIL.

The check may take up to 2 minutes. During this time, the Locotrol system is expecting brake pipe pressure to increase on the remote consist(s). If it does not detect this increase, if the increase comes too slowly, or if communication is interrupted, the result will be a FAIL indication.

NOTE: Train may be started while waiting for the train check results. The results of the train check must yield a PASS indication before:

- Train speed exceed 10 mph, AND
- Train movement exceeds the train's length. Unless the entire train is visually inspected, or the charging brake pipe pressure readings from the remote(s) or ETD (FRED) indicate that the brake pipe is not obstructed.

Responding to Train Check FAIL

If the train check results in a FAIL indication, three chimes will sound and the System screen will indicate the failure. A brake pipe blockage, excess brake pipe leakage, or an interruption in communications between the lead and remote(s) could cause the failure.

A. Second Attempt of Train Check

If the train was started and is moving when the train check FAIL is received, stop the train and retry the train check (see previous page).

1. If a TRAIN CHECK PASS or OK indication is given on the second attempt, proceed as normal.
2. If another TRAIN CHECK FAIL occurs, walk the train and inspect air hose connections and angle cocks.

B. Alternative Method for Determining Brake Pipe Continuity

If there are no indications of communication interruptions between the remote(s) and/or the ETD (FRED) and the lead unit, perform the alternative method as follows:

1. Make a 10 psi brake pipe reduction with the automatic brake valve.
2. Cut out the brake valves on all remote(s) by placing each in BV OUT mode.
3. After determining that all remote brake valves are cut out, return the remotes to NORMAL mode.
4. Move the automatic brake valve handle to RELEASE.
5. Using the remote DP at the rear of the train or an ETD (FRED), verify a rise of at least 5 psi of brake pipe pressure at the rear of the train.
6. If any remote brake valves do not cut in with a rise in brake pipe pressure of at least 4 psi at that remote as indicated by the control console, report that the remote DP unit is defective to the mechanical help desk.
7. If the brake pipe is unrestricted between the lead unit and the rear of the train, proceed at maximum authorized speed.

If the brake pipe pressure does not increase or decrease in a normal amount of time, visually inspect the train. Correct and report any defect(s) found.

C. Communication Interruption during Train Check or Alternate Method

During the train check or alternate method, if there are indications of a communication interruption between the remote(s) and or ETD (FRED) and the lead unit, perform the following:

1. If needed and if move can be made safely, proceed one train length at no more than 10 MPH to try to improve radio reception.
2. Successfully complete the train check or the alternate method before allowing the train to proceed at maximum authorized speed.

15. Special Operating Conditions

This section describes special operating conditions and procedures for adding or removing units while linked.

Adding or Removing Unit(s) in Lead or Remote Consist while Linked

Locomotives may be added or removed from the lead or remote consist while linked except the controlling locomotive of each consist. If it is necessary to change out the controlling locomotive or lead consist:

1. Unlink the distributed power.
2. Properly condition the new controlling locomotive and link it to the other consists in the train.

Adding or Removing Trail Locomotives

Trail locomotives may be added or removed while the train is stopped and linked. When adding or removing locomotives, except when removing the rear locomotive(s) of the consist, perform locomotive air brake test.

NOTE: The air brake test may be performed on the remote consist by the engineer operating from the lead consist. Crew members or mechanical forces must observe from the ground that the locomotive brakes apply and release on the consist that has been changed.

Do not operate (MOVE) a remote consist from the lead consist unless the brake pipe is connected and open between the lead and remote consist to be moved.

Alarm Warning from a Remote Unit

The alarm indication is triggered by a train line alarm from that remote consist. The defect may be on any unit in that consist.

When the lead DP unit display indicates a wheel slip from a DP remote consist that is continuous (active alarms remain highlighted on alarm display screen and audible alarm is continuous), train must be stopped immediately and cause for alarm determined. A rolling inspection of remote consist(s) involved is required before proceeding.

All other alarms must be investigated at first opportunity.

16. Penalty Brake Application

If a penalty brake application occurs during distributed power operation:

1. Control the lead locomotive consist brake cylinder pressure to prevent excessive buff and draft forces.

NOTE: The remote consist(s) locomotive brake cylinder pressure is automatically regulated to maintain 45 psi of brake cylinder pressure during a penalty brake application and cannot be controlled by the lead unit.

2. Move the automatic brake valve handle to SUPPRESS ION.
3. Place the lead and remote(s) throttle in IDLE.
4. All penalty brake applications require stopping before releasing when involving DP equipment. After the PCS has reset on the lead unit and remote unit(s) (approximately 2 minutes), move the automatic brake valve handle to RELEASE.

NOTE: The remote brake valve will cut in and begin charging the brake pipe after sensing a brake pipe pressure increase.

17. Emergency Brake Application

If an emergency exists or an emergency brake application occurs during distributed power operation:

1. Move the automatic brake valve handle to EMERGENCY.
2. Control the lead locomotive consist brake cylinder pressure to prevent excessive buff and draft forces.

NOTE: The remote consist(s) locomotive brake cylinder pressure is automatically regulated to maintain 45 psi of brake cylinder pressure during an emergency brake application and cannot be controlled by the lead unit.

3. Place the lead and remote(s) throttle in IDLE.
4. After the train has stopped and the PCS has reset on the lead unit (approximately 1 minute), move the automatic brake valve handle to RELEASE.

NOTE: The remote brake valve will cut in and begin charging the brake pipe after sensing a brake pipe pressure increase.

18. Charging Time Chart

When the brake system is uncharged and not equipped with an air flow meter, use the following chart to determine the minimum and maximum charging times.

Minimum and Maximum Charging Times When a Brake System Is Empty		
Brake Pipe Length (ft)	**Minimum Charging Time (minutes)**	**Maximum Charging Time (minutes)**
2,500	8	25
3,000	10	30
4,000	15	35
5,000	20	40
6,000	26	55
7,000	35	65
8,000	45	75
9,000	57	100
10,000	71	125
11,000	80	160

19. Additional Information as to Group Requirements

19.1 Making Up a Locomotive Consist

Each set of units will be conditioned as if to power a conventional train. Lead consist and rear consist will be the same until placed in the train.

A. Couple desired units together and stretch the train.

B. Fully apply the independent brake. Center and pull reverser. Generator field switch to OFF position.

C. Tie the hand brakes on all the units.

D. Couple the train line and open the angle cocks on both units.

E. Couple the MU air and open the angle cocks on both units.

F. Install the MU electrical cables.

G. On the trailing unit or units:

Condition the air brakes to trail.

Move the auto brake handle to HO (handle off)

Move the independent brake to release.

H. On the controlling unit (lead):

Condition the air brakes to lead - cut in.

Move auto brake handle to release.

Fully apply independent brake.

Move isolation switch to ON.

Do a locomotive air brake test on each consist after set up is complete.

19.2 Moving Locomotive

A. Initial Movement of a Locomotive Consist Not Coupled to Other Equipment

1. Follow these steps prior to making the initial movement of a locomotive consist outside designated mechanical department limits:

   a. Ensure locomotive air brakes are applied on each locomotive during visual inspection.
   b. Determine that sufficient main reservoir pressure is present.
   c. Verify that hand brakes are released on all locomotives.
   d. Ensure air hoses are coupled between all locomotives in consist including brake pipe, main reservoir, actuation, and application and release.
   e. Position cutout cocks and valves for MU operation.

2. Perform these steps as soon as operating conditions permit when changing operating ends of a locomotive consist previously tested as during the initial movement of a locomotive consist.

   a. At a speed of 1 to 3 mph, allow the locomotive to drift with the throttle in IDLE.
   b. Check that brakes or other defects do not restrict the locomotive's movement.
   c. Increase speed to approximately 10 mph, make a service brake pipe application sufficient to develop brake cylinder pressure.
   d. When speed decreases to approximately 5 mph, actuate to make sure the brakes release.

B. Initial Movement of a Locomotive Consist Coupled to Other Equipment

When making the initial movement of a locomotive consist that is coupled to a train or other equipment, before speed exceeds 10 mph, actuate for 5 seconds per locomotive in the consist to determine if brakes apply on trailing locomotive(s) in the consist.

If actuating results in brakes applying on trailing locomotives or a sudden change in slack is noted, stop and check MU hose connections (lines may be crossed between Act and App/Rel).

If MU hoses are not properly connected, correct the problem and then perform locomotive air brake test.

NOTE: Instructions regarding coupling MU air hoses between locomotives are intended to mean only one coupling for Main Reservoir, Actuation and Application & Release hoses is required. Duplicating the coupling of any of these hoses on both sides of the locomotive is not required.

19.3 Locomotive Air Brake Equipment

Place air brake valves in the proper position on freight and helper locomotives. Position brake valves and cut out cocks as indicated in the following table.

CCB Brake Equipment Positions			
	Lead	**Trail**	**Helper**
Automatic Brake Valve	Release	Handle Off Continuous Service	Release
Independent Brake Valve	Applied Full	Release	Release
Air Brake Setup	Lead/Cut In	Trail	Lead/Cut Out

19.4 Locomotive Air Brake Test

Locomotive Air Brake Test on Multiple-Unit Consists Required When:

- Making up a locomotive consist.
- Adding locomotive(s) to a consist.
- Removing locomotive(s) from a consist, other than when the rear locomotive is removed.
- Locomotives are rearranged in consist.

Locomotive Air Brake Test Procedures:

NOTE: If necessary, apply hand brake(s) to secure consist before beginning brake test. If a locomotive in the consist has a hand brake applied, observe only the pistons at the opposite end from the hand brake on that locomotive to determine if brakes apply and release.

Observe one side of the multiple-unit consist, from a ground position, to determine all locomotive brakes apply and release as specified in each step below.

- With the independent and automatic brake valve handles in RELEASE position, apply the independent brake.
- After observing brakes apply on each locomotive, release the independent brakes.
- When brakes are released on all locomotives, make a 10 psi brake pipe reduction using the automatic brake valve.
- After brakes apply on all locomotives, actuate and observe independent brakes release on all locomotives.
- Reduce brake pipe pressure an additional 10 psi with the automatic brake valve and determine all locomotive brakes apply.
- Cut out the automatic brake valve.
- Observe gauges to verify that the equalizing reservoir indicates no leakage and that brake pipe leakage does not exceed 5 psi per minute.
- Move the automatic brake valve handle to RELEASE position and cut the brake valve in.
- Determine that all brakes release.
- Fully apply independent brakes upon successful completion of this test.

Addendum to Air Brake Test

To insure that all the units in a locomotive consist make power, on the controlling unit, move switch to ON, insert the reverser handle and move throttle to position FORWARD and move throttle to POSITION ONE. Walk through the units to observe that they are all making effort. Lack of effort may be the result of unattached or damaged MU electrical cables, isolation switch not in RUN position, or PCS not properly reset. Correct any faults before linking for DP operation.

DAILY LOCOMOTIVE INSPECTION

Locomotive: _____ **Name:** _____

Time: _____ **Date:** _____

BEFORE Starting Engine						AFTER Starting Engine		
Check Brake Rigging and Shoes, c/o shoes as required		How many? _____				Check Cooling Water Level		
Inspect for Loose or Dragging Equipment						(Water added)	Y	N
Check Fuel Level	1/4	1/2	3/4	Full		Quantity of Water Added (inches)		
Drain Environmental Tank						Check Engine Oil Level (ensure engine is warm)		
Inspect for Signs of Fuel, Oil, or Water Leaks						(Oil added)	Y	N
Check Compressor Oil Level (added)		Y	N			Quantity of Oil Added		
Check Governor Oil Level (added)		Y	N			Check for Leaks		
Engine Protection Device Buttons In						Check Lube Oil Pressure (at least 15 lbs)		
Engine Overspeed Lever Latched (11 o'clock position)						Check Rotating Equipment		
Open Test Cocks and Blow Engine						Check Horn/Belt		
Verify Airbrake Setup (lead or trail)						Check Brake Piston Travel		
Turn on Required Breakers/Switches						(Adjust travel 2 to 4 inches)	Y	N
Check Isolation Switch in Start Position						Functional Airbrake Test		
Inspect Fire Extinguishers						Check Lights		
Verify Handbrake Operation						Check Sanders		

Defects (including any corrective actions taken): _____

_____

_____

_____

_____

ABNORMAL CONDITIONS

Cooling Water Low:	Check for leaks and add to the full mark (either running or stopped).
Engine Oil Low:	Check for leaks and add to the full mark on the dipstick (normal operation between add and full).
Engine Oil High:	Check dipstick, if engine oil smells of diesel fuel, shut down engine and consult mechanic.
Engine Oil High:	Check dipstick, if engine oil appears gray or tan color, shut down engine and consult mechanic.
Governor Oil Low:	Add to 1/2 sight glass with engine at operating temperature and running.
Governor Oil High:	Overfilled and black color; drain to 1/2 sight glass; okay to run for shift and consult mechanic.
Other Problems:	See Field Troubleshooting Guide.

FIELD TROUBLESHOOTING GUIDE

Problem	Cause	Corrective Action
Not Loading	Battery field fuse blown or circuit breaker tripped	Change out 80 AMP battery field fuse or reset breaker
	No auxiliary generator power (alarm bell will ring)	Change out 250 (may be 150 Amp) aux gen main fuse or reset breaker. Change out 15 Amp voltage regulator fuse (if equipped).
	Ground relay (alarm bell will ring)	Reset ground relay and try. If trips again, try cutting out traction motors.
	If one locomotive in consist does not load – bad MU cable	Change out MU cable (may also be any of the above).
	Bad electrical interlock or contact	Try cutting out one traction motor or truck at a time.
	Severe wheel slip	Cut out one traction motor or truck at a time (ensure all wheels turn freely).
	PC	Recover PC (throttle must be in idle position).
Underloading	Excessive wheel slip	Out of sand Flat spots or sheels on wheels (to be addressed by mechanical staff) Poor track condition (rain, snow, track condition)
	Mechanical problem	Plugged engine air or fuel filters (to be addressed by mechanical staff)
	Governor oil	Governor sight glass should be ½ full at idle (normal operating temperature)
Unable to start engine	Low oil button tripped	Reset low oil button on the governor.
	Engine protection device low water or crankcase pressure button tripped	Check water level. If okay, reset low water button (low oil button on governor will also be tripped; reset also) and restart. If crankcase button (and low oil button on governor) trip, do not start until mechanical staff has inspected.
	Engine overspeed tripped	Level on diesel engine beside governor. Normal operation 11 o'clock position. If tripped (2 o'clock position), pull back to reset.
Hot engine	Low water or shutter problem	Check cooling water; add if necessary. Check front and top shutters (if top blade of front shutters is open, then top shutters are open). Can be blocked open with a flag stick, broom handle, etc. until repairs are completed.
PC unable to recover	Mechanical or electrical problem	If air connected to cars, turn off air at locomotive and try to recover. Cycle speedometer breaker off for 10 seconds, turn on and try to recover. Make sure throttle is in idle before trying to recover; will not recover otherwise.
Low oil alarm	Engine or governor oil	Governor sight glass should be ½ full at idle (normal operating temperature). Engine oil low, add to full mark. If the low oil button on the governor trips when throttle returned to idle after heavy pull, check engine oil level. If the oil level is high and smells of raw diesel fuel, contact mechanical staff.

PURPOSE: This procedure outlines and defines the basic necessary steps needed to safely inspect locomotives and perform an Air Brake Test.

SCOPE: This procedure is to be followed by terminal employees when inspecting locomotives and performing air brake tests.

RESPONSIBILITY: The respective Quality Supervisor and Logistics Director shall ensure that this procedure is followed by terminal personnel when performing locomotive inspections and air brake tests and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task. This procedure is to be reviewed on an annual basis.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat		Miscellaneous Safety Equipment	
	Vancouver Energy Approved Uniform (FRCs)			
	Safety Toed Boots - 6" laced above ankle with a defined heel (ASNI Z41.1 Certified)			
	Side Shield Safety Glasses (ANSI Z87.1 Certified)			
	Leather Gloves			

NOTE: All Employees helping with any part of this procedure must don all PPE (Personal Protection Equipment)

Tools & Transfer Equipment			Environmental Equipment	

LOCOMOTIVE DAILY INSPECTION

Inspection Requirements

1.1 The Engineer is responsible for ensuring that each locomotive in his/her charge including locomotives picked up enroute is inspected each day the locomotive is in service.

1.2 The Employee will need to determine if the locomotive needs to be inspected by checking the locomotive cab card in each locomotive. This card will indicate the date and time of the last inspection.

1.3 In service includes locomotives moving in through freight service that are isolated or shut down for fuel conservation or other non-complying defects.

1.4 On a multiple locomotive consist the Engineer may assume that all locomotives in the consist and any distributed power in the train were inspected on the same day as the cab card on the controlling locomotive.

1.5 An inspection is not required on a locomotive that is left standing (idling or shut down) and will not be used as a working locomotive.

NOTE: UP locomotives have an entry in the "REMARKS" section at the bottom of the blue card which reads "Do Not Use After: mm/dd/yy". You will need to verify that the locomotive has not passed this date.

NOTE: BNSF locomotive daily inspection reports will be filed electronically, whenever possible. Defects to locomotives, whether discovered during locomotive daily inspection or otherwise, non-complying or not, will be verbally reported to the BNSF mechanical desk, NOC unless local instructions provide otherwise.

Inspected Previous Calendar Day

1.6 The Employee will check the locomotive cab card to see when the locomotive was last inspected. If the locomotive was inspected the previous calendar day, you will need to complete the current daily inspection before 2359 hours.

1.7 If your tour of duty will go beyond the 2359 hours you will need to conduct the inspection before the 2359 hours.

Not Inspected the Previous Day

1.8 If the locomotive cab card indicates that the locomotive was not inspected the previous calendar day or if there is no record in the locomotive, the Employee must inspect the locomotive before it is placed in service.

1.9 No locomotive in a consist may have a date older than the lead, controlling locomotive.

Locomotive Set Out On Line

1.10 When setting out a locomotive on line that was inspected on the previous calendar day you must inspect the locomotive, unless notified that the locomotive will be inspected by the Mechanical Department or be picked up by another train before 2359 hours.

CONDUCTING A LOCOMOTIVE DAILY INSPECTION

2.1 Not all defects are considered non-complying conditions.

2.2 The following items are considered non-complying conditions if they do not function properly during the inspection. You need to inspect each of these three general areas on the locomotives.

Control Compartment/Locomotive

2.3 The Employee will verify that the FRA Form F 6108-49A (blue card) is displayed under a transparent cover in the cab of each locomotive.

2.4 The Employee will operate the sanders to deposit sand in front of each locomotive's lead wheels when the reverser position determines the direction.

2.5 During the inspection the Employee need to ensure that each air gauge registers correctly and is within 3 psi of the required pressure. Follow the following steps when accomplishing this:

2.5.1 Employee charges the air brake system to ensure it functions as needed.

2.5.2 Employee will need to ensure he/she does not charge the train's air brake system more than one automatic brake valve cut in unless you are utilizing distributed power locomotives.

2.5.3 The Employee needs to ensure he/she does not increase diesel engine RPM to maintain main reservoir pressure unless the pressure fails to stay 10 psi above the regulating valve setting.

2.5.4 Should the engine RPM need to be increased, do not exceed throttle position 4.

NOTE: Locomotive consists with a single locomotive equipped with an electric air compressor (GE C40-8 or C44-9 for example) may only require advancing throttle to Run 1position to increase charging speed. Some EMD locomotives (like SD70MAC) automatically increase engine speed as needed to maintain main reservoir pressure. In yards where trains are made up, unattended locomotives may be used to charge the brake system when ambient temperatures requires additional charging time.

2.6 The Employee needs to verify that at least one headlight bulb is operational on each end of the locomotive consist.

2.7 The Employee needs to verify that two ditch light, if equipped, are operational in the direct ion of travel.

NOTE: If not equipped with ditch lights or when operated as a remote control locomotive, the locomotive may be used as the leading locomotive if it is operated at 20 MPH over all road crossings. Inspection of ditch lights is not required when performing daily inspection on locomotives being used as remote control locomotive.

2.8 The Employee needs to verify that the horn and bell operate properly.

2.9 The Employee needs to verify that the gauge lights and the engineer's overhead cab light illuminate. If burned out or other lighting is sufficient to allow visibility form the crews normal position you will report this as a defect but not a non-complying condition.

2.10 The Employee needs to verify that the speed indicator, if equipped, functions accurately.

NOTE: If after a daily inspection, the speed indicator failure is identified on the lead locomotive as soon as it begins moving, the failure is a non-complying condition discovered during the daily inspection.

Exception: Locomotives that are not equipped with speed indicators or when operated as a remote control locomotive are not considered to have a non-complying defect and may be used as controlling locomotive only if operated at speeds not exceeding 20 MPH.

Inspection of speed indicator is not required if the locomotive is being used as a remote control locomotive.

2.11 The Employee needs to verify that the locomotive cab is free of slip or trip hazards.

2.12 The Employee needs to ensure that the windows provide a clear view. Small cracks that do not obscure view must be reported as a defect but not as a non-complying condition.

2.13 The Employee needs to ensure that no traction motors have been cut out.

Exception: On GE AC, GE-8 DC, GE-9 DC & EMD AC locomotives, one or more traction motors/trucks may be cut out and not considered a non-complying condition.

2.14 The Employee needs to ensure that the locomotive cab seats are properly secured.

NOTE: Locomotives with defect items of ditch lights, horn, bell, gauge lights/engineer's overhead cab light, speed indicator, or windows with small cracks may be used in power as trailing units. You must report these defects but they are considered non-complying only when positioned in locomotive consist as the lead, controlling locomotive.

2.15 The Employee needs to verify that the Sanitary Toilet Facility is clean and working properly.

NOTE: Toilet facilities are not required on locomotives used in switching or transfer service on which employees have railroad-provided sanitation facilities outside the locomotive that meet sanitation standards at frequent intervals during the course of their work shift. However, toilet facilities on any locomotives must be part of the daily locomotive inspection and defect reporting. Also, unoccupied locomotives in trail position on through freight trains are not required to have operative or sanitary toilets. However, any locomotive toilet found defective or unsanitary, whether required or not, are to be reported as defective.

2.16 Locomotives with defective or unsanitary toilet may not be used as lead unit unless:

- No other suitable locomotives are available for use
- It is not possible to switch another locomotive into lead position.
- Location is not equipped to clean the sanitation compartment, if unsanitary, or repair the toilet facility if defective.

Walkway and Engine Compartment

2.17 The Employee needs to inspect both sides of each locomotive.

2.18 When inspecting the walkways and walk-in compartments the Employee needs to ensure they are clear of debris, tools and accumulated grease and oil that may present a trip or slip hazard.

2.19 The Employee inspects the handrails, hand holds, steps, ladders, safety chains and guards to ensure they are secure and ready for service. Make sure there are no bent, broken, damaged or loose equipment and that safety chains are connected high enough for safe passage.

2.20 The Employee needs to verify that all electrical and rotating equipment guards are in place.

2.21 The Employee needs to ensure the diesel engine has no apparent exhaust, water, oil, or fuel leaks.

2.22 The Employee needs to inspect the hand brake to ensure it is operational.

Ground Level

2.23 The Employee needs to inspect the exposed areas for apparent defects.

WARNING: DO NOT crawl under or between locomotives to make the visual inspection.

2.24 The Employee sets the hand brakes, if necessary, and walks around both sides of the locomotive for the inspection.

2.25 The Employee needs to verify that the sand is deposited on the rail in front of the lead wheels on each locomotive in the consist.

2.26 The Employee needs to ensure the fuel tank is not leaking.

2.27 The Employee verifies there are no cracks, missing or broken parts on the locomotive trucks, wheels, gear cases or draft gears.

2.28 The Employee needs to verify that the brake cylinder piston travel is: a) At a minimum: Sufficient to provide brake shoe clearance when the brakes are released; and b) At maximum: 1 1/2 inches less than the travel entered on the blue card in the locomotive cab.

2.29 The Employee verifies that the foundation brake rigging is secured and all components other than wheels and sand hoses are at least 2 1/2 inches above the top of the rail.

2.30 The Employee verifies that the snowplow, pilot or endplate is properly secured and is between 3-6 inches above the top of the rail.

2.31 The Employee verifies that the brake shoes are secured and approximately in line with the tread of the wheel. Ensure the shoe has no obvious lips or overhangs.

2.32 The Employee ensures that no part of the electrical cable is lying on the coupler.

2.33 All unused electrical cables need to be stowed or the disconnected ends placed into a dummy receptacle or a multiple-unit cable holder.

2.34 The Employee needs to manually drain oil and water from the main reservoirs that are not equipped with automatic drains. If equipped with automatic drains the Employee ensures that the valve handles are then turned fully clockwise to the automatic position with the stem extending beyond the valve handle.

COMPLETE REQUIRED DAILY INSPECTION FORMS

Locomotive Inspection Report

3.1 The Employee must complete a Locomotive Inspection Report for each locomotive inspected.

3.21 The Employee must complete the daily inspection form and a FRA Rule 229.21 Daily & Mid-trip Inspection Form (cab card) with the following inspection information:

- Date
- Location
- Time
- Signature

3.3 The Employee will write "NC" for Non-complying in the "time" column if the locomotive with a non-complying defect is found during the inspection of that locomotive.

3.4 A copy of the locomotive daily inspection should be left at location designated by other local.

LOCOMOTIVE WITH NON-COMPLYING CONDITION DEEMED SAFE TO MOVE

4.1 If during the locomotive daily inspection the Employee finds one or more non-complying conditions he/she will determine if the locomotive is safe to move.

4.2 If the locomotive is deemed safe to move, it may move only under the following circumstances:

- As a single locomotive under power not attached to cars
- In a locomotive consist not attached to cars
- Isolated or shut down when attached to cars

4.3 Exceptions to 4.2 are as follows:

4.3.1 Controlling locomotive found with a defective speed indicator during the daily inspection may be operated under power attached to cars not exceeding 20 MPH.

4.3.2 Locomotives found with the following defects during the daily inspection may be operated under power attached to cars as a trailing locomotive:

- Inoperative headlights
- Inoperative horn
- Inoperative bell
- Defective speed indicator
- Window cracks that obscure view
- Cab seats not properly secured
- Both ditch lights inoperative
- Inoperative Safety Devices
  - To the extent possible, make sure these locomotive safety devices are cut in and operating at all times:
    - Over speed
    - Alerters (consider defective if device fails to provide visual and audible warnings)
    - Automatic cab signals
    - Automatic train stop equipment
    - Automatic train control equipment

NOTE: However, safety devices do not have to be operating on non-controlling locomotives, distributed power remote controlling locomotives, or:

- **When a safety device becomes defective enroute, or**
- **During drag loading/unloading operations under 5 mph.**

4.4 Prior to moving a non-complying locomotive the Employee must perform the following:

4.4.1 The Employee must complete a non-complying locomotive tag and attach it to the isolation switch of the non-complying locomotive with the following information:

- The words "Non-complying locomotive" written on the tag.
- The locomotive initials and number
- The Name of the inspecting railroad.
- The Nature of the defect.
- The Movement restrictions, if any.
- The Destination
- Employee signature performing the inspection.

4.5 The Employee will secure a copy of the non-complying tag on the control stand of the controlling locomotive.

4.6 The Employee needs to ensure that the engineer in charge of the locomotive movement receives written notification of the non-complying locomotive. A copy of the non-complying locomotive tag will meet this requirement.

4.7 The Engineer must inform all other crew members of the non-complying unit and of any restrictions.

4.8 The Employee needs to notify the train dispatcher/mechanical desk, yardmaster, or other proper authority.

NOTE: A locomotive may be moved without complying with steps 4.4.1 through 4.7 as a single locomotive or dead within a yard solely for repairs and at no more than 10 MPH.

Locomotive With Non-complying Condition Not Deemed Safe to Move

5.1 If during the locomotive inspection the Employee finds one or more non-complying conditions and determines that the locomotive is not safe to move he/she must do the following.

5.1.1 The Employee must notify the BNSF Train Master, Operations Manager, Logistics Manager, or other proper authority.

5.1.2 The Employee must complete a non-complying tag and attach the tag to the isolation switch of the non- complying locomotive. The following information must be on the tag:

- The words "Non-complying locomotive" written on the tag.
- The locomotive initials and number
- The Name of the inspecting railroad.
- Inspection location and Date
- Signature of Employee performing the inspection

Defects Other Than Non-complying Conditions

6.1 If a defect or problem is found and is not a non-complying condition the Employee will do the following:

6.1.1 The Employee completes a Locomotive Daily Inspection Report for each locomotive in the consist with a defect or problem.

6.1.2 The Employee reports any locomotive not producing power to the Mechanical Desk.

6.2 The following are examples of a defect or problem that s not a non-complying condition:

- Weather stripping is defective
- Windshield wipers not working
- One headlight bulb is burned out
- Ground relay is tripped
- Safety valve on the air compressor or main reservoir is popping off.

NOTE: When a locomotive is discovered with a single operative headlight bulb, immediately contact the mechanical desk and follow the manager's instructions.

LOCOMOTIVE AIR BRAKE TEST

7.1 The Employee must conduct a locomotive air brake test when any of the following occur:

- Making up a locomotive consist
- Adding a locomotive to a consist
- Other than rear locomotive(s) is removed from the consist
- Locomotive consist is rearranged, or
- Changing operating ends

Air Brake Test Procedure

7.2 From the ground the Employee observes the locomotive brakes to ensure they apply and release during this entire procedure.

7.3 With the independent and automatic brake valve handles in the RELEASE position the Employee applies the Independent Brake.

7.4 After observing that the brakes apply on each locomotive the Employee releases the Independent brake.

7.5 Once the brakes are released on all locomotives, the Employee applies the automatic brakes by making a 10 psi pipe reduction.

7.6 After the brakes apply on all locomotives, actuate and observe that the brakes release.

7.7 The Employee then reduces the brake pipe pressure an additional10 psi to reapply the brakes.

7.8 The Employee verifies that all brakes apply on all locomotives.

7.9 Employee cuts out the automatic brake.

7.10 The Employee observes the gauges and verifies that the equalizing reservoir indicates there is no leakage and that the brake pipe leakage does not exceed 5 psi per minute.

7.11 The Employee moves the automatic brake valve handle to the RELEASE position.

7.12 The Employee cuts in the automatic brake valve.

7.13 Employee verifies that all brakes release.

7.14 Upon successful completion of the test, the Employee reapplies the Independent brakes.

End of this procedure

This permit to be kept at job site. Return job site copy to Safety Officer following job completion.

Date & Time Issued: _____
Job Site/Space ID.: _____
Equipment to be worked on: _____
Stand-by personnel: _____

Date & Time Expires: _____
Job Supervisor: _____
Work to be performed: _____

1. Atmospheric Checks: Time _____
   Oxygen_____%
   Explosive_____% LEL
   H_2S_____%

2. Tester's Signature_____

3. Source Isolation (No Entry):

	NA	Yes	No
Pumps or lines blinded,	( )	( )	( )
disconnected or blocked	( )	( )	( )

4. Ventilation Modification:

	NA	Yes	No
Mechanical	( )	( )	( )
Natural Ventilation only	( )	( )	( )

5. Atmospheric check after Isolation and Ventilation:
   Oxygen _____% > 19.5%
   Explosive_____% LEL< 10%
   H2S_____%< 15%
   Tester's Signature

6. Communication procedures:_____
   _____

7. Rescue procedures: _____
   _____

8. Entry, standby and back up persons:

	Yes	No
Successfully completed required training?	( )	( )
Is it current?	( )	( )

9. Equipment:

	NA	Yes	No
Direct reading gas monitor tested	( )	( )	( )
Safety harness and lifelines for entry and standby persons	( )	( )	( )
Hoisting Equipment	( )	( )	( )
Powered Communications	( )	( )	( )
SCBA's for entry and standby persons	( )	( )	( )
Protective Clothing	( )	( )	( )
All electric equipment listed Class I, Division I, Group D and non-sparking tools	( )	( )	( )

10. Periodic atmospheric tests:

Oxygen_____%	Time_____	Oxygen_____%	Time_____
Oxygen_____%	Time_____	Oxygen_____%	Time_____
Oxygen_____%	Time_____	Oxygen_____%	Time_____
Explosive_____%	Time_____	Explosive_____%	Time_____
Explosive_____%	Time_____	Explosive_____%	Time_____
Explosive_____%	Time_____	Explosive_____%	Time_____
H_2S_____%	Time_____	H_2S_____%	Time_____
H_2S_____%	Time_____	H_2S_____%	Time_____
H_2S_____%	Time_____	H_2S_____%	Time_____

We have reviewed the work authorized by this permit and the information contained herein. Written instructions wand safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit Prepared By: (Supervisor) _____ _____

Approved By: (Unit Supervisor) _____ _____

Reviewed By: (Cs Operational Personnel) _____ _____

(Printed name) (Signature)

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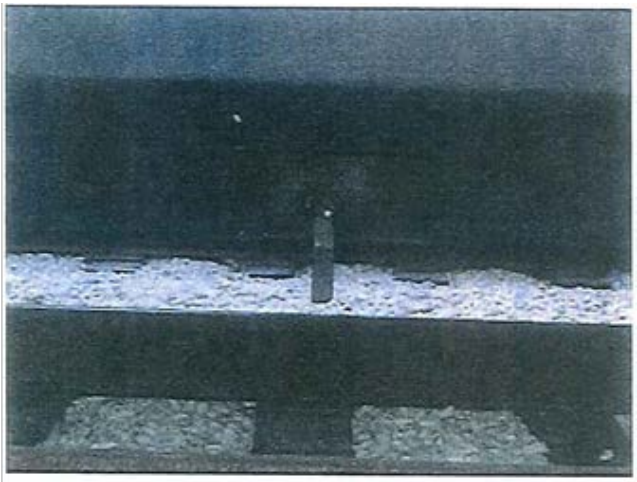
5.2 Locomotive Daily Inspections
Proper Inspection Techniques

Drain condensation from main reservoirs.

- With locomotive running, open drain valve so that handle is in line with piping.
- When all water is drained from tank, close drain handle to where handle 90 degrees from piping.
- Handles are located under the fuel tanks.
- Note: As this is water vapor that condenses from ambient air, for this drain condensation only, no collection pans or containment is required.

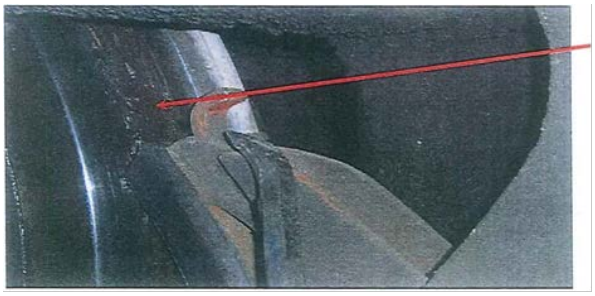


Inspect condition of the following.

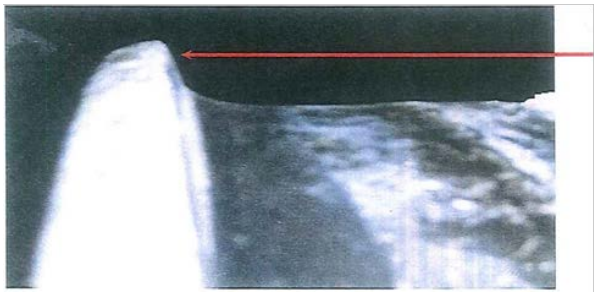
- Wheels
- Trucks
- Draft Gears
- Coupler
- Hand Brake
- Safety Appliances above and below running board

Inspect condition of wheels.

- Check wheels for flat spots, thermal cracks, or chips on flanges and wheel tread.



- Inspect flanges to ensure they aren't chipped, thin, or pointed.



Inspect condition of trucks.

- Inspect truck assembly for any broken springs or components.
- Inspect for missing hardware or bolts.
- Report any unusual appearances of truck assembly to manager.

Inspect condition of draft gears and couplers.

- Inspect coupler for cracks, wear, broken pins or any unusual appearance
- Inspect coupler carrier for cracks or unusual wear

Inspect condition of hand brake.

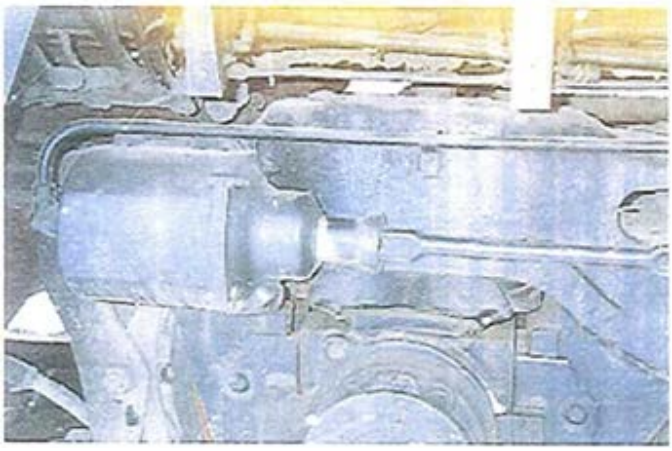
- Inspect hand brake for proper operation.
- Apply hand brake to ensure that it holds equipment in place while all brakes are off.
- Check for proper release and that brake cylinders do not stay out.
- Report any defects to manager and document on inspection form.

Inspect condition of safety appliances above and below running board.

- Inspect for cracked, broken or missing steps.
- Inspect crossover step to ensure it is up and secured if not being used and safety chain properly secured on handrails, or step is completely down and chains properly secured to adjacent locomotive if MU'd.
- Inspect to ensure hand rails are straight and secured.
- Ensure all lights are functioning properly.

Check condition of brake shoes, change any if required. Adjust brake travel (4 to 6 inches of travel). Perform operation air brake test.

- Visually inspect shoes. If shoe needs to be replaced, refer to locomotive brake shoe replacement procedures.
- Inspect piston travel. If adjustment is necessary, refer to locomotive brake shoe replacement procedures.
- Perform operational air brake test per instruction.



Visually check fuel tank gauges and fueling equipment, report any defect.

- Inspect fuel filler cap for cracks or breaks.
- Ensure safety line is attached properly.
- Inspect fuel sight glass for any cracks, breaks, or fuel leaks.
- Report any defects to manager and document on inspection report.

Inspect firefighting equipment.

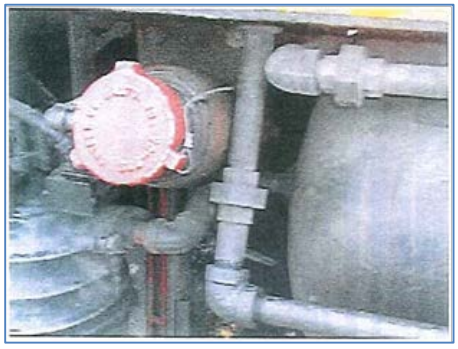
- Check to ensure fire extinguishers are securely mounted in cab and engine room
- Ensure there is no obstructions to firefighting equipment
- Inspect firefighting equipment to ensure it has proper inspection tags or stickers
- Report any defects to manager and document on inspection sheet
- There should be 1 fire extinguisher in the cab and l in the engine room

Check unit for fire and accident hazards.

- Inspect electric cabinet for cans, garbage, paper, etc.
- Inspect engine room for trash, oily rags, fuel leaks, etc.
- Remove all potential fire hazards from unit.
- If any fuel leaks exist, shut off locomotive and contact manager immediately.

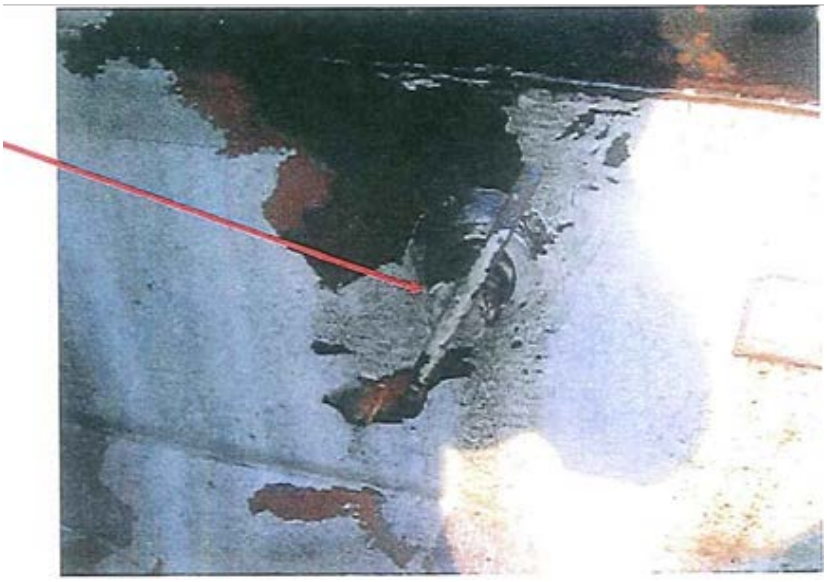
Supply fuel and sand.

- Fuel locomotive per Facility safety rules and regulations. Mobile fuel supplier shall use containment at all hose connections and be equipped with spill cleanup kit at all times while on terminal.
- Fill sand traps as needed.
- Fuel filler necks are located on each side of unit.
- Rear sand traps are above the battery compartments.
- The front sand traps are located on the sides by the air compressor.



Blowing down engine.

- If locomotive has been shut down for more than 4 consecutive hours or after a heavy rain, open cylinder test valves located on side of engine block
- Tum engine over by turning the start button for a couple revolutions
- Once the blow down is complete, close all test valves and start engine



With engine idling, check engine, radiator, shutters, air compressor, and all other rotating equipment; report any defects.

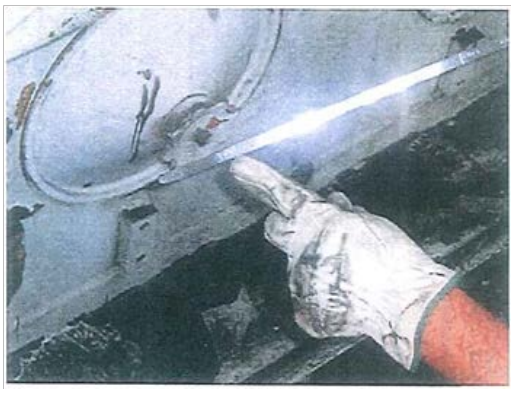
- Ensure all guards are in place.
- Report any abnormal noise from engine room to manager or mechanical manager immediately. Shut locomotive down until released by a qualified mechanic.

With engine idling, check all fluids.

- Engine Oil
- Air Compressor Oil
- Engine Water
- Fuel
- Governor Oil
- Journal Lube Oil

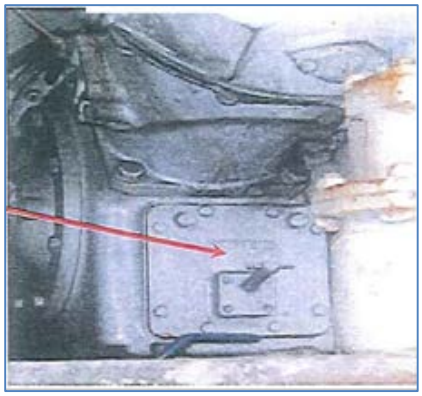
Engine Oil

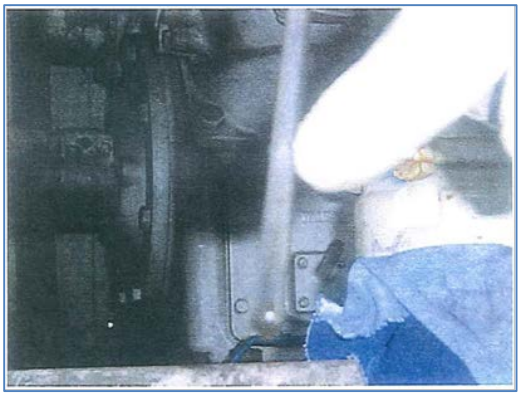
- With engine running, pull dipstick out of crankcase and wipe off excessive oil.
- Insert dipstick into engine and pull back out and record reading.
- If oil is on "Low" mark or not on dipstick, ADD OIL IMMEDIATELY! Use a containment drip pan. If any fluid is collected, it should be emptied into an appropriate waste containment tank for temporary onsite storage, prior to disposal at an approved offsite location by a third party service provider.
- Use only an approved "Zinc Free" oil.



Air Compressor Oil

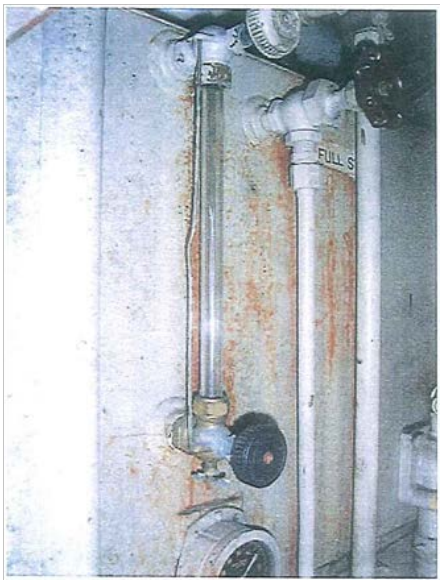
- Remove Air Compressor dipstick
- Wipe off excessive oil and re-insert dipstick into crankcase and record reading
- If oil is low, add oil immediately. Use a containment drip pan. If any fluid is collected, it should be emptied into an appropriate waste containment tank for temporary onsite storage, prior to disposal at an approved offsite location by a third party service provider.
- Use only approved air compressor oil or a turbine oil as a substitute. (DO NOT use Air Tool Oil)





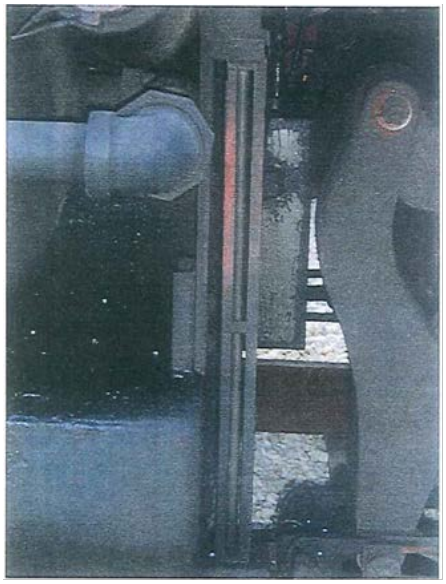
Engine Water Level.

- Check water level before starting engine.
- If no water is in the sight glass, DO NOT START ENGINE.
- Check water level again once engine is running.
- If you are adding water excessively or find water in the retention tank, report it immediately to your manager or the mechanical manager.



Fuel.

- Check fuel level on sight glass
- If it is at an unacceptable level, add fuel or contact manager. Mobile fuel supplier shall use containment at all hose connections and be equipped with spill cleanup kit at all times while on terminal.

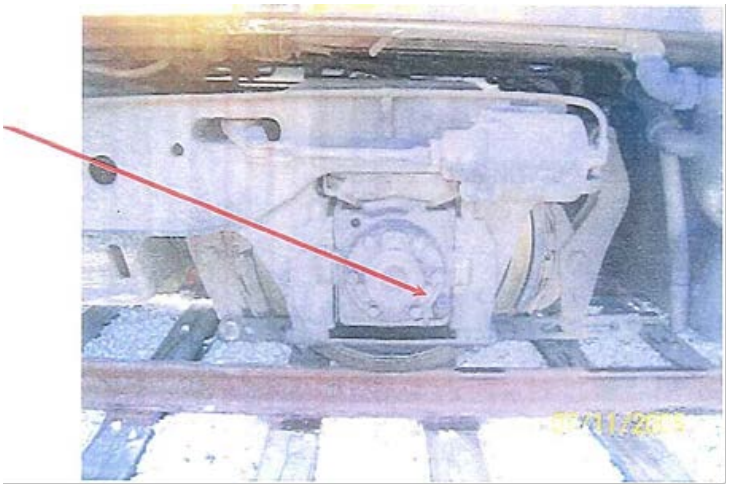


Governor Oil.

- Check Governor Oil on sight glass
- Governor Oil should only be filled up to line in the MIDDLE of the sight glass, indicating it is FULL.
- Only use approved Governor Oil to replenish. If unavailable, you may substitute with a 10W-30 weight oil. Use a containment drip pan. If any fluid is collected, it should be emptied into an appropriate waste containment tank for temporary onsite storage, prior to disposal at an approved offsite location by a third party service provider.

Journal Lube Oil.

- Check to ensure that Journal Lube Oil is present on the dipstick.
- If no oil is present, do not run locomotive.
- Contact mechanic immediately to have oil replenished.
- If you need to add Journal Oil, use only Journal Oil. Do not use engine oil or bearing oil.

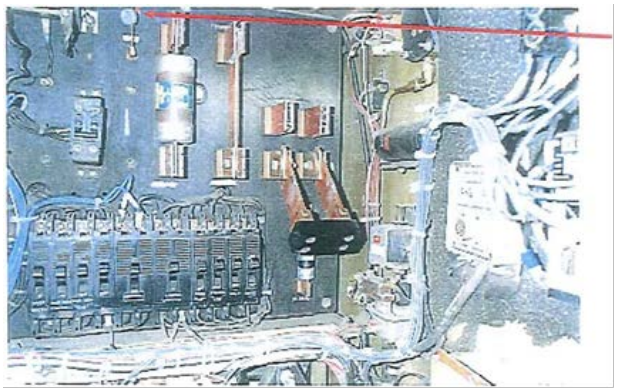


Cross contamination.

- Never use the same bucket or spout to add oil to different components.
- Never use your drain bucket for the retention tank to add oil to the locomotive.
  New Oil = New Buckets. Used Oil = Used Buckets.
- Never cross or substitute oils unless authorized by the manager of mechanical services.
- Certain oils, such as engine oil, cannot be used in the air compressor or governor and vice versa.

Ensure that seals are applied to ground relay, transition, and load cut-out switches.

- Make sure seals are not broken or removed on switches.
- If seals are missing or broken, contact manager and document on inspection sheet.



Drain the pollution tank.

- Drain Oil and Water out of retention tank daily.
- Retention Tank Drain is located on the Engineer's side of locomotive next to fuel tank.
- Drain waste into an approved container, which then should be emptied into an appropriate waste containment tank for temporary onsite storage, prior to disposal at an approved offsite location by a third party service provider.

Ensure the cab card is up to date.

- Sign Daily Inspection Report and submit it to your Supervisor.
- Fill out Discrepancy Report and submit to your Supervisor if there are any necessary repairs to be made to locomotive.

Reporting.

- Sign Daily Inspection Report and submit it to your Supervisor.
- Fill out Discrepancy Report and submit to your Supervisor if there are any necessary repairs to be made to the locomotive(s).

Locomotive Inspection Form

Attached.

DAILY LOCOMOTIVE INSPECTION

Locomotive: _____ **Name:** _____

Time: _____ **Date:** _____

BEFORE Starting Engine						AFTER Starting Engine		
Check Brake Rigging and Shoes, c/o shoes as required		How many? _____				Check Cooling Water Level		
Inspect for Loose or Dragging Equipment						(Water added)	Y	N
Check Fuel Level	1/4	1/2	3/4	Full		Quantity of Water Added (inches)		
Drain Environmental Tank						Check Engine Oil Level (ensure engine is warm)		
Inspect for Signs of Fuel, Oil, or Water Leaks						(Oil added)	Y	N
Check Compressor Oil Level (added)		Y	N			Quantity of Oil Added		
Check Governor Oil Level (added)		Y	N			Check for Leaks		
Engine Protection Device Buttons In						Check Lube Oil Pressure (at least 15 lbs)		
Engine Overspeed Lever Latched (11 o'clock position)						Check Rotating Equipment		
Open Test Cocks and Blow Engine						Check Horn/Belt		
Verify Airbrake Setup (lead or trail)						Check Brake Piston Travel		
Turn on Required Breakers/Switches						(Adjust travel 2 to 4 inches)	Y	N
Check Isolation Switch in Start Position						Functional Airbrake Test		
Inspect Fire Extinguishers						Check Lights		
Verify Handbrake Operation						Check Sanders		

Defects (including any corrective actions taken): _____

_____

_____

_____

_____

ABNORMAL CONDITIONS

Cooling Water Low:	Check for leaks and add to the full mark (either running or stopped).
Engine Oil Low:	Check for leaks and add to the full mark on the dipstick (normal operation between add and full).
Engine Oil High:	Check dipstick, if engine oil smells of diesel fuel, shut down engine and consult mechanic.
Engine Oil High:	Check dipstick, if engine oil appears gray or tan color, shut down engine and consult mechanic.
Governor Oil Low:	Add to 1/2 sight glass with engine at operating temperature and running.
Governor Oil High:	Overfilled and black color; drain to 1/2 sight glass; okay to run for shift and consult mechanic.
Other Problems:	See Field Troubleshooting Guide.

FIELD TROUBLESHOOTING GUIDE

Problem	Cause	Corrective Action
Not Loading	Battery field fuse blown or circuit breaker tripped	Change out 80 AMP battery field fuse or reset breaker
	No auxiliary generator power (alarm bell will ring)	Change out 250 (may be 150 Amp) aux gen main fuse or reset breaker. Change out 15 Amp voltage regulator fuse (if equipped).
	Ground relay (alarm bell will ring)	Reset ground relay and try. If trips again, try cutting out traction motors.
	If one locomotive in consist does not load – bad MU cable	Change out MU cable (may also be any of the above).
	Bad electrical interlock or contact	Try cutting out one traction motor or truck at a time.
	Severe wheel slip	Cut out one traction motor or truck at a time (ensure all wheels turn freely).
	PC	Recover PC (throttle must be in idle position).
Underloading	Excessive wheel slip	Out of sand Flat spots or sheels on wheels (to be addressed by mechanical staff) Poor track condition (rain, snow, track condition)
	Mechanical problem	Plugged engine air or fuel filters (to be addressed by mechanical staff)
	Governor oil	Governor sight glass should be ½ full at idle (normal operating temperature)
Unable to start engine	Low oil button tripped	Reset low oil button on the governor.
	Engine protection device low water or crankcase pressure button tripped	Check water level. If okay, reset low water button (low oil button on governor will also be tripped; reset also) and restart. If crankcase button (and low oil button on governor) trip, do not start until mechanical staff has inspected.
	Engine overspeed tripped	Level on diesel engine beside governor. Normal operation 11 o'clock position. If tripped (2 o'clock position), pull back to reset.
Hot engine	Low water or shutter problem	Check cooling water; add if necessary. Check front and top shutters (if top blade of front shutters is open, then top shutters are open). Can be blocked open with a flag stick, broom handle, etc. until repairs are completed.
PC unable to recover	Mechanical or electrical problem	If air connected to cars, turn off air at locomotive and try to recover. Cycle speedometer breaker off for 10 seconds, turn on and try to recover. Make sure throttle is in idle before trying to recover; will not recover otherwise.
Low oil alarm	Engine or governor oil	Governor sight glass should be ½ full at idle (normal operating temperature). Engine oil low, add to full mark. If the low oil button on the governor trips when throttle returned to idle after heavy pull, check engine oil level. If the oil level is high and smells of raw diesel fuel, contact mechanical staff.

PURPOSE: This procedure outlines and defines the basic necessary steps needed to safely inspect Trains and perform an Air Brake Test.

SCOPE: This procedure is to be followed by terminal employees when inspecting trains and performing air brake tests in accordance with FRA regulations.

RESPONSIBILITY: The respective Quality Supervisor and Logistics Director shall ensure that this procedure is followed by terminal personnel when performing train inspections and air brake tests and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task. This procedure is to be reviewed on an annual basis.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat		Miscellaneous Safety Equipment	
	Vancouver Energy Approved Uniform (FRCs)			
	Safety Toed Boots - 6" laced above ankle with a defined heel (ASNI Z41.1 Certified)			
	Side Shield Safety Glasses (ANSI Z77.1 Certified)			
	Leather Gloves			

NOTE: All Employees helping with any part of this procedure must don all PPE (Personal Protection Equipment)

Tools & Transfer Equipment			Environmental Equipment	

SAFETY INSPECTIONS OF FREIGHT CARS

1.1 The Employee will inspect and test the brake equipment on locomotives and cars in accordance with FRA regulations.

1.2 The Employee will perform a safety inspection on all cars at the initial terminal or that are added enroute.

1.3 Inspections and air brake tests may be performed by either a "Qualified Person" (Trainman who has been given fundamental training on freight car inspections and air brake tests. In this procedure all trainmen are “Qualified Persons”) or a "Qualified Mechanical Inspector" (A person who has received more extensive training that provides for a more detailed inspection. Inspections and air brake tests by Qualified Mechanical Inspectors provide for a greater distance that a train may travel before additional inspections are required.)

1.4 The Employee must inspect equipment on both sides during an inspection and air brake test to verify that all moving parts of the brake system is functioning properly on each car.

NOTE: Roll-by inspections may only be used to determine that all brakes have released and may not be used to perform all other inspection requirements for either side of the train.

COUPLING AND SECURING HOSES

2.1 Before coupling air hoses between locomotives and/or cars the Employee must shake out the debris out of the hoses.

2.2 The Employee must also blow all condensation from the locomotive brake pipe or yard airline before coupling air hoses between locomotives and /or cars.

2.3 Whenever possible the Employee should secure the air hoses on locomotives and cars during all movements in order to prevent the hoses and glad-hands from dragging and becoming damaged.

OPERATIVE BRAKES

3.1 Unless the brakes fail enroute, air brakes on all cars must be operative unless they are being moved for repairs and properly tagged.

3.2 A Qualified Mechanical Inspector is to provide three (3) tags on cars given to train crews to be moved to repair facilities.

3.3 Cars with defective air brake equipment are to be tagged on each side and the third tag is to be kept on the locomotive.

3.4 Tags will only be required on one (1) side of the car and on the locomotive when no crossover platform is available to crossover between cars or when adjacent tracks are involved which could present a risk of injury.

Exception: Scale test cars are not required to be equipped with air brakes. If however, they are equipped with air brakes the brakes must be operable.

3.5 Cars discovered with brakes that fail enroute have to be tagged on both sides of the car and also noted on the space provided on the train documentation. This must be left in the controlling locomotive cab form holder for the relieving crew.

3.6 The Employee must include the following information on the tags:

- Reporting Mark and Number of the defective locomotive or car (i.e., BNSF 601234)
- Name of the inspecting or discovering Railroad (i.e., SBG Railroad)
- Name and Job Title of the Inspector Inspection Location and Date (i.e., Trenton, ND 07/30/12)
- Type of Defect (i.e. Brake was cut out because it would not release)
- Movement Restrictions (i.e., None)
- Repair Destination (Mechanical Desk will advise on location)
- Employee Signature

3.7 The Train documentation may also reflect such cars by electronic means to subsequent crews after defective brakes are initially discovered and reported.

3.8 At least 85% of the cars in a train must have operative brakes under all circumstances.

3.9 The Engineer must allow his/her train to be inspected when departing terminals, where required.

PERSON IN CHARGE OF AIR BRAKE TEST

4.1 The Employee performing the air brake test is in charge of the train while the test is being conducted.

4.2 It is the responsibility of the Employee in charge to ensure that all other employees are safely positioned prior to giving permission to apply or release the brakes.

4.3 The Engineer at the controls of the locomotive may not apply or release train brakes without receiving permission from the Employee performing the air brake test.

STANDARD BRAKE PIPE PRESSURE

5.1 The regulating valve must be set at 90 psi for freight service or yard.

CHARGING THE AIR BRAKE SYSTEM

6.1 The Employee will need to charge the air brake system to ensure that the system is functioning properly.

6.2 The Employee should not charge the train's air brake system with more than one automatic brake valve cut in unless using distributed power locomotives.

6.3 The Employee should not increase diesel engine RPM to maintain main reservoir pressure unless the pressure fails to stay 10 psi above the regulating valve setting.

6.4 Should the Employee need to increase the diesel engine RPM he/she must not exceed throttle 4 position.

NOTE: Locomotive* consists *with a single locomotive equipped with an electric air compressor (GE C40-8 or C44-9, for example) may only require advancing the throttle to Run 1position in order to increase charging speed. Some EMD locomotives (such* as *SD70MAC) will automatically increase the engine speed as needed to maintain main reservoir pressure.

6.5 In yards where trains are made up unattended locomotives may be used to charge the brake system when the ambient temperature requires additional charging time.

AIR BRAKE TESTS USING AN END-OF- TRAIN TELEMETRY DEVICE (ETD)

7.1 When an air brake test requires determining that the brake pipe pressure is restored or the air brake system is to be charged to a specified pressure at the rear end of the train any of the following may be used:

- An accurate gauge
- an ETD
- A DP locomotive consist

7.2 When an air brake test requires an inspection to determine that the brakes apply and release on the rear car of the train, the requirement is considered to be fulfilled when either an ETD or a distributed power unit attached to the rear of the train indicates the following:

- A brake pipe pressure decrease of at least 5 psi, the brakes are applied
- A brake pipe pressure increase of at least 5 psi, the brake are released.

AIR BRAKE* TESTS *USING HANDHELD GAUGES

8.1 The Employee must verify that the handheld gauges used for performing an air brake test has been determined to be accurate within the last 92 days.

To Check the Accuracy of Handheld Gauges

8.2 Using a locomotive brake pipe gauge the Employee will have the engineer release the automatic brake valve and charge the brake pipe to 90 psi.

8.3 The Employee will attach the handheld gauge to the brake pipe of the controlling locomotive.

8.4 The Employee will compare the pressure indicated by the handheld gauge to the locomotive brake pipe gauge.

8.5 If the pressure indicated by the handheld gauge is within 3 psi of the locomotive brake pipe gauge reading, the handheld gauge may be used to conduct the air brake tests. If the gauge reading is not within 3 psi of the locomotive reading the gauge must not be used to conduct the air brake test and must be turned into the mechanical department for repair or recalibration.

8.6 The Employee must note on a sticker the date of the most recent pressure comparison and apply the sticker to the gauge or on a document in the possession of the user.

INITIAL TERMINAL AND ROAD AIR BRAKE* TEST *(CLASS I AIR BRAKE TEST)

9.1 A Qualified Employee must conduct an initial terminal air brake test to inspect the air brake and safety appliances and to test the brake pipe integrity.

9.2 The Employee will perform the test when any of the following occur:

- Where the train is originally assembled (the initial terminal)
- Where the train consist is changed, other than by adding or removing a car or a solid block of cars, or by removing cars that are determined to be defective
- Where a unit or cycle train has traveled 3,000 miles since it's last Class I Air Brake Test, or where the train is received in interchange and the train consist is changed. However, an inspection and test are not needed if the train consist is changed by any one or a combination of the following:
  - Removing a solid block of cars from the train
  - Changing motive power
  - Removing or changing the caboose, if used
- On a portion of the train as specified below:
  - On one or more cars added that have not been pre-tested by the initial terminal air brake test.
  - On a portion of train that has not been kept charged (off air for over 4 hours)
  - On a solid block of cars being added to the train that is comprised of cars from more than one previous train
  - On each solid block of cars that is comprised of cars from only one previous train but the cars have not remained continuously and consecutively coupled together with the train line remaining connected, other than for removing defective equipment , since being removed from its previous train.

NOTE: Cars are still considered a "solid block" if from only one previous train and divided into smaller segments to accommodate space or trackage constraints as long as placed back in the same relative order as when removed from the previous train.

PROCEDURE FOR INITIAL TERMINAL AND ROAD AIR BRAKE TEST AND INSPECTION

***Note: The Employee will inspect each of the following both before and during the air brake* test.**

10.1 The Employee will inspect the angle cocks and verify that they are properly positioned.

10.2 The Employee will inspect the air hoses to verify that they are in good condition for service and are properly coupled.

10.3 The Employee will inspect the system for leakage. If leakage occurs the Employee will make the necessary repairs to reduce the leakage to a minimum.

10.4 The Employee will inspect the retaining valves and verify that they are in EXHAUST.

AIR BRAKE TEST PROCEDURE

11.1 The Employee charges the air brake system to within 15 pounds of the locomotive regulating valve setting as indicated by a gauge or device at the rear of the train.

11.2 The Employee performs a leakage test as specified in the Brake Pipe Leakage Test.

11.3 The Employee in charge gives the Engineer permission to apply the brakes. The Engineer will then make a 20 pound brake pipe reduction.

11.4 The Employee inspects the entire train or cars added not pre-tested to ensure that the brakes are applied and remain applied on each car until he/she gives the signal to release the brakes.

NOTE: Any car whose brakes release prior to the signal to release the brakes is given may be re-tested once. The brakes must remain applied until a release is initiated for a period of not less than 3 minutes.

11.5 The Employee also verifies that the piston travel meets the requirements listed below:
- As outlined on the stenciling or badge plate or
- On Truck Mounted Brake Cylinders the piston travel must:
  - Provide brake shoe clearance when brakes are released
  - Not exceed 4" where the piston acts directly on the brake beam
- On Body Mounted Brake Cylinders the piston travel must be adjusted to between 6 and 9" at the initial terminal.
- On Body Mounted Brake Cylinders the piston travel must not exceed 10 1/2' at Intermediate Inspection Points

11.6 The Employee needs to make sure 100% of the train brakes are operative before departing.

11.7 The Employee verifies that the brake rigging does not bind or foul.

11.8 The Employee verifies that all parts of the brake equipment are properly secured.

11.9 When the test and inspection of the air brake application is complete the Employee will notify the Engineer and have him/her release the brakes.

11.10 After receiving permission to release the brakes, the Engineer will place the automatic brake valve handle in the RELEASE position.

11.11 The Engineer will notify the Employee in charge of the brake test that the brakes have been released.

11.12 The Employee will inspect each brake to verify that all brakes have released. This inspection may be made as the train departs at a speed not to exceed 10 MPH.

NOTE: An ETD pressure drop and rise of 5 psi during the air brake test may be used to determine application and release of cars within the train that have been previously tested.

ENGINEER NOTIFICATION

12.1 A written record of Class I inspections that are performed at the train's origin and at any 1500 mile Extended Haul inspection location (either at origin or enroute) must be retained on the locomotive to the train's destination.

12.2 Cars that are picked up, inspected and air tested enroute by the train crew do not require written documentation of the Class I inspections.

NOTE: Since which trains are designated as "Extended Haul" trains may not be communicated to train crews assume all car man inspections re for "Extended Haul", unless notified otherwise. Retain all Form 15287 inspection forms provided by a car man to the destination.

12.3 When a written record is required a Qualified person or Qualified Mechanical Inspector who participated in the test and inspection or anyone who knows the test was completed must notify the Engineer in writing that the initial terminal air brake test has been completed satisfactorily including the name, date, time, location and number of cars inspected. Class I inspections and tests may also be communicated to the Engineer so that it may be entered on the space provided on train documentation.

Engineers Responsibilities

12.4 Engineers receiving written notification of the air brake test must accept the notification as authority that the initial terminal air brake test has been completed satisfactorily.

12.5 The Engineer must maintain the written record of all Class I inspections and brake test in the cab of the locomotive in the form holder provided until the train reaches its final destination.

12.6 The written notification of the initial terminal inspection and air brake test may be provided the locomotive engineer by any one of the following methods:

- On Form 15287 at the initial terminal
- By written record on space provided on TRAIN PROFILE. NOTE: Any written record is acceptable if profile is unavailable.
- By electronic means on the space provided on the TRAIN PROFILE.

NOTE: Electronic records of Class I inspections on TRAIN PROFILE are only to be used in the absence of the originals and should a discrepancy occur, the original will be used as the official record. All other brake tests other than Initial Terminal Tests (Class I) do not require any written documentation to be maintained in the train. The number of cars indicated on your Class I test record(s) may not correspond to the number of cars on your train due to pick-ups and set outs enroute.

12.7 In addition to maintaining written documentation on locomotive as outlined above, the conductor must use the Voice Train Reporting (VTR) method to report all Class I inspections performed by the train crew at the train's origin (where the train is initially made up) and at all locations where the train crew performs an Intermediate Brake Test and Inspection (Class IA Brake Test) enroute.

BRAKE PIPE LEAKAGE TEST

13.1 The brake system leakage can be tested by using either the Air Flow Method (AFM) or the Brake Pipe Leakage Method.

13.2 The Air Flow Method is the preferred method when required equipment is available.

13.3 A brake pipe leakage test is required when:

- Conducting an Initial Terminal and Road Air Brake Test
- Conducting an Initial Terminal Air Brake Test From Yard Test Plant
- Conducting an Intermediate Brake Test
- Adding cars to a train that have not been pre-tested
- An Air Turbine ETD is used to replace an existing end-of-train device on a train.

AIR FLOW METHOD

14.1 To qualify a train's air brake system using AFM, the train must be equipped as follows:
- The controlling locomotive has a maintaining-type automatic brake valve
- The train has a gauge or device at the rear of the train
- The locomotive has an air flow indicator with a direct reading of air flow in increments no greater than 10 cubic feet per minute (CFM).

NOTE: Some locomotives without digital displays of air flow have air flow meters with a scale that does not correspond to a specific CFM and may not be used for conducting an air flow method brake pipe leakage test. These are identified by their lack of any reference to CFM on the gauge.

AFM Test Procedure

14.2 The Engineer charges the brake system to within 15 psi of the regulating valve setting as indicated by a gauge or device at the rear of the train.

14.3 When the air flow does not exceed 60 CFM the test is complete. If air flow exceeds 60 CFM the train must be inspected for leakage.

Brake Pipe Leakage Method

15.1 If the train does not meet AFM test conditions the Employee conducts a brake pipe leakage test.

15.2 The Engineer charges the brake system to within 15 psi of the regulating valve setting as indicated by a gauge or device at the rear of the train.

15.3 The Engineer waits for the signal to apply the brakes.

15.4 When the Engineer receives the signal to apply the brakes he/she reduces the brake pipe pressure by 20 psi.

15.5 The Engineer allows the brake pipe exhaust to stop.

15.6 The Engineer will wait 1 minute and cut out the automatic brake valve.

15.7 The Employee waits 1 additional minute to allow the brake pipe pressure to equalize.

15.8 The Employee will time the brake pipe leakage for 1 minute, if the leakage does not exceed 5 psi the test is complete.

15.9 If the leakage exceeds 5 psi the Employee must inspect the train for leakage and re-test.

15.10 When the Engineer is given the signal to release the brakes, he/she moves the automatic brake valve handle to RELEASE position and cuts the automatic brake valve in.

NOTE: Use the Distributed Power Systems automated brake pipe leakage mode when checking leakage on DP trains.

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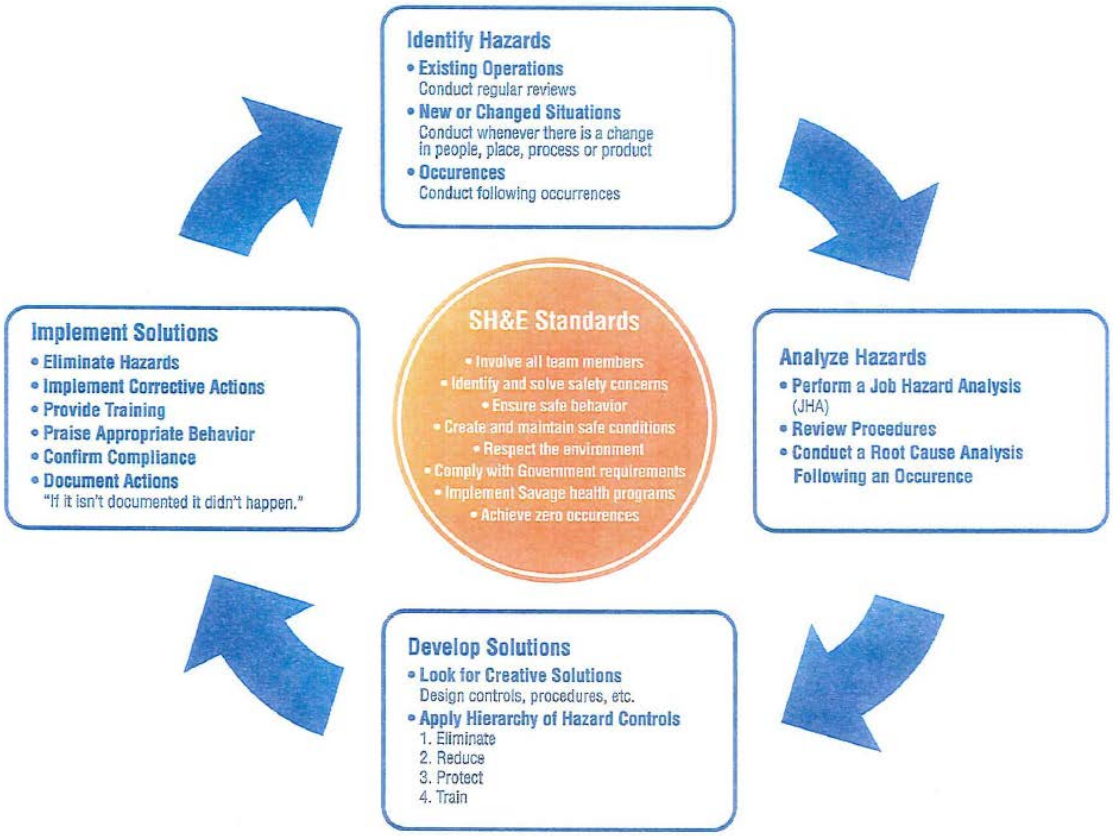
6.0 Cardinal Rule Training

Industrial Rail Services

Cardinal Rules for Zero Occurrences

Training for Revised Cardinal Rules

SHAPS
Vancouver Energy Hazards Analysis & Prevention System



Cardinal Rules

It is estimated that if the Cardinal Rules are followed 100% of the time, we can reduce occurrences by approximately 90%.

Red Zone Protection

Always ask for and receive verbal confirmation before fouling any area between working ends of railcars or locomotives.

Exceptions:

- Riding a tank car outside the gauge
- Operating a cut lever

Point Protection

Always protect the leading movement by having the ability and being in position to visually confirm clear track. Always be in a position to stop short of

- An improperly aligned switch
- Closed derail
- Equipment in the foul
- Compromised rail condition
- Shoving into a stubbed track
- Shoving into a track with a bumping mechanism

Fouling Tracks

Do not leave equipment in the foul. If equipment cannot be left clear of the converging track's foul point, then the equipment must always be pulled to switch points and placed in a position that will:

- Foul the entire track: and prohibit any equipment movement on the converging track
- Vehicles or Equipment within 4 feet of any active rail or track are to be considered in the foul

Secured Equipment

Apply a sufficient number of hand brakes as required by Minimum Hand Brake Application Chart or Site Specific Requirements to hold standing railcars in place. While applying hand brakes, always perform a push/pull test on ALL railcars.

Red Zone Protection

What is the Red Zone?

The IRO Operating Manual describes it as:

Any area between working ends of railcars or locomotives is designated as the Red Zone.

How do you establish Red Zone?

The IRO Operating Manual describes it as:

Rule 7.6, How to provide Red Zone Protection

- When a task requires an employee to work inside the Red Zone area, that employee requests Red Zone Protection from the locomotive operator.
- If more than one member of the crew intends to work under Red Zone Protection, the crew leader will request the protection and such protection will remain in effect until the crew leader determines that all members of his/her crew understand the intention to remove the protection and all are in the clear.

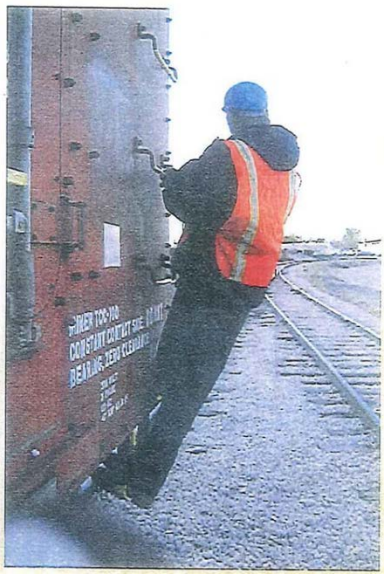
The Cardinal Rule states:

Always ask for and receive verbal confirmation (RED ZONE) before fouling any area between working ends of railcars or locomotives.

Exceptions: Riding a tank car outside the gauge Operating cut lever.

Point Protection

What is Point Protection?

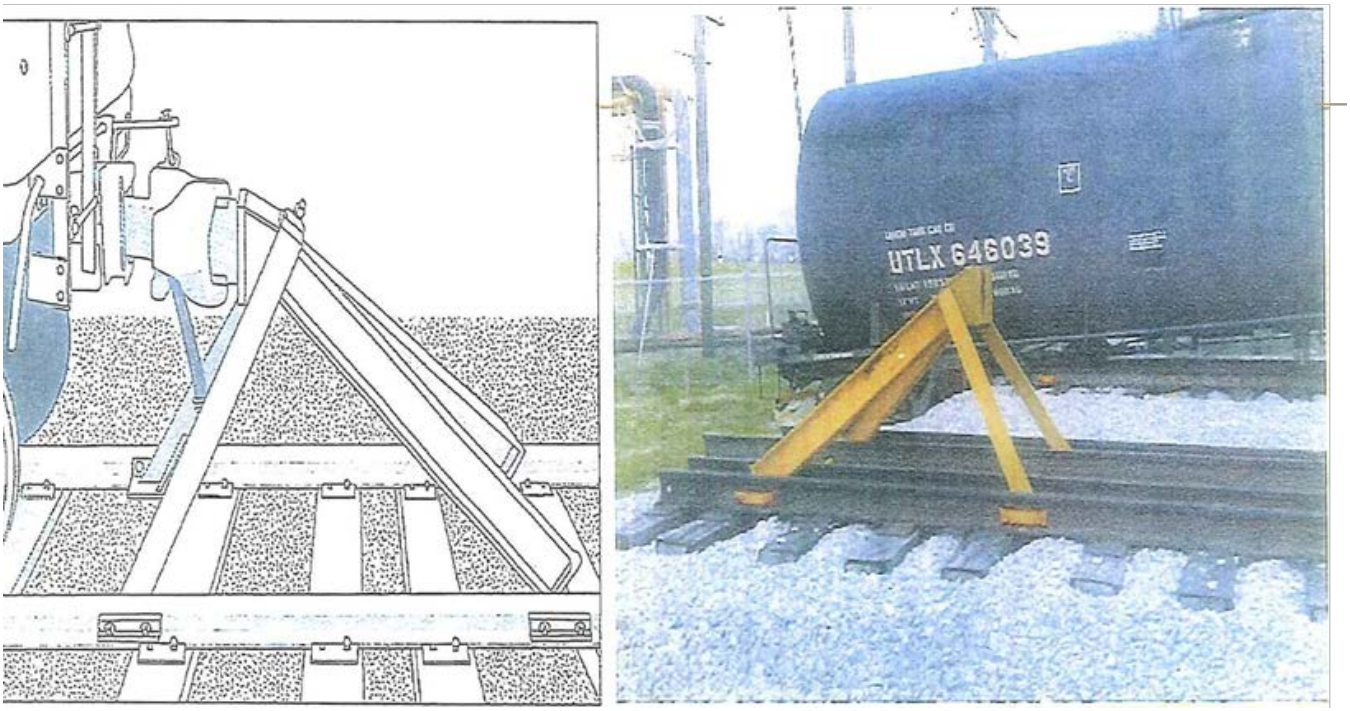


The IRO Operating Manual states in Rule 22: Shoving Equipment.

When cars or engines are shoved and the way cannot be seen and ensured clear, employees must take an easily seen position on the leading car or engine, or be ahead of the movement, to provide protection. Cars or engines must not be shoved over switches, derails, or crossings without protection. Upon request and prior to opening the throttle to shove, the locomotive operator must establish that the crew member directing the shove is in position to protect the point. Equipment must not be shoved to block other tracks unless it is known that the adjacent tracks are clear and the switches are properly lined for the movement.

The IRO Operating Manual also states in Rule 23: Shoving into Stub Tracks.

When shoving into tracks that are stubbed, equipped with wheel stops or bumping posts, a SAFETY STOP must be made between 50 and 100 feet from the end of the track, wheel stops or bumping post. The movement must not exceed 2 miles per hour for the remaining distance.



Bumper post – at the end of a spur, stub end, or branch line track to keep cars from running over the end.

The Cardinal Rules states:

Always protect the leading movement by having the ability and being in position to visually confirm clear track.

Always be in a position to stop short of

- An improperly aligned switch
- Closed derail
- Equipment in the foul
- Compromised rail condition
- Shoving into a stubbed track
- Shoving into a track with a bumping mechanism

Fouling Tracks

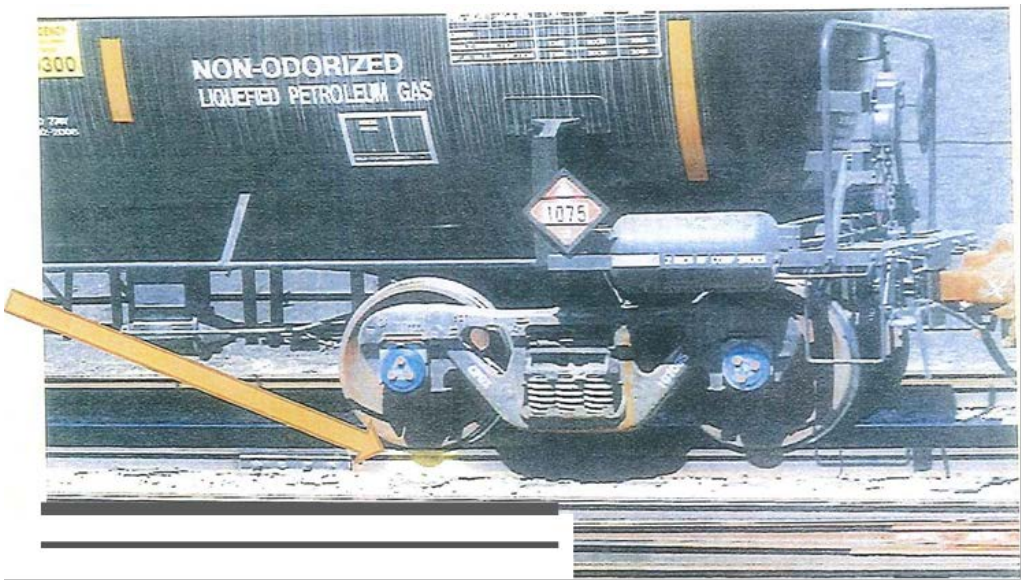
What is Fouling Tracks?

Rule 11.0, Stopped Clear of Fouling Point.

An engine or rail movement required to stop for another rail movement must be stopped clear of the route to be used by the other engine or rail movement.

Rule 21.0, Fouling Other Tracks.

- Equipment must not be moved foul of another track unless the movement is properly protected. Switches must be lined for the route and it must be visually seen that the portion of the track to be used is clear.
- Equipment must not be left foul of a connecting track unless the switch being fouled is covered by the equipment.



The Cardinal Rule states:

Fouling tracks

Do not leave equipment in the foul. If equipment cannot be left clear of the converging track's foul point, then the equipment must always be pulled to switch points and placed in a position that will

- Foul the entire track
- Prohibit any equipment movement on the converging track

Vehicles or equipment within 4 feet of any active rail or track are to be considered in the foul.

What is Securement?

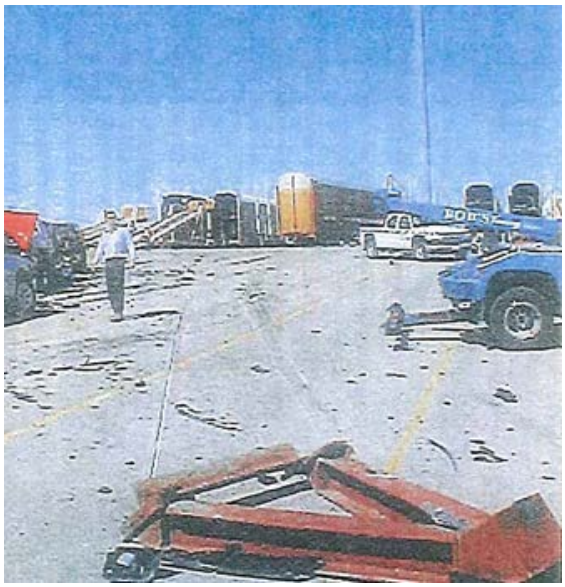
The IRO Operating Manual states: Rule 17.0, Hand Brakes and Securing Devices.

A sufficient number of hand brakes are applied on cars prior to uncoupling.

The IRO Operating Manual states:

Minimum Hand Brake Application Chart	
1 car	1 hand brake
2 to 19 cars	2 hand brakes
20 to 29 cars	3 hand brakes
30 to 39 cars	4 hand brakes
40 to 49 cars	5 hand brakes
50 to 59 cars	6 hand brakes
60 to 69 cars	7 hand brakes
70 to 79 cars	8 hand brakes

Note: at locations where a specific number of hand brakes are required, such locations are identified in Operating Bulletins and Notices or Site-Specific Procedures and equipment left unattended is checked as provided by Rule 17.0, Hand Brakes and Securing Devices, specifically the Push/Pull Test.



The Cardinal Rule states:

Apply a sufficient number of hand brakes as required by Minimum Hand Brake Application Chart of Site-Specific Requirements to hold standing railcars in place. After applying hand brakes, always perform a push/pull test on all railcars.

In Review

What are the four Cardinal Rules?

Why do we have them?

Will they reduce or eliminate ALL occurrences/incidents?

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7.0 Managing Fatigue

Points to Consider

- Fatigue is a physiological problem that cannot be overcome by motivation, training, or willpower.
- People cannot reliably judge their own level of fatigue-related impairment.
- There are wide individual differences that make people susceptible to fatigue.
- There is no one magic solution (other than proper sleep) that can counter fatigue for every person in every situation.
- There are strategies that can help counter fatigue.

Did you know?

Fatigued people are less able to respond to unusual or emergency conditions effectively? They are also more likely to take risks.

A fatigued person could be a danger to themselves and others.

Definitions

1. The state of feeling very tired, weary, or sleepy resulting from insufficient sleep, prolonged mental or physical work, and extended periods of stress or anxiety.
2. A result of prolonged mental or physical exertion; it can affect people's performance and impair their mental alertness, which leads to dangerous errors.

Factors Contributing to Fatigue

Adjustable Factors: Work Schedule and Social Schedule

Fixed Factors: Individual Circadian Tolerance and Age

Behavioral Signs of Fatigue

- Difficulty keeping eyes open/trouble focusing/frequent blinking/rubbing eyes
- Head nodding/drooping
- Irritability
- Poor coordination
- Poor response times
- Repeated yawning
- Lack of alertness/daydreaming/wandering/disconnected
- Erratic shifting/restless
- Stiff/sore muscles, neck

Physical Symptoms of Prolonged Fatigue

- Depression/moodiness
- Loss of appetite
- Digestive problems
- Increase susceptibility to illness
- Lack of energy
- Difficulty concentrating

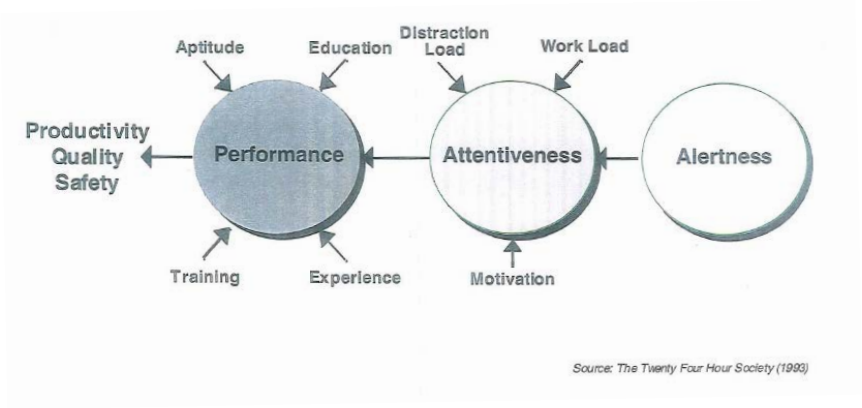
How Fatigue Hinders Your Performance at Work
Fatigue reduces:

- Decision-making ability
- Ability to do complex planning/problem solving
- Communication skills
- Productivity/performance; work slower; check more; rely more on workers
- Attention and vigilance (alertness and watchfulness)
- Ability to handle stress on the job
- Reflexes/reaction time (both speed and thought)

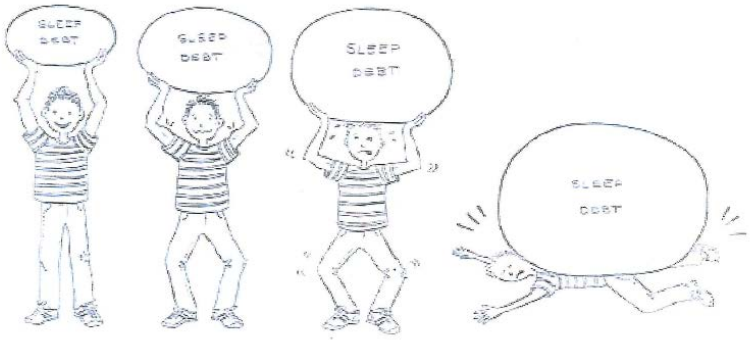
Fatigue increases:

- Loss of memory or the ability to recall details
- Failure to respond to changes in surroundings or information provided
- Ability to stay awake or microsleeps
- Automatic behavior
- Tendency for risk taking
- Forgetfulness
- Errors in judgment
- Sick time, absenteeism, rate of turnover
- Medical costs
- Accident rates

Performance/Attentiveness/Alertness



Ever Feel this Way?



How many hours of sleep do you need?
Most healthy adults need between 7.5 to 9 hours of sleep per night to function at their best.

Did you know…?
If you are logging enough hours, you'll feel energetic and alert all day long, from the moment you wake up until your regular bedtime.

Could this be you?
If you are getting less than 8 hours of sleep per night, chances are you are sleep deprived. What's more, you probably have no idea just how much lack of sleep is affecting you.

Strategies to Promote Alertness
- Work scheduling
- Limit the time on task
- Take your scheduled breaks
- Don't underestimate the power of a nap
- Maintain an upright posture or stand up
- Develop healthier eating habits
- Practice any physical activity
- Keep your mind active
- Practice good sleep hygiene

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PROCEDURAL/POLICY
Review Record

NOTE: Use this document for your annual procedural/policy review process. A completed copy of this form is required to be retained for each terminal-specific procedure/policy.

General Information	Terminal:		Procedure/Policy:	
	Written By:	Issue Date:	Revised By:	Revision Date:

Procedural/Policy Review Section	Review Date	Review Conducted By	Revision Required (Y/N)	Misc. Comments

Revision History Section	Revision No.	Reason/Purpose for Revising Procedure	Revision Date

NOTE: By completing the below approval section of this form, you are consenting to the following statement: I have reviewed the aforementioned procedure/policy and I'm in agreement with its current content.

Approval Section	Operations Manager	Print Name (First, MI, Last)	Signature	Date
	SHE&Q Director	Print Name (First, MI, Last)	Signature	Date
	SHE&Q Manager	Print Name (First, MI, Last)	Signature	Date

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TRANSFER PROCEDURE
Crude Oil Transfer Railcar to Manifold

PURPOSE: This procedure outlines and defines the necessary steps needed to safely conduct a railcar-to-manifold transfer of crude oil.

SCOPE: This procedure is for the transfer of crude oil from railcar to manifold.

RESPONSIBLITY: The Manager shall ensure that this procedure is followed by Facility personnel when conducting crude oil transfers, and that personnel are adequately trained and are provided with the necessary personal protective equipment (PPE), tools and equipment to accomplish this task. Personnel performing any tasks shall be trained and qualified to do so.

The below listings are the equipment, tools and PPE required to successfully accomplish this task.

Personal Protective Equipment (PPE)	Hard Hat (ANSI Z89.1 Certified)	H_2S Gas Alert Clip 2 Extreme Detector	***Miscellaneous Safety Equipment***	Bi-directional Derail (Engaged & locked-out)
	Vancouver Energy Approved Uniform (FRC)			Blue Flag w/Blue Light (Raised, light illuminated, & locked)
	Safety Toed Boots (ANSI Z41.1 Certified)			Rail Car Handbrake (Set & restricting movement)
	Safety Glasses (ANSI Z87.1 Certified)			Rail Car Wheel Chocks (In place & restricting movement)
	Neoprene/Leather Gloves			Ice Melt
	Hearing Protection			Safety Eye Wash Operational & Available within 50’

Tools & Transfer Equipment	Spark Proof Pipe Wrench 14”, 24”and 48”	Spark Proof 1-5/8”,1-7/16” Combination Wrenches	***Environmental Equipment***	Containment Pans (also called Drip Pans or Spill Pans) (Containing residual spillage by outlets)
	Assorted Pipe/Hose Fittings	12.5’ Wood Gauge Stick		Absorbent Wipes
	Dedicated Product Hose	Dedicated Vapor Hose		Oil Dry Absorbent (granular)
	Orange Cam Lock Clips/ Velcro straps/ Tie Down Straps (Hose Hoist)	Mobile Platform and or Man-Lift with (2) 14’ropes		Emergency Spill Kit
	Check Valve Vacuum Breaker with Fitting	Radio with full battery		

HAZARDS

Hazards associated with performing a transfer of heavy fuel oil include the following:

- **Operating within the confines of a rail yard.** All safety rules and regulations must be followed 100% of the time - NO EXCEPTIONS. It is also vitally important to be aware of your surroundings and those activities which are transpiring around your particular work area. This may include other transfers nearby, moving equipment and passing vehicles, railcar movement on adjacent tracks, etc. Follow the included procedures pertaining to the setting of brakes and use of chocks in order to eliminate the hazards of railcar movement.

- **Working surfaces.** Always ensure that the particular work area is free of any items which represent a slip/tripping hazard and/or obstruction. Prior to commencing any type of work, it is vitally important to inspect the area for ice, snow, slippery surfaces, loose ballast, tools and/or other materials and product lying around. If detected, these items are to be removed whenever possible and/or the individual is to proceed with caution.

- **Climbing ladders and working on elevated surfaces (e.g. tank car).** It is vitally important to maintain proper 4-point contact while ascending and/or descending ladders, as well as restricting your movement to only on grated surfaces such as running boards, sills, platforms, etc.
- **Body positioning.** Working on, around, and under tank cars sometimes makes for awkward positions. Always ensure that your body is in a safe position. Use caution when lifting or maneuvering transfer hoses and fittings; these items may be extremely heavy, and proper lifting techniques must be used to avoid back strain. Try at all times to maintain ergonomically safe body position in order to minimize strain and loss of balance. Always position your body out of the "line of fire" and upwind when opening man ways, valves, and other access points; always assume that every cap, plug, valve, and cover is under some degree of pressure and may eject itself and/or product upon you when you remove it or open it.

- **Environmental exposure.** Avoid detrimental environmental exposure to land and water resources and drains by avoiding spillage of any product onto the ground. This can be accomplished by ensuring the following established procedures, especially pertaining to pre-transfer hose & gasket inspections, use of containment pans, securing hose connections using Velcro straps/ Orange Cam Lock Clips, applying caps/plugs to hoses, fittings, and connection points after use, and properly securing all openings to the tank car to prevent any spillage during switching activities or transport.

- **Chemical exposure.** Crude oil is a DOT-placarded Class 3 flammable product. It can be very thick and can be very difficult to clean up. Crude oil vapors can build up to toxic levels within railcars; the skin may absorb certain components present in the material in toxic quantities. Always wear the required PPE, and avoid getting your face close to the man way of a loaded tank car to minimize vapor exposure. Review the MSDS for further information, warnings, and recommendations.

- **Flammability of the product.** Do not handle or store crude oil near an open flame or other sources of heat or ignition. Utilize non-sparking urethane railcar chocks, and avoid using metal chocks. Immediately discontinue the transfer in the event of lightning in the area. While the track is bonded and grounded and designed to handle the day to day level difference in potential energy. A lightning storm has a greater potential and thus operations will be ceased.

- **Confined spaces.** The interior of tank cars are among the confined spaces within the rail yard. Operators shall not break the plane of the entry point (e.g. man way) of a confined space with any part of the body without formal training/certification, permit, and proper safety equipment and PPE. Confined space entry will not be necessary and must be avoided during operations of this procedure. Notify the manager of any instance whereby an item has fallen into the railcar and before attempting any retrieval. You may attempt retrieval only with the use of a tool that prevents any part of your body from breaking the plane of the entry point.

- **Machine guards/moving parts.** Prior to utilizing the transfer pump, it is vitally important that the Operator ensures that all of the appropriate machine guards are properly in place. Additionally, the Operator is required to keep all body parts, tools, and/or other items away from the pump's moving parts. Under no circumstances is an employee permitted to make any unauthorized modifications to the equipment (e.g. removal of machine guards, parts, or sections) without obtaining the collective approval of the Operations Manager, Maintenance Manager, and SHE&Q Manager. Pinch points and vibrating or moving parts may exist throughout the work area, which present exposed skin, muscle, or body parts to crushing, caught-between, struck-by, struck-against, cutting, tearing, shearing, or nerve damage. The pump basin area is not to be entered without authorization

- **Electronic Devices.** No electronic devices are allowed beyond gate **(With the exception of the area rated radios for commination and Supervisor's work phone).** All electronic devices are to be left in the office and can be picked up when guest is departing. This includes cameras.

- **Static Electric Discharge.** A release of static electricity in the form of a spark that might be capable of causing ignition of a flammable atmosphere under appropriate circumstances. Utilize grounding system to tank cars to mitigate static electric hazard.

1.0 RAIL CAR SPOTTING & BOTTOM HOOK-UP

NOTE: Always ensure the railcar's BOV is in the CLOSED position and BOV seal is in place. In event seal is missing notify supervisor prior to hook-up

WARNING: Hydrogen Sulfide Gas is EXTREMELY dangerous. The Immediately Dangerous to Life and Health (IDLH) level is 100 ppm. At low concentrations H_2S smells like rotten eggs. At higher concentrations the ability to smell H_2S is lost. Therefore, one cannot rely on odor to detect the presence of H_2S. If your H2S alarm goes off or it is detected at any time contact your Supervisor and or Manager. Leave the area and report. The unloading area has the h2s detection alarms along the building and they will also give you an audible and visual indication if an alarm were to sound.

WARNING: H_2S can accumulate in confined spaces. Take care not to place your face in or near an open manways, valve or opening on the railcar tank.

WARNING: Do not approach anyone who has fallen. Move away quickly perpendicular (sideways) to wind and get upwind. Then, contact your Supervisor and Operations Manager in accordance with the ERP (Emergency Response Procedure) on file.

1.1 The Transload Operator ensures that the is protected by a portable bi-directional derail device and/or rail switch which is aligned away from the particular transfer track, thus restricting entry. A lock is subsequently placed on the derail and/or rail switch. The Operator also ensures that the blue flag which reads "Stop – Tank Car Connected" or "Stop – Men at Work" is in the raised/erect position and locked.

1.2 The Transload Operators ensures that they have the necessary tools/equipment to accomplish this task (refer to above listing). They work in teams of two on the ground and one on the platform/gangway.

1.3 The Transload Operator dons the required personal protective equipment (refer to above listing).

1.4 Prior to starting the transfer, the Transload Operator initiates radio communication with team or other authorized personnel to perform a radio check and to inform the control room where the personnel are starting the work.

1.5 Warning: Cars must be grounded before any connection is made to the railcar. Grounding cable shall be first connection made and the last connection disconnected.

1.6 Verify railcar is grounded via indication at grounding station

1.7 The Transload Operator ensures that an operational eye wash unit is positioned within 50' feet of the transfer area.

1.8 When a train is released from the BN to Vancouver Energy; the Vancouver Energy train crew will move the train to the selected loop track and the loading positions. They will then index the set of cars until all the cars have been unloaded. Once unloaded the train will be moved to the departure tracks where it will be handed back to the BN crews. Note: trains with product in them will be manned 24 hrs a day until the product empty from the cars.

1.9 Switchman will align switches to go to the desired loop track

1.10 The cars will be spotted/ positioned in a predetermined number of railcar spots at a time.

1.11 When unloading is complete the red zone will be removed and the cars will be allowed to move forward when the all clear is sounded. The next set of cars will be placed and the process repeated until the unloading is complete.

1.12 The Switchman/ Transload Operator sets the railcar's handbrake by turning the wheel in a clockwise motion; the brake is fully applied when you can no longer turn it. Air brakes are set and the power lever is removed to prevent movement. A locomotive operator will remain in the engine until the unloading is complete. The front 2 and rear 2 railcars will have handbrakes set. The handbrake is located on the railcar's B-end

1.13 The Transload Operator utilizes the set of railcar chocks, by resting each individual chock on top of the rail on opposite sides of the railcar's wheel; a wheel chock will be placed on the front and rear railcar between the string of up to a predetermined number of cars. This process is undertaken to prevent any accidental movement during the transfer process.

1.14 A Transload Operator performs a general inspection of the railcar *(see Section 7.2 Tank Car Inbound Inspections)* ensuring that it is in good operating condition and provides for a safe work environment.

1.15 The Transload Operator checks the surrounding area for slip or trip hazards. Remove any such items where possible and/or be wary that a hazard exists and be cautious when working in that specific area.

1.16 A Transload Operator will work within the containment area and install the dry disconnect fittings on the rail car. Transload Operators required to hook up bottom of railcars will stay at least one car or behind Transload Operator hooking up top of railcars (to eliminate potential risk from falling objects from above).

WARNING: Never assume the bottom operated valve is closed. **Before** removing the bell cap**,** ***ALWAYS*** **double check** that the BOV (bottom outlet valve) is in the **closed position** and the locking pin is in place.

1.17 The Transload Operator ensures that the containment pan is not damaged and the elbow fitting and a thread adapter (should it be needed) is positioned in the pan under the railcar's BOV,

NOTE: A containment pan should *always* be placed under any product hose connection even when in stored position.

1.18 The Transload Operator utilizes the specified pipe wrench to remove the cap/plug from the railcar's BOV.

WARNING: Carefully test the weight and force of the cap as you are in the process of removing it. If it seems unusual, stop and tighten the closure, and make sure that the valve is in the closed position. If the handle is indeed closed, any unusual weight or signs of product seepage around the threads is indicative of a failure of the bottom operated valve. If you suspect or see indications of BOV failure, stop and tighten the bell cap, and do not proceed to unload the car. Immediately notify the Manager or designee, and red-tag the car.

1.19 The Transload Operator attaches and secures the railcar's appropriate fitting to the railcar adapter.

1.20 The Transload Operator connects and secures the product hose to the recently installed elbow fitting and apply orange cam lock on dog ears.

1.21 At this time the hose may need raised and tied off with a rope or strap to insure the dry disconnect valve and the 90 degree fitting are not sagging which may create leakage of product.

1.22 At this time the Transload Operator will grasp the handle on the hose valve and push it down into the locked open and allow the valves flow when seated properly. The Operator will then inspect the connections to verify there are no leaks.

NOTE: Inspect all product hoses prior to each use. Look for holes or cracks, check the hose's hardware connections for signs of wear, make sure the hardware is not cracked or broken and operates correctly, and ensure all gaskets are in good operating condition.

1.23 Remove BOV seal (this step is to ensure BOV is not opened before adapters, Elbow, and API head is installed.)

1.24 Once fitting and hose are properly hooked up and secured, the BOV on the railcar can be opened.

NOTE: BEFORE Opening BOV, verify all equipment and cam safety locks are attached properly. Always have eyes on the BOV while opening the handle and verify that no leaks are present before proceeding.

1.25 At this point the Transload Operator verifies the product hose is charging to the site glass does and does not see any leaking.

NOTE: <u>DO NOT</u> OPEN THE STATIONS MAIN UNLOADING VALVE AT THIS TIME

2.0 PLATFORM/GANGWAY OPERATION AND TOP HOOK UP

2.1 The Operator utilizes 4-point contact to access the top of the railcar.

CAUTION: *Always utilize 4-point Contact when climbing and descending stairs, ladders and other equipment, ensuring good grip with your hands and good traction with your feet and looking before you move.* Transload Operators required to hook up bottom of railcars will stay at least one car or behind Transload Operator hooking up top of railcars (to eliminate potential risk from falling objects from above).

CAUTION: *Do not stand directly over the valve when attempting to open, as pressure inside the tank car might force the product and or pressure up the air induction pipe and may result in injury.*

2.3 The Operator inspects the man way bolts using a wrench to tap each bolt. All bolts must be tool tight, any bolt that moves is not tool tight and will be tightened before moving on.

2.4 The Operator opens the dome cover lid to inspect for loose bolts on the flanges.

2.5 The Operator ensures the vapor and liquid valves are closed, capped and tool tight and there is no leakage or product loss.

2.6 The unloading stations which are not equipped with a vent hose will need the appropriate fitting attached to the railcar's vent/vapor valve which is typically 2-3" in diameter. Tighten this with the appropriate tool.

2.7 The Operator inspects the pressure relief device for visible damage, leakage or product loss. (Do not press VRP as this can damage O-ring and create leakage during transport.)

2.8 The Operator lowers the rope to the ground Operator to retrieve vapor hose and pulls hose up.

2.9 The Operator removes the cap from the vapor valve on the tank car and attaches the vapor hose/vacuum breaker to the tank using a cam lock fitting

2.10 The Operator then opens the ball valve on the vapor hose (if hose is allocated) by moving the handle to the inline position. CAUTION should be used.

2.11 The Operator then opens the ball valve on the tank car vapor valve by moving the handle to the inline position, CAUTION should be used thus allowing the railcar's internal pressure to be relieved.

2.2 Before leaving the tank car platform the Operator gathers tools and visually inspects that both vapor valve on the tank car and the vapor recovery hose valve are open by physically touching valve handles. Then verbally acknowledging this by saying, "**Open, Open**" to one of the operators on the ground which will open the main product and vapor valve for that station while checking for leaks.

2.12 The Operator will repeat steps 2.1 to 2.12 until hookup is complete.

END OF PROCEDURE

Note: Every team works together to insure that Operator on top is accommodated and the Main Product and Vapor valves to that Station are open and charged prior to the Mobile Platform moving on to the next Station.

3.0 STARTING THE TRANSFER and TRANSFER IN PROGRESS

3.1 Once railcars have been hooked up for unloading, the containment pans are in place, the vent fittings and or vent hoses are hooked up, the railcar BOV's have been opened, and all personnel are clear at both the top and bottom of the railcars**, the Facility appropriate Operator is called to insure he/she is ready and all valves are opened.**

3.2 After cars are hooked up and ready, the Supervisor makes a call for permission to start the pumps. Once the pumps are started, conformation of the pumps being started is given by either the Supervisor or the Transload Operator at the Facility. The operators check for leaks and any abnormalities.

3.3 At this time steps 1.20 to 1.27 and 2.1 to 2.13 can be repeated for the remaining cars.

3.4 The Transload Operator observes the system to ensure that there are no leaks detected while the product starts to flow. If leaks are detected, immediately shut-off the BOV and take appropriate steps to stop the leak then open the BOV to resume offloading. Inform the Supervisor to alert him of the situation and repair of both before and after the leak.

WARNING: Never leave a transfer in progress. Always be sure that you are monitoring the unloading and staying in the vicinity of all the railcars being unloaded. It is vitally important that the Operator maintain control over the transfer process, thus preventing an incident from escalating into a catastrophic scenario.

3.5 The Transload Operator continually monitors the product flowing into the manifold by observing the sight glass in the VISI FLOW fitting. In addition, the Transload Operator continues to check for leaks and any abnormalities on the entire facility at a minimum of every 30 minutes.

END OF PROCEDURE

4.0 SHUTDOWN PROCESS and RAILCAR BOTTOM BREAKDOWN

Transload Operators required to hook up bottom of railcars will stay at least one car or behind Transload Operator hooking up top of railcars (to eliminate potential risk from falling objects from above).

4.1 Supervisor notifies other crew members that pumps are down and teardown can begin.

Note: The tear down process can begin prior to pump(s) shutting down once there is reasonable information available to prove that transfer is very near to completion. This is usually confirmed by the number of pumps still running, the flow indicated on screen, the gauging of the railcar and the time lapsed.

4.2 Once the product quits flowing through the VISI FLOW sight glass the Operator closes the bottom outlet valve (BOV) on the railcar and allows and residual product to finish draining from the hose.

4.3 The Transload Operator then closes the main (API) valve on the product hose.

NOTE: Ensure containment is under the 90 degree fitting on the railcar.

4.4 Once both valves are closed the hose is disconnected from the 90 degree fitting and placed in the containment pan after the end of the valve is wiped off with an absorbent wipe. (Note that this is done by disconnecting the 90 degree fitting from the railcar insert the 4” plug in the female end push cam lock levers down in the locked position and place in containment pan, then wipe off the end of the 90 degree fitting that the valve once hooked to with an absorbent wipe).

4.5 Transload Operator replaces the bottom cap after the inspection of the gasket.

4.6 The Transload Operator crawls out from under the railcar picks up end of product hose with API valve on it and returns valve back to its holder by snapping it into the holder and closes the main product valve and main vapor recovery valve. Then pulls the containment pan out from under the railcar and places it beside the main product valves at that station.

NOTE: <u>Do not</u> push down on handle to secure valve to holder

5.0 SHUTDOWN PROCESS and RAILCAR TOP BREAKDOWN

Transload Operators required to hook up bottom of railcars will stay at least one car or behind Transload Operator hooking up top of railcars (to eliminate potential risk from falling objects from above).

5.1 Supervisor notifies other crew members that pumps are down and teardown can begin.

Note: The tear down process can begin prior to pump(s) shutting down once there is reasonable information available to prove that transfer is very near to completion. This is usually confirmed by the number of pumps still running, the flow indicated on screen, the gauging of the railcar and the time lapsed.

5.2 Depending on the personnel utilization plan, one Operator starts on the one end of the train.

5.3 Depending on the personnel utilization plan, another Operator starts on the other end of the train.

5.4 The Transload Operator utilizes 4-point contact to climb the steps on the mobile platform to access the top of the railcar. Once the mobile platform is aligned the walkway (ramp) is lowered with safety rail completely encompassing the platform area approximately 6” above the height of the railing of the railcars platform.

5.5 If the Transload Operator uses the man-lift, the lift is positioned with the man lift basket parallel to the top of the tank car then he/she proceeds onto the tank car platform while staying harnessed to the man lift.

5.6 The Transload Operator on the mobile platform works from side to side moving to the South, (HARNESS NOT REQUIRED ON MOBILE RACK.)

5.7 The Transload Operator inspects all man way bolts using a pipe wrench to tap each bolt. All man way bolts must be too tight. Any bolt that moves is not tool tight and all bolts are tightened using the star pattern and torqued via gasket manufacturer’s recommended specifications.

5.8 The Operator closes the vapor valve on the railcar and then closes the ball valve on the vapor hose (the valve on the vapor hose maybe left open if there is negative pressure on the line). This is usually confirmed when the pump(s) are still running and there is suction on the end of the vapor hose.

5.9 The Operator disconnects the cam lock fitting to remove the vapor hose and sets hose aside or the vacuum breaker (whatever used on that railcar).

5.10 The Operator cracks the vapor valve on the railcar slowly to check for pressure in railcar. If no pressure, Operator will turn the valve to the open position and gauges the railcar with the wooden gauge stick. (Record gauge results). If still loaded refer to steps 1.20 to 1.27 and steps 2.1 to 2.14 until product is unloaded. ***CAUTION:*** *Do not stand directly over the valve when attempting to open as pressure inside the tank car might force the product up the air induction pipe and possibly strike you.*

5.11 Once the Transload Operator verifies that the railcar has been un-loaded the product valve and vapor valve are closed, capped and tool tight and the railcar is then re-gauged and the figure is then recorded. The rope is attached to the vapor hose and the hose is lowered to the ground in which the operator on the ground un-hooks the hose and places it in its appropriate location.

5.12 The Operator closes and pins the dome lid removes all tools and fittings back to the mobile platform or the man-lift in preparation to move to the next railcar. If the mobile platform is used, both walkways are then raised up and locked in the raised position.

5.13 The Operator will repeat steps 5.2 to 5.14 to complete rail string.

5.14 Each Operator on the pad/track completes steps 5.2 to 5.14 on rail string assigned. Once completed they will move over to assist other operators in completion on their pad/track of railcar duties.

6.0 TRAIN AIR BRAKE TESTING and INSPECTION

See Section 8.8 Train Air Brake Test & Inspection

7.0 TANK CAR OUTBOUND INSPECTION

See Section 8.2 Tank Car Outbound Inspections

NOTE: When coupling a unit train back together road crossings cannot be blocked for extended periods, if ever relevant to rail operations at this specific location.

END OF PROCEDURE

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PURPOSE: This procedure outlines and defines the necessary steps needed to safely conduct an inbound tank car inspection in accordance with 49 CFR § 174.300, 174.900 and applicable Association of American Railroads (AAR) Rules.

SCOPE: This procedure applies to this Vancouver Energy terminal that receives inbound tank cars.

RESPONSIBILITY: The Operations Manager shall ensure that this procedure is followed by their respective Operating Personnel (i.e., Operators, Lead Operator, Ops Supervisor, etc.) who are responsible for inspecting inbound tank cars, and that those employees are trained and provided with the necessary personnel protective equipment (PPE) and tools to execute this procedure.

TANK CAR INBOUND INSPECTION

NOTE: Terminal Personnel is required to conduct an inbound rail car inspection within 24 hours of a car's arrival (e.g., the rail car being switched & spotted onto the terminal's transfer tracks); corresponding documentation is required to be retained for a period of three years.

1.1 Administrative Personnel (i.e., Coordinator/CSR, Administrative Supervisor, Ops Manager, etc.) provides a yard list to Operating Personnel (i.e., Operators, Lead Operator, Ops Supervisor, etc.) which has all the newly arrived railcars highlighted.

1.2 Operating Personnel (i.e., Operator, Lead Operator, Ops Supervisor, etc.) obtains a blank tank car inspection form for each of the newly arrived rail cars. Ops Personnel begins to complete the general information section of the form (e.g., date, terminal, rail car number, shipper, product & grade).

1.3 Operating Personnel (i.e., Operator, Lead Operator, Ops Supervisor, etc.) obtains & dons the appropriate PPE based on the associated product hazards; refer to minimum product specific PPE listing. In addition, Ops Personnel obtain the necessary tools (e.g., adjustable pipe wrench) to accomplish this task.

1.4 Operating Personnel (i.e., Operator, Lead Operator, Ops Supervisor, etc.) proceeds to the location of the first rail car which is highlighted on the yard list.

NOTE: The most effective way to inspect a tank car is to begin on one end. On tank cars these ends are identified as the "A" or "B" ends. The "B" end or brake end is pictured in figure 1. The left and right-hand positions on a tank car are determined while facing the "B" or brake end. This method is utilized throughout the industry as the standard way in which to identify where defective components are located and to properly report them on an inspection form; refer to figure 2.

Figure 1. Illustrates the B end of tank car CATX 70500.

Figure 2. Illustrates the quadrants of a tank car.

1.5 Prior to working on any rail car, Operating Personnel (i.e., Operator, Lead Operator, Ops Supervisor, etc.) are required to ensure that the rail siding is protected by a bi-directional derail and/or a switch lock and the blue flag which reads "Stop – Tank Car Connected" or "Stop - Men at Work" is in the raised position.

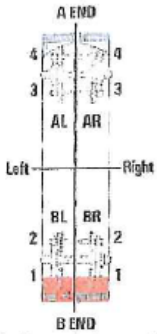
1.6 Prior to working on any rail car, Operating Personnel (i.e., Operator, Lead Operator, Ops Supervisor, etc.) are required to set the rail car's handbrake by turning the wheel in a clockwise motion; the break is fully applied when you can no longer turn it.

1.7 Operating Personnel utilizes the set of rail car wheel chocks, by resting each individual chock on top of the rail on opposite sides of the respective Tank car's wheel; only one wheel per rail car is required to be chocked and/or blocked. This process is undertaken to prevent any incidental movement.

1.8 Operating Personnel (i.e., Operator, Lead Operator, Ops Supervisor, etc.) conducts a comprehensive visual inspection of the tank car by walking around and inspecting each of the below quadrants. The individual who conducts the inspection, shall determine if the specific item is classified as acceptable (i.e., safe & in good repair) or defective/unacceptable and documents their findings on the corresponding tank car inspection form.

NOTE: The below diagrams highlight the tank car's quadrant and corresponding items to inspect.

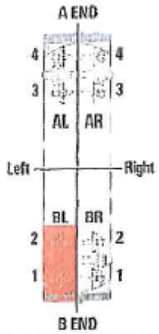
Quadrant: B-End



Specific items to inspect

1. Tank
   a. Tank Car Identification
   b. Other Markings
   c. Stenciling
   d. Paint
   e. Tank Condition
   f. Head Shield
2. Tank Ladder (where present)
   a. Step Treads
   b. Ladder Stiles
   c. Ladder Supports
3. End Sill
   a. Grating
   b. Hand Rail
   c. Grab Irons
   d. Sill Steps
4. Placarding
   a. Placard Holder
   b. Placard
   c. Hazard Class
   d. UNID Number
5. Handbrake Assembly
   a. Wheel and Lever
   b. Brake Chain
   c. Bell Crank
6. Coupler & Other Components
   a. Knuckle
   b. Air Brake Hose
   c. Uncoupling Rod
   d. Uncoupling Bracket

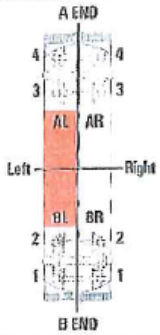
Quadrant: B-Left



Specific items to inspect

1. Running Gear/Truck
   a. Truck Side Frame
   b. Car Axle
   c. Car Wheels
   d. Truck Springs
   e. Roller Bearings
2. Placarding
   a. Placard Holder
   b. Placard
   c. Hazard Class
   d. UNID Number
3. Defect Card & Holder

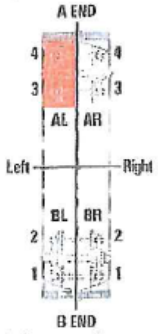
Quadrant: Left Side



Specific items to inspect

1. Underframe
   a. Stub Sill
   b. Full Sill
   c. Underframe Components
2. Tank Condition
   a. Paint
3. Tank Car Stenciling
   a. Class & Specifications
   b. Test Dates
   c. Sill & Side Frame
   d. Consolidated
   e. Chemtrec
   f. Water Capacity & Plate C
   g. Initials & Number
   h. Load Limit
   i. Light Weight
   j. Brake Shoe Stencil
4. Miscellaneous Stenciling
   a. Exemptions
   b. Commodity (Product)
   c. Inhalation Hazard
   d. Linings
   e. Insulation
   f. Leased To
   g. Ownership
5. Side Safety Railings
6. Tank Ladder
   a. Step Treads
   b. Ladder Stiles
   c. Ladder Supports

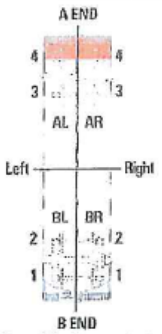
Quadrant: A-Left



Specific items to inspect

1. Routing Card
2. Running Gear/Truck
   a. Truck Side Frame
   b. Car Axle
   c. Car Wheels
   d. Truck Springs
   e. Roller Bearings

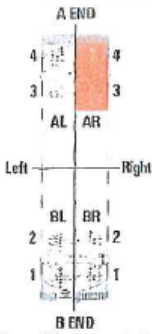
Quadrant: A-End



Specific items to inspect

1. Tank
   a. Initials & Number
   b. Other Markings
   c. Stenciling
   d. Paint
   e. Tank Condition
   f. Head Shield
2. Tank Ladder (where present)
   a. Step Treads
   b. Ladder Stiles
   c. Ladder Supports
3. End Sill
   a. Grating
   b. Hand Rail
   c. Grab Irons
   d. Sill Steps
4. Placarding
   a. Placard Holder
   b. Placard
   c. Hazard Class
   d. UNID Number
5. Handbrake Assembly
   a. Wheel and Lever
   b. Brake Chain
   c. Bell Crank
6. Coupler & Other Components
   a. Knuckle
   b. Air Brake Hose
   c. Uncoupling Rod
   d. Uncoupling Bracket

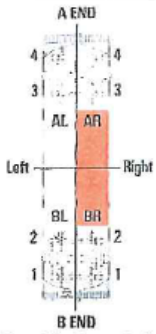
Quadrant: A-Right



Specific items to inspect

1. Running Gear/Truck
   a. Truck Side Frame
   b. Car Axle
   c. Car Wheels
   d. Truck Springs
   e. Roller Bearings
2. Placarding
   a. Placard Holder
   b. Placard
   c. Hazard Class
   d. UNID Number
3. Defect Card & Holder

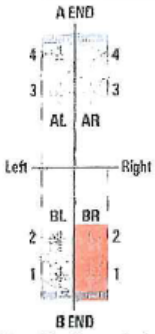
Quadrant: Right Side



Specific items to inspect

1. Underframe
   a. Stub Sill
   b. Full Sill
   c. Underframe Components
2. Tank Condition
   a. Paint
3. Tank Car Stenciling
   a. Class & Specifications
   b. Test Dates
   c. Sill & Side Frame
   d. Consolidated
   e. Chemtrec
   f. Water Capacity & Plate C
   g. Initials & Number
   h. Load Limit
   i. Light Weight
   j. Brake Shoe Stencil
4. Miscellaneous Stenciling
   a. Exemptions
   b. Commodity (Product)
   c. Inhalation Hazard
   d. Linings
   e. Insulation
   f. Leased To
   g. Ownership
5. Side Safety Railings
6. Tank Ladder
   a. Step Treads
   b. Ladder Stiles
   c. Ladder Supports

Quadrant: B-Right



Specific items to inspect

1. Routing Card
2. Running Gear/Truck
   a. Truck Side Frame
   b. Car Axle
   c. Car Wheels
   d. Truck Springs
   e. Roller Bearings

CAUTION: If a specific item has been deemed defective and/or unacceptable, the individual who conducted the inspection process is obligated to immediately notify their respective Operations Manager to alert them of their initial findings. The Ops Manager shall validate the initial findings and contact the respective shipper and await their direction; the shipper will ultimately determine the course of action (i.e., send a repair crew to the terminal to make the necessary repairs or instruct terminal personnel to mal<e the minor repairs).

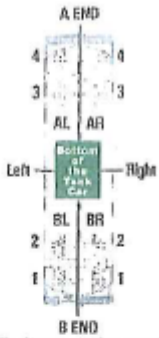
1.9 If the tank car is equipped with a top- or bottom-operated valve, Operating Personnel verifies the valve handle is in the "Closed" position.

NOTE: Check for stenciling or a diagram on the side of the tank car, which will show in what position the valve must be to be closed.

1.10 If the tank car is equipped with a top- or bottom-operated valve, Operating Personnel removes the valve handle's stow pin and installs a pin lock in its place.

NOTE: If a pin lock will not fit or is unavailable, a seal threaded through and securing the stow pin is sufficient as a substitute. The pin lock shall remain installed at all times except during transfer, and it is to be removed during the Outbound/Departure Inspection before release from the terminal.

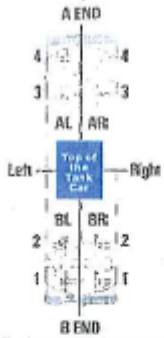
Quadrant: Bottom of Tank Car



Specific Items to Inspect

1. Bottom Outlet Valve (where applicable)
   a. Flange
   b. Valve Handle
   c. Seal Pin
   d. Safety Chain
   e. Outlet Cap
   f. Pipe Plug
   g. Security Seals (where applicable)
2. Bottom Washout (where applicable)
   a. Washout Cap/Flange
3. Sump (where applicable)
   a. Sump Cap/Flange
4. Heating Coils (where applicable)
   a. Heating Pipes
   b. Steam Outlet Nozzle
   c. Pipe Caps

Quadrant: Top of Tank Car



Specific Items to Inspect

1. Dome Safety Platform
   a. Gratings
   b. Handrails
   c. Corner Posts
   d. Safety Chain & Clip
2. Walkways (where applicable)
   a. Gratings
   b. Handrails
3. General Service Cars
   a. Liquid Valve
   b. Air Valve
   c. Safety Relief Devise
   d. Manway Cover
   e. Security Seals (where applicable)
   f. Product Tags (where applicable)
4. Acid Cars
   a. Liquid Valve
   b. Air Valve
   c. Safety Relief Devise
   d. Fill Hole
   e. Blind Flange (where applicable)
   f. Gasket (where applicable)
   g. Security Seals (where applicable)
   h. Product Tags (where applicable)
5. High Pressure Cars
   a. Manway Bonnet
   b. Liquid Valves
   c. Vapor Valves
   d. Sample Valve
   e. Thermometer Well
   f. Safety Relief Devise
   g. Security Seals (where applicable)
   h. Product Tags (where applicable)

OTHER MISCELLANEOUS REFERENCE MATERIAL

Tank Car Identification

All tank cars when built are given initials and number. They must appear in the proper locations on the tank car. Ensure to check for clarity and condition of all stenciling. Each tank car is required to be marked per AAR requirements, including stenciling and stamping.

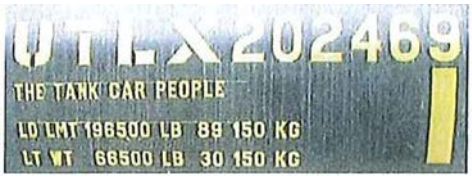


Figure 3 illustrates an example of tank car's initials, number, ownership, and weight stenciling.

The "X" of the initials stands for private ownership.

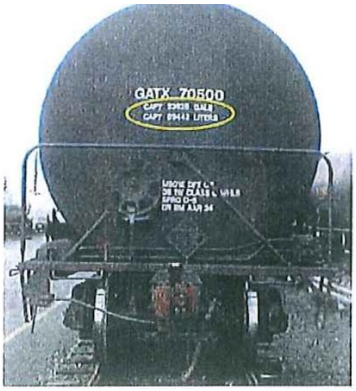
For example: UTLX 202469 is owned by Union Tank Car Company

GATX 2000 is owned by General American Transportation Corporation

Stenciling cannot be changed without contacting the owners' corporate logistics department.

Some tank cars may have a similar number or sequence but different initials, ensure that caution is exercised when reading & or documenting this information.

Not all products will explode or cause a fire if they are mistakenly mixed, but some products will. Even if two materials don't react adversely, the downtime, effort, and the added cost can all be avoided if you take the time to ensure that you are in fact at the correct tank car.



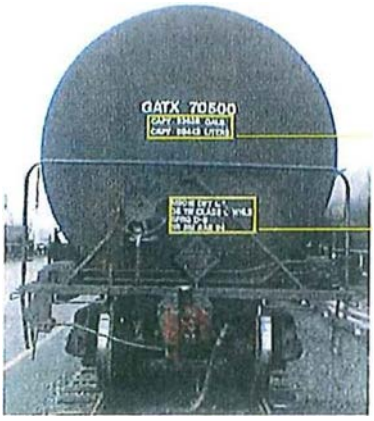
Other Markings

Other markings that are stenciled on the tank car head are shown below along with a picture that shows their location on the tank car.

Capacity of a tank car is the nominal loading of gallons and liters which a tank car is designed to carry. These figures are stenciled on the tank car and are identified as "CAPY". Other categories of markings are shown below.

A typical tank car like this one would have the following information stenciled as other markings:

Category	CATX 70500 Other Markings
Capacity in U.S. Gallons	CAPY 23628 GAL
Capacity in Liters	CAPY 89442 L
Springs	SPRG D-5
Wheel Types	36" 1W Class C WHLS
Draft Gear Type	M901E DFT GR
Brake Beam	BR BM AAR 24



Stenciling

Each tank car is required to be marked as per AAR requirements, including stenciling and stamping.

Stenciling must follow the applicable sections of the AAR "Specifications for Tank Cars", Appendix C, and AAR Rule 80, "Painting and Stenciling of Tank Cars".

The function of stenciling and markings is to provide proper information that includes:

- tank car number
- specification
- capacity of the tank in gallons, liters, and weight
- test dates
- equipment type
- owners or lessees of the equipment

Check all stenciling for legibility, and clarity. If you cannot read the stencils (as shown below), then the tank car should not be shipped until corrected. For guidance contact your Corporate Logistics Department.

Paint

Check the overall condition of the paint. If the tank car needs to be painted, notify your supervisor for additional information and guidance. Any necessary painting should be done by a qualified third-party contractor or by the transporting carrier railroad.

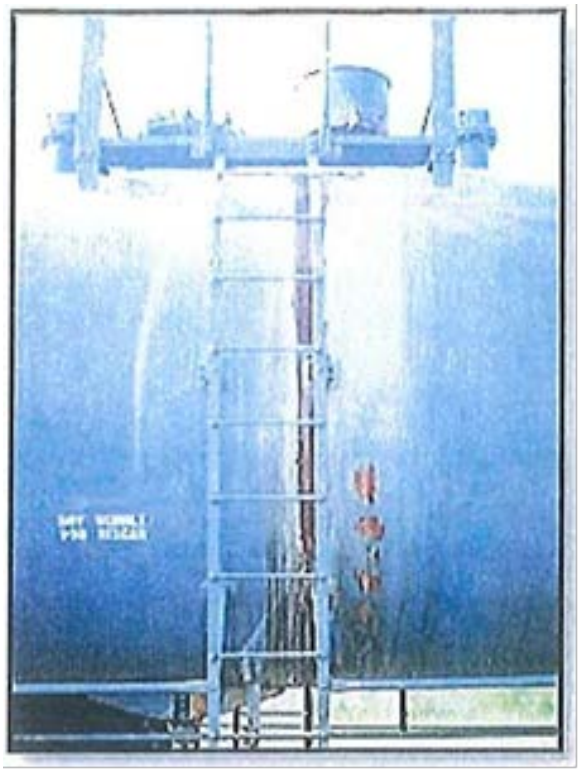
While paint is not a reason to reject a tank car for shipment, a poorly packaged product reflects badly on the quality process of your company. Paint is an item that should be kept in mind throughout the inspection.

Coupler bodies cannot be painted as per AAR Rule 18 (E)6.

A good paint system should be used to ensure long-term protection for the steel surfaces. The paint system should have excellent gloss and color retention. A contrasting color of the same paint system, such as black or white, should be used for the stenciling. Stencils, which remain legible for as long as the paint system, save time and money.

Tank cars that have not been properly maintained for paint quality are shown on the following page.

This paint damage was caused by overflowing or leaking while loading or unloading the tank car. Spilling of product is totally unacceptable for proper containment.

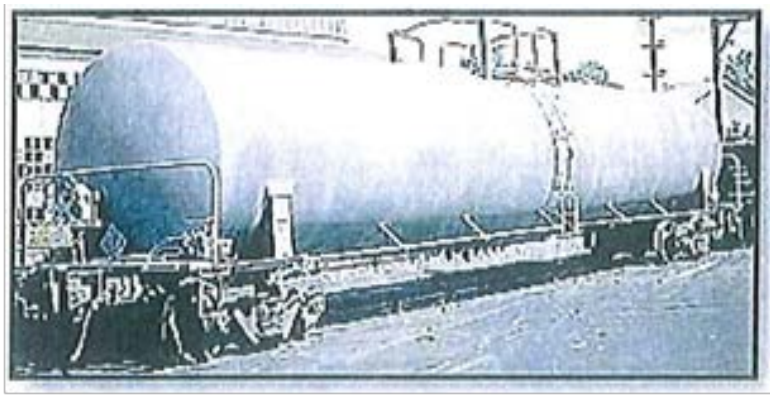


Although not a defect, this tank car should be painted for packaging quality. Does your preventive maintenance program address the issue of paint?

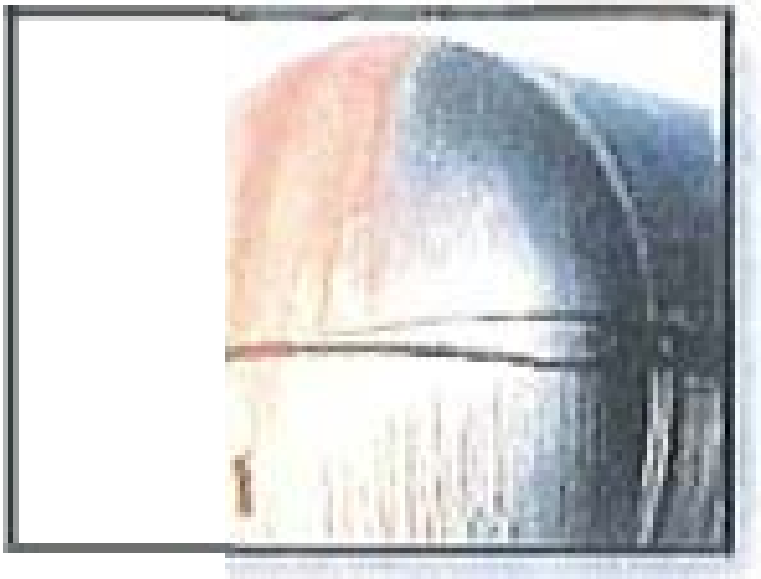
This tank car is in a shop for preventive maintenance. The paint was neglected for an extended period of time. Over time, an aesthetic issue became a maintenance issue.

The paint not only looked bad but the tank was rusting as well. As a result of the rust, the tank car needed to be fully sand blasted, primed, and painted.

If attention was paid to the paint Issue earlier, perhaps only a touchup paint job would be needed at this time. The cost would have been reduced by as much as two-thirds. Your inspection program and preventive maintenance programs should both address the issue of paint.



This defect was caused by an overhead pipe or flange leaking. The tank car prefix and number need to be restored in order to ship the tank car.



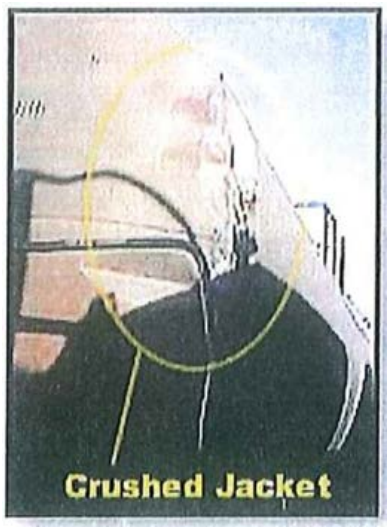
Tank Condition

Tank cars must be inspected for leakage before unloading or loading. Leaking tank cars cannot be shipped out or loaded again as per AAR Rules.

Look in general for any damage that could make the tank leak, such as abruptly bent, cut, or gouged areas of the tank sheet. If there is an indication of product leakage from under the jacket or from the shell of the tank, care should be taken to ascertain where the product is coming from. The situation should be reported immediately to your supervisor for guidance.

Uninsulated. On an uninsulated tank car with this type of damage, the tank car should not be shipped out or loaded again in the future until it has been repaired because there may be fracture cracking in the tank.

Insulated. On insulated tank cars, look for sharp or deep cuts that may have penetrated into the tank. Always consult your supervisor before loading or unloading a tank car that has this type of damage.



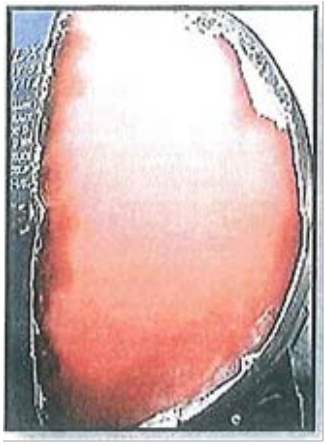
Care needs to be taken with both insulated and uninsulated tank cars that have damage that could result in a leak. If damage that could result in leakage is found, additional thorough inspection and/or information may be needed before the tank car can be unloaded (or loaded again in the future). Contact your immediate supervisor and if necessary, the customer or the tank car leasing company should be contacted for additional information and guidance.

The pictures below show tank car damage that could result in leakage:

The crushed tank on this uninsulated tank car was caused by a wheel in a derailment. The gouge is so sharp that the tank car should be repaired prior to any further use (unload or future load).

This uninsulated tank car has damage that was possibly caused by a catapulting coupler or end sill in a derailment.

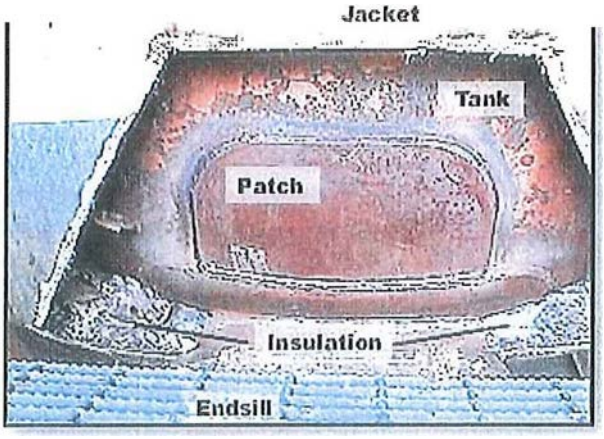
The tank car below was in a derailment. Although it sustained major damage to the end sill, body bolster and end jacket, there was no damage to the tank. This is not always the case.



You must develop a safe action plan in the event of tank damage and/or leaking product. Utilize whatever resource you need to complete the task in a timely and cost effective manner. The first step is to ask some questions:

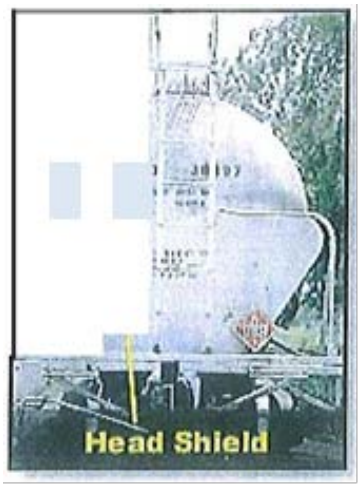
- How are you going to off-load this tank car safely?
- The tank car needs to be off-loaded before it can be repaired. Can you pump it off?
- If the product contained in the tank car is a high freezer, can you melt it? You would need to proceed carefully because if there is a crack in the head, then the hot material could run through. Would you be prepared if the heated material started to leak out. If not, preparing for such a situation before heating the material would be in order.
- If the product contained in the tank car is a high freezer, can you melt it? You would need to proceed carefully because if there is a crack in the head, then the hot material could run through. Would you be prepared if the heated material started to leak out. If not, preparing for such a situation before heating the material would be in order.
- Always seek help in making these decisions. You have already had one problem with this tank car. You don't need a second problem to develop while correcting the first problem.

This tank car was also involved in a derailment which resulted in damage caused by a coupler. The hole in the tank caused by the coupler is being prepared for repair after addressing some issues of off-loading the tank car.



A very good technique is to step back from a tank car and take an overall view. This view gives you the general perspective of the tank car, not only taking in the tank condition, but also paint and stenciling. It is often when you take this overall look that something will "just not look right".

Head Shield (if applicable)

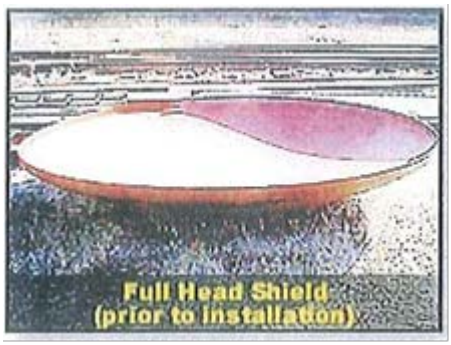


The head shield is a supplemental heavy steel plate required by AAR regulations on the ends of some hazardous commodity tank cars. Head shields lessen the chance of tank head puncture by the coupler of any adjacent car in the event of excessive end impact or derailment. Head shields can be either "full" (cover the entire end of tank head) or "partial" (cover only the lower portion of the tank head, as shown here).

If the head shield can be viewed, inspect all supports and bracing for crack welds and broken braces.

Most tank cars that have head shields use full or partial head shields which are welded to the head of the tank. If the tank car is jacketed, then you will not be able to see the head shield.

Some chemical companies make the heads of their tank cars 1- 1/2 times the shell thickness. This procedure reduces the chance of a head puncture caused by a coupler in a train wreck. It can be done on tank cars that do not require a head shield, but does not eliminate the need for head shield on tank cars which require one.



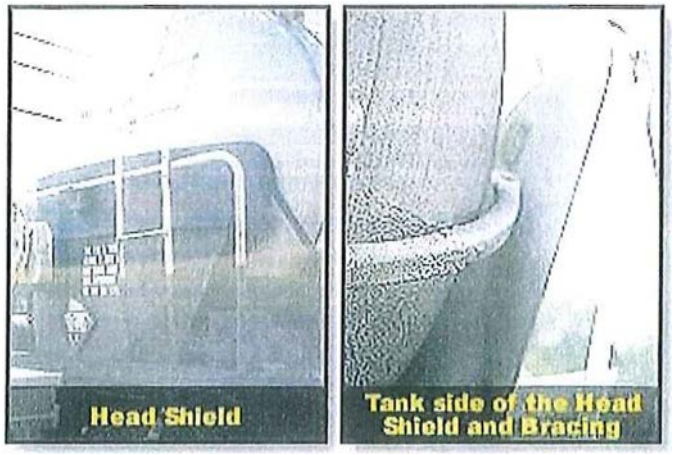
Tank cars of the 105, 112, 113, and 114 classes and with the letter indications of "S", "J", and "T" will be equipped with head shields.

"S" Definition: Describes a tank car equipped with a DOT approved head shield as specified in parts of 49 CFR 179.100 and 49 CFR 179.105-5 of the DOT tank car regulations. This tank car does not require thermal insulation.

"J" Definition: Describes a tank car equipped with a thermal protection system and a safety relief valve with a defined minimum discharge capacity (as specified in part of 49 CFR 179. 105-5 of the DOT regulations). "J" defines that the thermal protection system is covered with a steel jacket. All tank cars with the "J" designation are required to have head protection as defined above for the "S" designated tank cars.

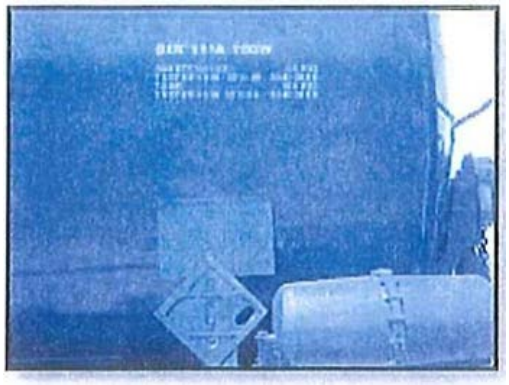
"T" Definition: Describes a tank car equipped with a thermal protection system and a safety relief valve as described for the "J" designation above. The "T" designation also denotes a spray-on or rolled-on thermal protection system that is applied directly to the exterior of the tank. The material hardens and provides its own protective shell, and a steel jacket is not required.

Below are pictures of a partial head shield from two different angles.



This is a DOT 111A 100 W tank car and is not required to have head shields. Tank cars of the 105, 112, 113, 114 class and with the letter indications of "S", "J", and "T" will be equipped with head shields.

While the tank car you are inspecting may have head shields, they may not be as obvious as those on the tank cars shown above.



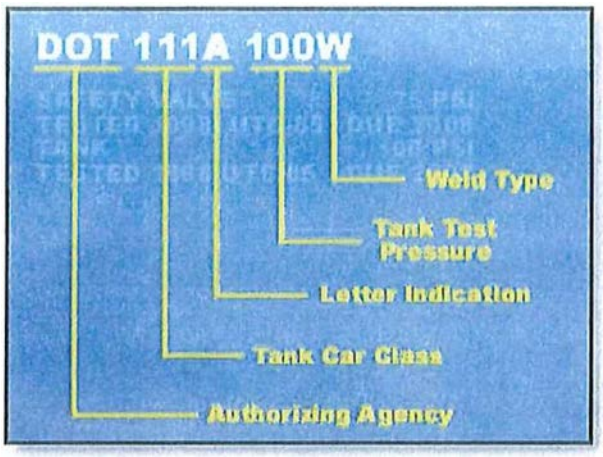
Tank Car Class and Specification Markings

The tank car DOT number designates the exact specification to which it was designed. DOT class stencils are located on the side of the tank car at the BL and AR locations just above the tank test date and below the product stencil, if one is applied.

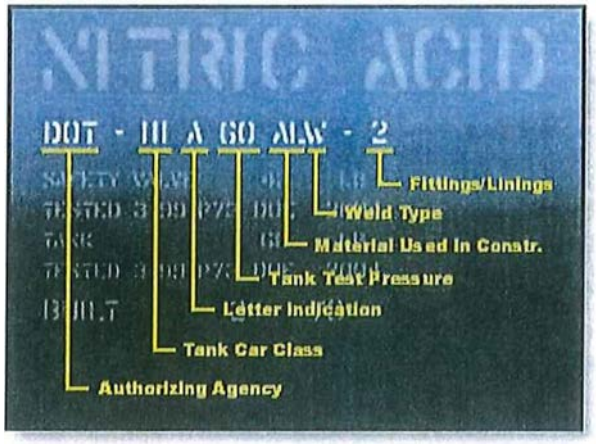
This is a DOT 111Al00 W. This stencil indicates the following:

- DOT - Designates the Department of Transportation which is the authorizing agency.
- 111 - Designates a specific design. There are over 90 designs.
- A - Equipped with top and bottom shelf couplers.
- 100 - Is the Hydrostatic and / or maximum design pressure of this unit?
- W - Designates this tank is made of a welded construction.

The picture below shows some of the markings found in this area, but there are also other designations which vary depending on the type of tank car.



Additional tank car specifications which could be found in this area are shown on the tank car below. The specifications that are present vary depending on the type of tank car. A detailed description of each item follows the picture.



Authorizing Agency

Tank car classes and specification numbers begin with a three letter prefix which represents the authorizing agency as follows:

DOT - Department of Transportation

AAR - Association of American Railroads

ICC - Interstate Commerce Commission (regulatory authority assumed by DOT in 1965)

CTC - Canadian Transport Commission

AAR tank cars differ from DOT tank cars by as little as the use of a fitting that does not meet DOT requirements but is necessary for handling the particular commodity being transported.

Tank Car Class

The DOT has specified over 90 different classes of tank cars.

Letter Indication (Number Significance)

A - Equipped with top and bottom shelf couplers

S - Equipped with tank head puncture resistance in addition to top and bottom shelf couplers

J - Equipped with jacketed thermal protection in addition to tank head puncture resistance and top and bottom shelf couplers

T - Equipped with spray-on thermal protection in addition to tank head puncture resistance and top and bottom shelf couplers

Tank Test Pressure

When present, this stencil item represents the tank test pressure in pounds per square Inch.

Letter Type of the Material Used in Construction

(No Letter) - Carbon steel

AL - Aluminum (found in Classes 103, 105, 109, and 111)

N - Nickel (found in Class 103 only)

D - Stainless steel (found in Class 103 only)

Weld Construction Type

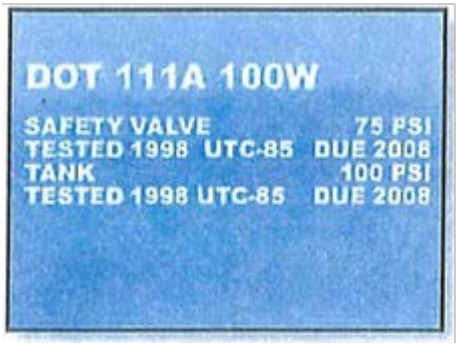
W - Fusion welding

F - Forge welding

Fittings/Material/Lining (If applicable)

Linings can be made of lead, rubber, or other elastomeric material.

Safety Valves



Safety valve stencils are also found here: SAFETY VALVE 75 PSI

TESTED 1998 UTC-85 DUE 2008

The UTC 85 - Union Tank Car Shop # 85 performed the tank and safety valve test. They must be a DOT approved shop to hydrostatically test, repair and test safety valves as well as repair tank cars. The safety valve was tested for 75 PSI in 1998 and will be due on or before December 31, 2008.

Most tank cars only have one safety valve.

Tank Test

The tank was tested for 100 PSI in 1998 and will be due on or before December 31, 2008:

TANK 100 PSI

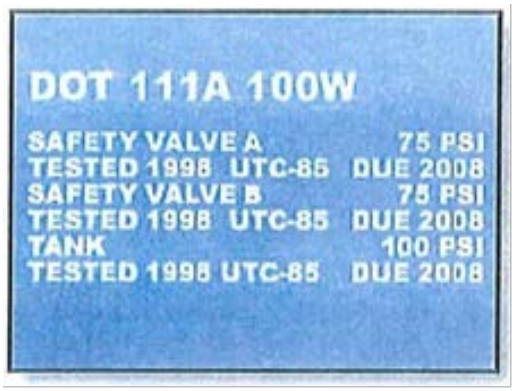
TESTED 1998 UTC-85 DUE 2008

All testing on tank cars (except those In Chlorine service) must be completed by the last day of the year due, regardless of the month tested. Chlorine tank cars must be tested on or before the last day of the month (originally) tested, in the year due.

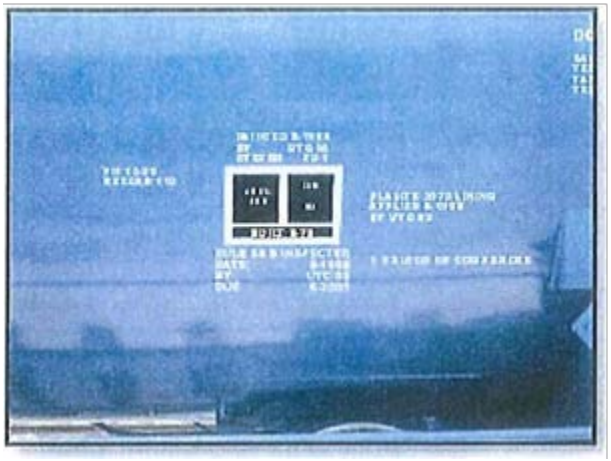
The certified testing papers must be kept in the main tank car file. They are usually kept by the Corporate Logistics Department. Even though the tank car stencil indicates the test has been performed, without the certified test papers the tank car would not have been inspected as required by the DOT.

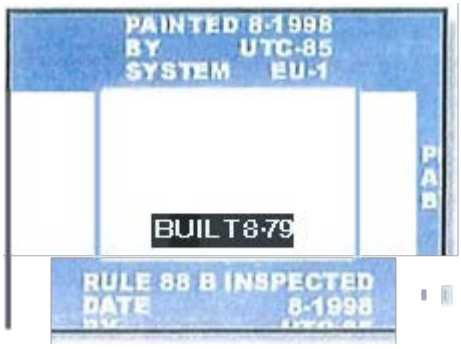
Important: File records are the only true indication a test was completed. Stencil records that do not match file records will be discarded.

The tank car shown to the right has two safety valves. They are identified by the letters "A" and "B". They both must be properly inspected and documented on or before the inspection due date.



Consolidated Stencil, Stencils for the Lining, Rule 88.B2, PM, Paint, and Brake Shoes





Consolidated stencils or decals are applied to all tank cars. They are located on each side of the tank car at the BL and AR positions.

The consolidated stencil shown here consists of:

- ABDW/ABD - This is the type of air brake triple valve that our tank car is equipped with.

  ABDW

  ABD

- LUB - This tank car has roller bearing trucks that do not need lubrication.

  NO

- BUILT 8-79 - This was the year the tank car was built. To extend the useful life of a tank car, the tank car had been rebuilt. If the tank car had been rebuilt, this date would have been stenciled here as well. To meet the rebuilt criteria, it is necessary to spend more than one-half the tank car's replacement cost on repairs. This spending criteria discourages many rebuilding plans.

  BU LT 8-79

Tank cars have a limited service life and must be taken out of service at the end of their service life. The service life of tank cars is as follows:

- Tank cars built on or after 7/ 1/74 are limited to (50) fifty years of service. The tank cars must be taken out of service on December 31st of their 50th year.
- Tank cars built prior to 7/1/74 are limited to (40) forty years of service. The tank cars must be taken out of service on December 31st of their 40th year.

Tank cars in chlorine service are the exception to this service life specification. They must be taken out of service on the last day of the month in which they were built after forty or fifty years of service, depending upon the year they were built.

Tank cars past their inspection date or out of service life cannot be loaded and can only be shipped as per conditions set forth by the AA R. Tank cars which are already loaded must be offloaded. For further information check with your Corporate Logistics Department.

Lining

This stencil must be applied to tank cars equipped with the following: exterior thermal coatings, interior protective coatings, or coatings made of rubber, polyvinyl chloride, or polyurethane elastomeric. This stencil must be in lettering at least 2" high and include:

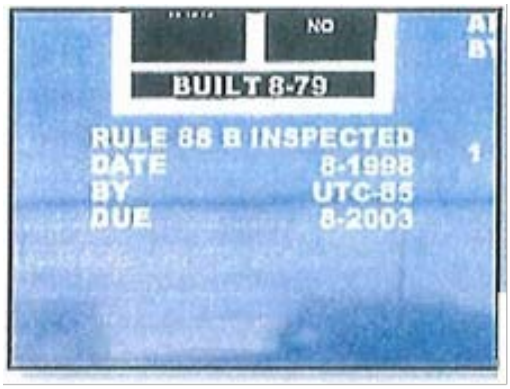
- Kind of coating or lining (name)
- Date (Month and Year) of application"
- By (Who applied it)

As shown here, AIDX 2000 has Plasite lining. The stencil includes:

- PLASITE 3070 LINING
- APPLIED 6-1998
- BY UTC - 85

Rule 88.B2 Stencil

When tank cars have been inspected in compliance with AAR Field Manual Rule 88 B.2, they must be stenciled accordingly. The stencil should have letters at least 1" high and be applied on both sides of the tank car near the consolidated stencil. This inspection must be completed every ten years.



The first inspection(s) are due by June 1,2002 if not inspected for other reasons set forth in this rule (i.e., undergoing stub sill inspection in accordance with FRA emergency order 17). AIDX is properly stenciled:

- RULE 88 BINSPECTED
- DATE 8-1998
- BY UTC - 85
- DUE 8- 2003

PM Stencil

If a PM (Preventive Maintenance) stencil is present, the stencil will indicate what location/shop performed the PM and the date it was completed.

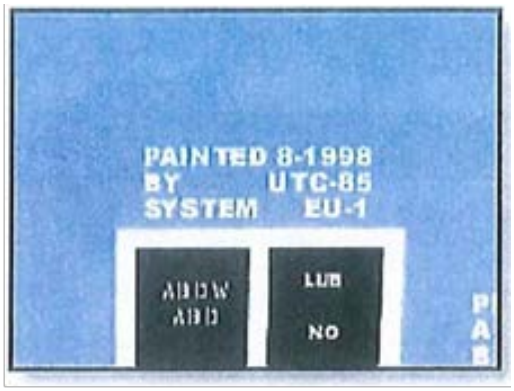
- PM 10-99
- RESCAR 110

Paint Stencil

You may also find a Paint Stencil. This stencil indicates what location performed the painting and stenciling, and the date it was completed. It also includes the paint system used on the tank car. System EU-1was used on this tank car.

- Painted 8-1998
- By UTC- 85
- SYSTEM EU - 1

The PM and Paint Stencil do not have to be on the tank car but most companies do so for auditing purposes.



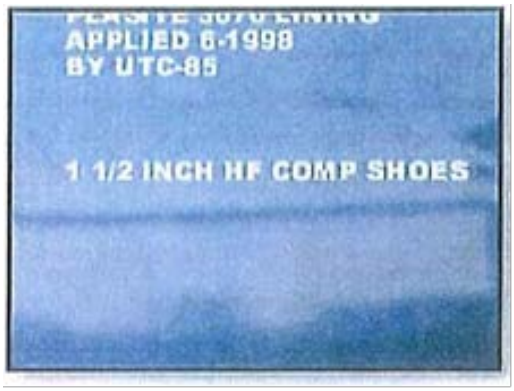
Brake Shoe Stencil

Tank cars using high friction composition brake shoes must be stenciled on all four corners of the tank car with the type and size of the brake shoe. This tank car has 1-1/2" high friction composite brake shoes as indicated by the stencil "1-1/2 INCH HF COMP SHOES".

- 1-1/2 INCH HF COMP SHOES

This stencil is located on the tank near the consolidated stencil.

This stencil is sometimes also found on end sill just above the grab iron.



Chemtrec Decal and Canutec Decal

CHEMTREC: The Chemical Transportation Emergency Center provides a 24-hour telephone hotline for chemical emergencies.

> For Product Emergency
>
> Spill, Leak, Fire, Exposure, Accident
>
> Call Chemtrec - Day or Night
>
> 800-424-9300

The Chemtrec decal has black letters on a yellow background. This decal is not required, but most companies apply it and use Chemtrec for their 24-hour emergency number. A 24-hour emergency number specific to your company can also be used in place of Chemtrec.

> Example:
>
> For Product Emergency
>
> Spill, Leak, Fire, Exposure, Accident
>
> Call World Wide Solutions - Day or Night
>
> 800-000-000

Canadian chemical companies have organized a group similar to the US Chemtrec. Transport Canada, located In Ottawa, Ontario operates the Canutec Emergency System.

Canadian regulations generally mirror the US regulations. When dealing with a transportation incident involving a tank car from Canada, some of the terminology is different. For example, the Canadian term "dangerous goods" is synonymous with "hazardous materials" as used in the United States.

Tank cars operated out of Canada do not require a 24-hour emergency number to be stenciled on tank cars. Most of the major chemical producers however, have opted to use the Canutec decal and service. Their emergency number is 613-996-6666. The Canutec decal also lists the Chemtrec phone number.

Water Capacity Stencil

The water capacity must be stenciled within four feet to either side of the tank ladder.

If the tank car does not have a tank ladder to measure from, the dome area is used. The stencil must be within four feet to either side of the dome and approximately one third down from the top portion of the tank car. Water capacity must be in pounds and kilograms.

The water capacity of is

- WATER CAPY
- 256071 LBS
- 116396 KG

Plate C - Limited Interchange Service

The Plate C stencil must be legible. This stencil plays an important role in ensuring that your tank car is delivered safely.

In order for a tank car to travel in unrestricted interchange service throughout the majority of North America, it must conform to certain size specifications. These size specifications are necessary to ensure that the tank car will be able to proceed unrestricted along greater than 95% of the total mileage of track.

If a tank car bears a Plate C, then the tank car is unrestricted on all railroads except for twenty-two routes. Your routing group has Information on restricted routes and uses it to route all of your rolling stock.

The maximum height for a plate C rail car is 15 feet 6 inches and the maximum width is 10 feet 8 inches. The Plate B, E and F stencil indicates the rail car conforms to the following size limitations:

- Plate B indicates that the tank car is 15 feet 1inches high by 10 feet 8 inches wide.
- Plate E indicates that the tank car is 15 feet 9 inches high by 10 feet 8 inches wide.
- Plate F indicates that the tank car is 17 feet 0 inches high by 10 feet 8 inches wide.

Initials and Number, Load Limit, Light Weight, Brake Shoe Stencil

When tank cars are built, they are given initials and number. This number must appear in the correct locations on the tank car. This number is kept in the Train & Umler Data Specifications file.

Check for clarity and condition of all stenciling. Each tank car is required to be marked per AAR.

Load Limit and Light Weight

The Load Limit and Light Weight for this tank car are:

The Load Limit and Light Weight for our tank car are:

LD LMT - Load Limit is the maximum weight of lading that can be loaded in a tank car.

- LD LMT
- 196500 LB
- 89 150 KG

LT WT - Light Weight is the total weight of an empty tank car, including the trucks and all appliances, rounded to the nearest hundred pounds. A tank car's weight is determined by a certified scale.

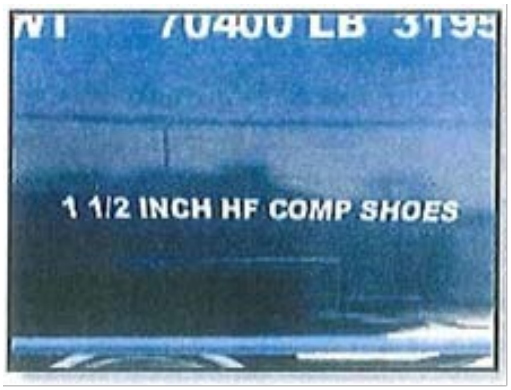
- LT WT
- 66500 LB
- 30 150 KG

Total weight on rail is determined by adding the LD LMT and LT WT together. The combined weight must not exceed the axle capacity limit (i.e., 6- 1/2" by 12" axles are rated for 263,000 pounds).

* LD LMT - When a Star (*) is next to the LD LMT, the load limit is less than the original capacity. The star must be applied immediately to the left of the LD LMT. This fixed Load Limit must only be altered by the owner of the tank car.

Brake Shoe Stencil

Tank cars using high friction composition brake shoes must have a brake shoes stencil on all four corners of the tank car. This stencil must indicate the type and size of the brake shoe. This tank car has 1-1/2" high friction composite brake shoes as indicated by the stencil "1-1/2 INCH HF COMP SHOES".

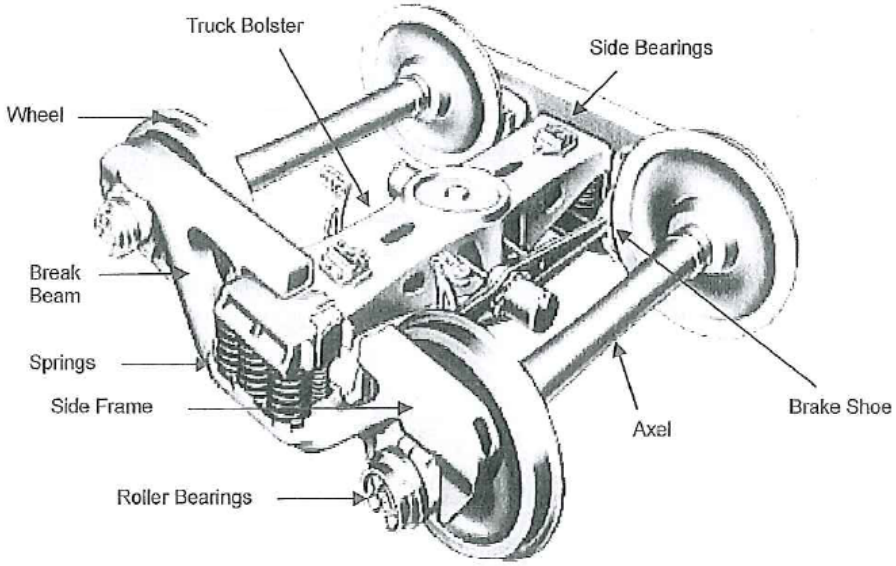


Running Gear or Trucks

Tank car trucks come in a variety of types and sizes, but are virtually the same and can be used under any type of railcar of similar design, size and weight. Truck assemblies must meet rail gauge requirements, width and centerline restrictions, and accept standard wheel sets, brake beams and other associated standard size components. The purpose of the trucks, regardless of type, size or manufacturer is to support the tank mounted above them and guide that load down the track to and from its shipping point and destination. To inspect these groupings, you may either click on a component grouping or its picture.

To inspect the truck component groupings shown here, you may either click on a component grouping or its picture.

- Wheels & Axles
- Roller Bearings
- Brake Beams
- Brake Shoes
- Side Frame
- Springs
- Truck Bolster
- Side Bearings



The size of the truck axles determines the amount of weight that can be carried by it. For instance, 6-1/2" by 12" axles can carry a 100-ton load.

Most truck components simply interlock together without fasteners. Interlocking components move continually and as a result wear down. To minimize wear on large components wear plates are used. A large part of the inspection process involving truck components is to monitor wear and replace wear plates as necessary before costly damage to a major component takes place.

The truck's components that control movement are usually checked first to ensure their presence and then their effectiveness. The components that control the bolster movement from "A" and "B" ends within the side frame are friction blocks and friction block springs. The up, down, and side to side motion is controlled by the large springs under the bolster. There are also casting devices on the bolster and side frame such as rotation stops and gibs that also limit unwanted truck movement.

Tank Car (top platform) Valve Configurations

Photo illustrates the valve configuration of a general service tank car.

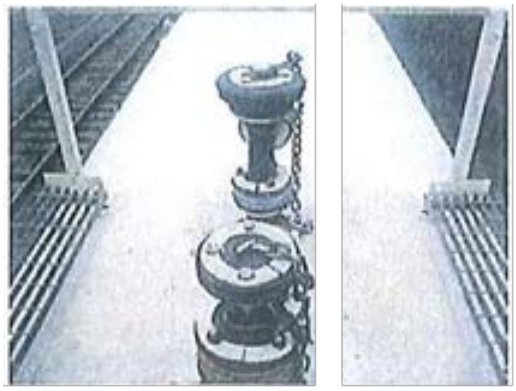


Photo is the valve configuration of an HFS acid tank car.

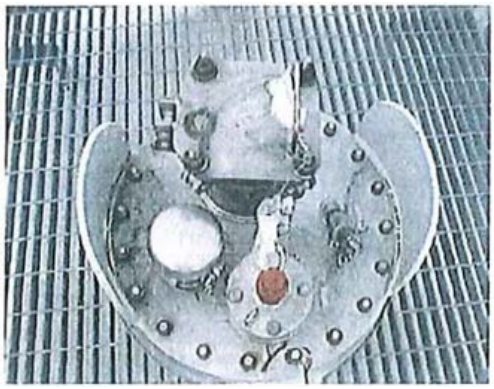


Photo is the valve configuration of an H2SOF acid tank car.

Photo is the valve configuration of an HCL acid tank car.

Tank car equipped with a bottom outlet valve.

Tank car equipped with a bottom wash out.

Tank car equipped with a bottom sump.

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PURPOSE: This procedure outlines and defines the necessary steps needed to safely conduct an outbound tank car inspection in accordance with applicable 49 CFR § 173.31 (d) and Association of American Railroads (AAR) standards and/or rules.

SCOPE: This procedure applies to all Vancouver Energy terminals that prepare outbound tank cars for transportation.

RESPONSIBILITY: The Operations Manager shall ensure that this procedure is followed by their respective Operating Personnel (i.e., Operators, Lead Operator, Ops Supervisor, etc.) who are responsible for inspecting outbound tank cars, and that those employees are trained and provided with the necessary personnel protective equipment (PPE) and tools to execute this procedure.

TANK CAR OUTBOUND INSPECTION

***NOTE:* Terminal personnel are required to conduct an outbound rail car inspection prior to placing the specific rail car (e.g., empty and/or loaded) onto their respective switch list; corresponding documentation is required to be completed and retained for a period of three years.**

1.1 The Coordinator/CSR provides Operating Personnel a tentative listing of departing tank cars (e.g., empty and/or loaded) that require an outbound inspection.

1.2 Operating Personnel obtains a blank outbound tank car inspection form for each of the aforementioned rail cars. Ops Personnel begins to complete the general information section of the form (e.g., date, terminal, rail car number, shipper, product & grade).

1.3 Operating Personnel (e.g., Operator, Lead Operator) obtains & dons the appropriate PPE based on the associated product hazards; refer to minimum product specific PPE listing.

1.4 Operating Personnel obtains the necessary tools (e.g., pipe wrench, rail car chocks) and ascertains the Service Vehicle. Upon completion, Ops Personnel proceeds to the location of the first tank car which is designated on the outbound list.

1.5 Operating Personnel ensures that the siding is protected by a bi-directional derail and/or a switch lock and the blue flag which reads "Stop- Tank Car Connected" or "Stop- Men at Work" is in the raised position.

1.6 Operating Personnel sets the tank car's handbrake by turning the wheel in a clockwise motion; the handbrake is fully applied when you can no longer turn it. The handbrake is located on the rail car's B- end.

1.7 Operating Personnel utilizes the rail car chocks by placing each individual chock around one of the tank car's wheels, thus restricting any incidental movement.

1.8 Operating Personnel utilize 3-point contact while ascending the tank car's ladder. Once on top of the tank car's platform, Ops Personnel verifies that all previously applied product fitting(s) have been removed from the rail car's product outlet.

***NOTE:* If product fitting(s) are still attached to the tank car's product outlet, Operating Personnel utilizes an adjustable wrench to remove these items. Prior to removal, it is essential to ensure that both the primary product valve (e.g., tank car component) and the secondary valve (e.g., product fitting component) are placed in the closed position.**

1.9 Operating Personnel re-applies the cap and/or plug to the tank car's product outlet and utilizes an adjustable wrench to properly torque the closure into place.

1.10 Operating Personnel ensures that the tank car's internal pressure has been properly vented. Ops Personnel slowly opens the rail car's air intake valve and listens for air escaping (e.g., hissing sound); if no sound is detected, the pressure has been previously bled off.

CAUTION: Do not stand directly over the valve when opening. The tank car's internal pressure could possibly force some residual product up the air induction pipe and strike you.

1.11 Operating Personnel verifies that all previously applied air fitting(s) have been removed from the tank car's air induction pipe.

NOTE: **If air fitting(s) are still attached to the tank car's air induction pipe, Operating Personnel utilizes an adjustable wrench to remove these items.**

1.12 Operating Personnel re-applies the cap and/or plug onto the tank car's air induction pipe and utilizes an adjustable wrench to properly torque the closure into place.

1.13 If the specific tank car's closures (e.g., air intake outlet & product outlet) have been fabricated with flanged assemblies, Operating Personnel ensures that the appropriate blind flanges have been applied to the housing and all corresponding lug nuts are wrench tight.

1.14 If the specific tank car is equipped with a hinged stuffing box and/or valve assembly bonnet, Operating Personnel ensures that it is placed in the closed position and properly pinned in place.

1.15 If the tank car is equipped with a manway cover/fill hole, Operating Personnel ensures to open the closure and conduct a thorough inspection of the gasket.

NOTE: **If the manway/fill hole gasket is in poor condition (e.g., frayed, deteriorated, missing sections, etc.), it is required to be replaced under the guidance of the respective shipper.**

1.16 If the gasket has been inspected and deemed to be in good repair, Operating Personnel closes the cover on the rail car's manway/fill hole. Upon completion, Ops Personnel engages all bolts around the manway/fill hole's housing & torques the lug nuts into place while utilizing a 24" crescent wrench.

NOTE: **Manway covers which are configured with six or eight bolts and accompanying lug nuts, it is a requirement to apply proper torque via 24" crescent wrench and tighten the lug nuts in a crisscross pattern, thus ensuring to maintain a level even seal.**

1.17 Operating Personnel conduct a thorough inspection of the tank car's pressure relief devise (e.g., safety valve assembly, rupture disk assembly), ensuring that it operates efficiency and is in good repair.

NOTE: **If the specific tank car is equipped with a rupture disk assembly, Ops Personnel are required to open the cover, ensure that the appropriate size rupture disk is present and intact (e.g., not broken/burst). Upon completion, Ops Personnel close the rupture disk assembly cover and pin it into place. In addition, Ops Personnel are required to ensure that the four lug nuts on the outer housing of the rupture disk assembly are wrench tight.**

1.18 Per customer request, Operating Personnel may be required to apply a numerical product security seal and corresponding product tags to certain areas of the tank car (e.g., stuffing box/valve assembly bonnet, manway safety bolt, etc.); for further information refer to the respective Shipper's Service Delivery Specification Sheet (SDSS) and/or Customer Service Profile.

1.19 Operating Personnel utilizes 3 point contact while descending the tank car's ladder.

1.20 If the tank car is equipped with a bottom operated outlet, Operating Personnel verifies that all previously applied product fitting(s) have been removed.

***NOTE:* If product fitting(s) are still attached to the tank car's bottom outlet, Operating Personnel utilizes an adjustable wrench to remove these items. Prior to removal, it is essential to ensure that rail car's bottom operated *valve* handle is placed in the closed position. If a pin-lock and or cable seal was utilized to secure the *valve* handle it is prudent to *remove* these items and replace them with the seal pin.**

1.21 Operating Personnel ensures that both the outlet cap and accompanying pipe plug have been applied to the tank car's bottom outlet and is in fact wrench tight; it is prudent to utilize a 36 inch pipe to ensure that proper torque has been applied to this closure.

1.22 If the tank car was fabricated with a flanged type bottom operated outlet, Operating Personnel ensures that the blind flange has been replaced with accompanying lug nuts applied wrench tight; it is prudent to utilize the appropriate size adjustable wrench when tightening this closure.

1.23 If the tank car is fabricated with either a bottom washout or sump, Operating Personnel ensures that those aforementioned closures and corresponding lug nuts are wrench tight.

1.24 If the tank car contains a hazardous material, Operating Personnel ensures that the appropriate placards are displayed in the four affixed brackets (e.g., A-End, B-End, A-Right, B-Left); for further information, refer to 49 CFR § 172.516, 172.519.

1.25 Operating Personnel walks around the four sides of the tank car ensuring that no visual evidence of leakage is present and/or detected. If leakage is present and/or detected, this issue is to be immediately reported to the respective Operations Manager or designee. The Operations Manager or designee shall investigate the incident and take the appropriate precautionary measures (e.g., communicate the issue to the respective shipper soliciting their guidance, contact the local repair shop/crew & contain the spill).

1.26 Operating Personnel ensure to *remove* all miscellaneous articles (e.g., hand tools, transfer equipment, fittings, pin-locks, PPE, etc.) from the tank car and stores these items in the designated area.

1.27 Operating Personnel removes each of the previously placed rail car wheel chocks out from underneath the tank car's wheel; upon completion, Ops Personnel releases the rail car's handbrake.

1.28 Operating Personnel ensures that the outbound rail car inspection form has been completed; noting any deficiencies, or other miscellaneous comments/actions. Upon completion, the inspecting party is required to print sign the form.

***NOTE:* If any item on the outbound rail car inspection form was deemed to be not in compliance, the issue is to be immediately reported to the respective Operations Manager or designee. The Operations Manager shall in turn communicate the issue to the respective shipper and solicit their guidance till conclusion. Under no circumstances is a rail car permitted to depart the facility without being deemed fit for transportation.**

1.29 Operating Personnel are required to return all completed outbound rail car inspection forms to the Coordinator/CSR.

END OF THIS PROCEDURE

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PURPOSE: This procedure outlines and defines the basic necessary steps to safely work around tracks.

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: You must obtain authorization prior to walking in or around a rail yard.

Distance

1.1. When possible maintain 4 feet from the outside of the rail using your arm length from the rail as a guide.

1.2. Keep a safe distance from passing rail movements. Do not stand by a switch or switch stand if possible. Stand in the clear in the event of dragging lading, equipment or a derailment.

Hazards

2.1 Avoid stepping on rail structure as they may be slippery.

2.2 Avoid stepping on ties as they may be slippery from residue and creosol.

Walking on or About Tracks

3.1 Walk clear of the rail staying off head-block ties and looking in the direction of movement. Only walk in the gauge when duties require and only for the shortest amount of time necessary to complete the required work. If at all possible remain in the clear of all tracks unless protected.

3.2 Look in both directions for approaching rail equipment when preparing to foul tracks. Foul tracks only when necessary for the purposes of assigned duty.

3.3 Walk straight across the tracks to avoid crossing on a diagonal thus reducing your time in the gauge.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely work around rail equipment

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Ensure equipment is secured as per Red Zone if power is attached. Ensure, you have the authorization to be around equipment. Follow Working Around Tracks Procedure 01.

Distance

1.1 Employees shall not cross in front of moving equipment unless it is clearly determined there is sufficient distance (not less than 150 ft. or three rail cars) is available and the speed is less than 5 mph. Employees shall not cross behind moving equipment (moving away) at a distance less than 25 ft.

1.2 Crossing over, under or between railcars and equipment is prohibited unless in performance of duties and only when the proper protection is provided. When required to do so, use the proper running boards and hand-holds. Follow Crossing over Procedure 04.

1.3 When crossing between rail cars or equipment, a distance of 50 ft. or greater must be available unless under Blue Signal protection and only when such equipment is chocked. When crossing behind or around standing equipment, a distance of no less than 25ft. must be maintained.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely operate rail switches

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary persona l protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Ensure consist is at a safe distance from switch to be operated. Ensure you have authorization to operate switch.

Warning: Always inspect for (rhyme) Tags, Locks, Spikes and Blocks prior to operating a switch for the first time each shift.

Operating switches

Switch Inspection

1.1. After ensuring authorization and direction of move, approach the switch stand.

1.2. Visually identify if there are any Tags, Locks, Spikes, Blocks or warning devices. If none are found go to the next step. If any are found do not operate the switch.

1.3. Verify that no debris or blocks would impair movement from switch point to heel block and around number 1 and 2 connecting rods.

Debris Removal

2.1 To remove debris from between switch points and stock rail never use your hand, use a broom, scraper, brake shoe key, stick or other suitable device.

Operating switch

Warning: Employees must not exert force beyond their normal physical capabilities in order to line a switch, which is difficult to operate. They must obtain assistance to complete task and notify supervisor of problem.

3.1 Look in both directions to ensure that no moving equipment is approaching on adjacent tracks prior to operating a switch or derail.

3.2 Ensure that your body position, while operating the switch, does not place you between rail traffic and the switch stand or within the travel area of the switch lever.

3.3 Ensure that you are facing the switch stand and your body is well braced with both feet firmly planted on the ground or on the switch ties before operating switch

3.4 For operating a ball type switch or derail, bend your knees and use your leg muscles to steadily lift lever while keeping your feet clear of ball.

3.5 For operating high stand switch or derail, take a firm grip with both hands near the end of the operating lever and exert a steady pull. Avoid jerking, pushing or kicking to try and move or seat the switch lever.

3.6 If the switch is equipped with a latch or lock, replace latch or lock.

Reporting

Warning: Gap between switch point and stock rail must not exceed 1/8".

4.1 Ensure that the switch is properly lined for the route to be used.

4.2 Ensure that the switch points fit tightly to the stock rail.

4.3 Stand clear of switch area allowing proper distance for rail and switch movement.

4.4 Report to movement controller, the switch is lined for route to be used.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely Cross over Rail Cars

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Ensure that you have the authorization to cross over. Ensure you have protection refer to Protection Procedure 05

Hazards

1.1 Ensure authorization and protection

1.2 Never step between the coupler horn and striker casting or on the striker casting.

1.3 Only cross over rail cars equipped with a cross over platform.

1.4 Verify that no bad order tags will interfere with your crossing over.

Crossing over

Warning: Ensure you have proper protection if needed as per Protection Procedure 05

2.1 After properly mounting as described in Mount and Dismount Procedure 06, maintain 4 points of contact
   a. Place the closest hand to the inside car on the end ladder rung
   b. Or the closest foot to the inside car on the ladder rung to the far inside thus not allowing your foot to slide on the rung

2.2 Follow with opposite of step 2.1

2.3 Move only a foot or a hand to next spot to cross over using cross over platform or grab iron.

2.4 Continue with same moves as 2.4 until you've reached the end of the platform.

2.5 Visually check by looking both ways around the end of railcar for obstacles and moving equipment.

2.6 Place the closest hand to the outside of the car on the side ladder rung or the closest foot to the outside ladder rung. Place hand or foot far enough to allow safe 4 point movement.

2.7 Follow opposite of step 2.7 until you are fully secured to the side ladder.

2.8 Follow Mount and Dismount Procedure 06

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely Protect People Property and Equipment.

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Blue Flag
	Hard Toe Safety Boots (ASTM Certified)			Red Flag
	Safety Glasses (ANSI Z87.1 Certified)			Portable Derail
	Gloves			Head Lamp
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Ensure consist is at a safe distance from protection to be provided. Ensure that you have the authorization to apply flags or derails.

Blue Flag Protection: *To protect men who are working on, under or around rolling equipment.* Use *one of the following methods of protection or a combination of these methods must be provided:*

1.1 Each manually operated switch that provides direct access must be lined against movement into the track and secured by an effective locking device. A blue signal must be placed at or near each switch.

1.2 A derail capable of restricting access to the track where work will occur must be locked in the derailing position with an effective locking device and positioned at least 50 feet from the rolling equipment to be protected.

1.3 Communicate to appropriate personnel that protection is in place.

Removal* of *Blue Flag

2.1 Blue signals may only be removed by the craft or group who placed them.

2.2 When blue flag signal protection has been removed from one entrance of a double ended track or from either end of rolling equipment, that track is no longer under blue signal protection.

Switch as Protection

3.1 You are only protected by locking a switch, when it is a facing point movement.

3.2 Operate the switch to allow traffic to be diverted from the protected area.

3.3 Lock out the switch with an effective locking device.

3.4 Notify the appropriate personnel that the switch is locked out.

Red Flag

Warning: Red Flags are for track maintenance and safety personnel only.

4.1 Flags or lights are to be displayed only on the tracks that will be affected. However, when red flags or red lights are used for protection without a flagman these flags must be placed to protect all possible access to the restricted area

4.2 Flags must be displayed to the right of the track as viewed from an approaching movement, except red flags or red lights may be displayed between the rails of the track affected.

4.3 When flags are displayed beyond the first rail of an adjacent track, the flags will not apply to the track on which the movement is moving.

4.4 Always notify the appropriate personnel of protection

WARNING: Removal may only be performed by the same class worker that applied the Red Flag.

Red Zone Protection Applied

5.1 The employee in charge will request Red Zone protection for all in need from the Locomotive Operator.

5.2 The Engineer will perform the following
a. Apply 10lbs automatic brake with full independent brake
b. Center the reverser
c. Open the generator field switch (down)
d. Notify the employee in charge

5.3 Then the worker(s) must verify Red Zone by listening for air brakes applying and visually verifying the brake piston is out before entering the Red Zone area.

Red Zone Protection Removed

6.1 The employee in charge will clear Red Zone protection for all those who were protected.

Note: Red Zone Protection is not to be removed until all personnel are in the clear.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely Mount or Dismount tanker type cars

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Ensure movement is completely stopped.

Inspection

1.1 Verify all safety appliances are in good repair

1.2 Ensure there are no bad order tags that would be of concern for mounting.

1.3 Look at the area at the base of the ladder for feet placement.

Mounting

2.1 First ensure a solid grasp of handrails and/or grab irons with both hands.

2.2 With feet firmly planted and body facing the equipment, pull with arms and with the foot that is closest to the grab iron, place it on the corner of bottom stirrup closest to the grab iron, while the other foot stays planted on the ground.

2.3 Place the other foot in the opposite corner of the stirrup without moving your hands or the opposite foot.

2.4 Continue on to cross over platform by moving only one hand or one foot at a time.

Warning: Ensure movement is completely stopped before moving again

Inspection

3.1 Observe area at base of ladder looking for debris, holes or other hazards

Dismounting

4.1 Ensure your body is facing the equipment as you dismount onto the ground.

4.2 Climb down to the stirrup moving only one of following at a time: hand or foot. Move the foot closet to the grab iron first.

4.3 From the stirrup look down for foot placement

4.4 Move the foot on the opposite side of the grab iron; step down to contact ground, while keeping both hands and opposite foot in solid contact with grab irons.

4.5 Bring down other foot

4.6 When both feet are firmly on the ground, and then release handholds.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely Ride Rail Cars

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties. Riding rail cars should only occur for rail switching operations, such as to provide visual point protection. Note that rail cars should not be ridden for other purposes, such as during normal rail operations on the loop tracks to index cars through the unloading stations.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Riding Cars

Warning: Be aware that slack action and the use or brakes has a tendency to jerk the cars. Maintain a firm hand hold at all times. Always expect movement in any direction at any time. Maintain 4-point contact 100% of the time.

Hopper Type Rail Car

1.1 After following the Mounting Procedure 06

1.2 Ride only the leading car in a yard movement or the trailing car in a cut of cars.

1.3 Maintaining 4 point contact, with your body facing the equipment on the side ladder.

1.4 Looking in the direction of travel

Tanker Type Rail Car

2.1 After following the mounting procedure 06 B.

2.2 Ride only the leading car in a yard movement or the trailing car in a cut of cars.

2.3 Maintaining 4 point contact, with your body facing the equipment.

2.4 Stand on the crossover platform with toes pointed in toward s the rail car and heels at the edge of the platform.

2.5 Looking in the direction of travel.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely apply and release hand brakes

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Ensure rail cars are secured. Ensure the operator has set train brakes thus allowing the brakeman to turn the hand brake wheel until the chains slack has been taken up eliminating the need to put the hand brake on with excessive force.

Applying Hand Brake

1.1 Ask for and receive Red Zone Protection as directed in the Protection Procedure 05.

1.2 Mount rail car as described in Mount and Dismount Procedures 06 or 068.

1.3 Position yourself on the left side of the handbrake as described in Cross Over Procedure 04.

1.4 You may place your right foot on the edge of the brake platform securing it against your heel, maintaining good balance.

1.5 Visual check of hand brake components, including brake wheel, lever, pawl, ratchet and chain.

1.6 Place release lever in "on" position.

1.7 With right hand begin applying hand brake by rotating wheel in clockwise motion. Always keep hand on the outside of the wheel rim while applying. (By not holding onto the spokes you will not apply too much pressure on your spine.)

1.8 If sufficient force cannot be applied by using the wheel rim additional brakes and/or wheel chocks may be necessary.

1.9 Follow Cross Over Procedure 04 and Dismount Procedures 06/068.

1.10 Clear Red Zone when appropriate.

Release* of *Handbrake

Warning: If hand brakes have been applied so tight assistance may is required to release them. The application of the automatic brake may be required to loosen the tension on the brake rigging.

Warning: While releasing the handbrake, ensure hands and body are clear of brake wheel and feet are clear of the chain, as it may release with great force under tension.

Warning: When the engine is coupled to railcars standing on a grade, do not release the hand brakes until the air brake system is fully charged.

2.1 Start with 1.1 to 1.3 of applying hand brake procedure

2.2 Move release lever to "off" position (if needed) with enough force to disengage the hand brake locking feature or turn the wheel counterclockwise using your right hand.

2.3 Follow Cross Over Procedure 04 and Dismount Procedures 06/068.

2.4 When appropriate clear Red Zone.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely couple air hoses.

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Be aware of slack action. Cars may move 3 inches or more per car. Proper train brake will help alleviate slack action.

Warning: Be aware of pinch point areas while coupling the air hoses.

Coupling Hoses

1.1 Ask for and receive Red Zone protection as per Protection Procedure 05.

1.2 Place one foot between the rails while leaving the other foot outside, with your body angled.

1.3 Right hand grasps the glad hand of the nearest air hose, while the left hand grasps the glad hand of the air hose farthest away.

1.4 Kink the air hose in your right hand while bringing it up to a 90-degree angle.

1.5 Bring the glad hand of the air hose in your left hand up to meet the other glad hand, then let both glad hands slide into place to engage coupling.

1.6 Clear Red Zone when appropriate.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely Adjust Knuckles.

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: Employees must not adjust coupler or components with feet. Ensure that feet are kept clear of the knuckle in case it falls. When opening a knuckle both feet must be outside the nearest rail to prevent injury.

Warning: Before coupling is made, the couplers must be checked to ensure they are properly lined up. Whenever possible, cars should be left on straight track for coupling. If not possible, extreme caution must be used when coupling.

Coupler/Drawbar Adjustment

Protection

1.1 Before making adjustments to a coupler/drawbar, separate equipment by at least 50 feet and secure the equipment using Red Zone Protection as prescribed in Protection Procedure 05

Adjustment of Coupler/Drawbar

2.1 Enter the gauge placing both feet firmly on the ground toes up against the inside base of the rail.

2.2 With both hands firmly gripping the underside of the coupler, using the legs, lift the coupler applying pressure with the lower back against the coupler to move it over.

2.3 Clear Red Zone Protection when appropriate.

End of this procedure

PURPOSE: This procedure outlines and defines the basic necessary steps to safely Open angle cock.

SCOPE: Vancouver Energy is engaged in rail switching. Vancouver Energy is a safety-oriented organization, committed to the responsible discharge of its duties.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when switching cars and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)		Miscellaneous Safety Equipment	Head Lamp
	Hard Toe Safety Boots (ASTM Certified)			
	Safety Glasses (ANSI Z87.1 Certified)			
	Gloves			
	Reflective Vests (ANSI class 2 or 3 hiviz requirements)			

Tools & Transfer Equipment	Trainman Lantern or Flashlight		Environmental Equipment	
	Radio w/Holder			

Warning: You must ask for Red Zone Protection as per Protection Procedure 05.

Warning: It only takes 1 to 1-1/2 pounds of air brake pressure change to cause an automatic release of the brakes, that will be the first thing that happens to the cars when the angle cock is opened. Expect sudden movement.

Opening Angle Cock

1.1 Place one foot inside the gauge with your leg against train line hose and place other leg outside the gauge. (This will stop the train line hose from whipping freely)

1.2 Notify the locomotive operator before you cut in the air (open the angle cock).

1.3 Do not open angle cock too fast as this will put the air brake system into emergency.

1.4 Gently tap angle cock handle while holding handle with other hand. This will help alleviate opening too fast.

1.5 Clear Red Zone

End of this procedure

PURPOSE: The purpose of this procedure is to establish a standard to achieve safe work conditions and protect employees and property by preventing explosions and fires during Hot Work.

SCOPE: This procedure includes various activities that could provide a source of ignition and/or cause a fire or explosions.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment (PPE)	Hard Hat (ANSI Z89.1 Certified		Miscellaneous Safety Equipment	Bi-directional Derail (Engaged & Locked-out)
	Vancouver Energy Approved Uniform			Blue Flag w/Blue Light (Raised & Light Illuminated)
	Safety Toed Boots (ASNI Z41.1 Certified)			Rail Car Handbrake (Set & Restricting Movement)
	Hearing Protection			Rail Car Wheel Chocks (In Place & Restricting Movement)
	Safety Vest (ANSI class 2 or 3 hiviz standards)			
	Safety Glasses			

Tools & Equipment for Day Shift	Radio		Tools & Equipment for Night Shift	Radio
	Gloves			Gloves
				Lantern

REQUIREMENT

1.1 Hot Work permits are required in all areas of the facility when performing work such as:

- Using electric or portable welding machines
- Using a cutting torch, with cutting head, heating tips, or gas welding tips attached
- Using a grinder that may produce sparks
- Using tools such as chisels, punches, hammers, saws that could create a spark.
- Equipment or Use of power tools, or other tools that use motors with brushes, slip rings (i.e. drills, saws), in areas referenced in 2.8.
- Sandblasting
- CAD welding
- Use of hilti gun
- Any other activity that may cause ignition of flammable gases or vapors, wood , paper, dust, rags and any other combustibles

Exceptions:

- Fossil fueled and electric equipment and vehicles in all areas except those listed in 2.8.
- Electric powered equipment and vehicles specifically designed and certified for use in Class I and Class II areas. (Examples: Certified flashlights, radios, forklifts, electric golf carts, electric cranes)

Except in area primarily designed to allow Hot Work (e.g. maintenance shops). If work is being done in shop areas on vessels, heat exchangers. etc., which have been in chemical service, the hot work procedure must be followed with the same precautions that are taken with any other hot work activities.

1.2 Designated how work locations include (no permit required): Area A shop, Area C shop, Machine shop, Electric shop and Instrument shop.

1.3 No Hot Work is to be permitted in areas with the LEL levels above 0%, areas with combustible dust, flammable vapors, or equipment that contains or had contained flammable contents.

(Without special precautions).

1.4 Prohibited conditions: a Hot Work permit will not be issued in an area deemed unsafe or unauthorized. Examples would be in buildings where sprinkling systems are impaired, explosive atmospheres or in areas where there could be a large quantity of readily ignitable materials.

WORK AREA PREPARATION AND TESTING

2.1 Permits must not be issued unless all stored combustible material has been moved at least 35 feet from welding operations or protected with flame-proof curtains, metal guards, or flame-proofed tarpaulins (not ordinary tarpaulins). Wet down combustibles which cannot be moved or completely covered.

2.2 Wood floors, wood railings and wood window sills that are in line of falling hot metal and flying sparks must be wetted down with water.

2.3 Process lines and vessels will be shielded when welding or cutting is to be done in close proximity. This can be done in several ways, including fire blankets, sheet metal, removing the line or object to another safer location, or using mild steel plate or angle iron for shielding.

2.4 Sulfuric acid and chlorine lines and vessels may not be welded or cut on unless special precautions are developed and implemented to mitigate hazards. Sulfuric acid gives off hydrogen and chlorine supports combust ion upon being heated. If nuts and bolts cannot be removed by wrenches, they will be hack sawed off or cut with a nut splitter. In addition, hot work performed on or adjacent to rubber-lined piping and tanks also requires precautions to prevent damaging the liner material.

2.5 Chlorinated Poly Vinyl chloride (CPVC) lines, fiberglass lines and rubber-lined vessels must be protected from flames or sparks to prevent damage.

2.6 Hydrogen and other flammable gas lines and systems will be treated as follows:

- Blind from hydrogen source
- Line or system will be opened and vented
- Purge with nitrogen and then purge with air to check LEL
- System check for explosive atmosphere with LEL meter
- Constant monitoring for LEL while job is done

2.7 Atmospheric Testing: the supervisor issuing the permit shall check the work site before work starts using a combustible gas/oxygen meter. Prior to using the combustible gas/oxygen meter, a combustible gas "function check" must be performed daily by the instrument technician to ensure it is functioning properly. If any problem is found the meter must be returned to the Instrument shop for calibration and/or repair.

NOTE: No job should be started if the combustible gas reading is over 0% LEL, or if the oxygen reading is below 20.5% or above 21.5%.

2.8 Hot Work performed in the following areas requires continuous combustible gas/oxygen monitoring:

- Acid Plant
- Hydrogen Handling Areas (including but not limited to the boiler house, hydrogen houses, transfer piping, vents and hydrogen water purges).
- Sulfuric Acid Equipment
- All equipment in the Cell line working zone.
- Fuel oil, Natural Gas, Propane, Hydrogen, Lube Oil, and Gasoline Piping or Equipment

2.9 If hot work is to be performed in a confined space vessel or an area where flammable gases or liquids may be present, the space shall be continuously monitored for combustible gas and oxygen. A remote sensor inside attached to an explosimeter/Oxygen deficiency detector outside shall be used. The fire watch must maintain visual contact of the work being performed to ensure sparks or hot molten metal do not ignite any nearby material.

2.10 When burning on Freon or chlorinated organic piping and equipment, cleaning and purging of lines is necessary and PPE (i.e. Respiratory Protection) is required. Residual material may give off toxic vapors if heated and should be thoroughly removed before beginning work.

2.11 Gas Detector Usage Guidelines: Like any instrument, combustible gas/oxygen detectors are only as helpful as (1) the skill of the person using them allows it to be and (2) the diligence with which it is cared for and taken in for calibration and servicing. Here are some guidelines on how to use them most effectively.

2.11.1 Don't use these instruments to measure combustible gas if the oxygen gauge (or alarm) shows less than 19.5% nor more than 25% oxygen.

2.11.2 All gases and vapors have a range in which they are ignitable. The ranges are represented by percentage of containment by volume of air within the sensing area of the instrument (usually about 20 feet in diameter).

2.11.3 The lowest point at which ignition can occur is known as the Lower Explosive Limit or LEL. For instance, dry hydrogen has an LEL of 4% by volume of air.

2.11.4 The highest point at which ignition can occur is known as the Upper Explosive Limit or UEL. For instance, dry hydrogen ha a UEL of 74%+/- by volume.

2.11.5 The limit used to decide whether to approve a job starting (or keep it from starting) used in the Henderson Plant is 0% LEL combustibles by volume in air.

2.11.6 Recalibration with test gas is required once per month regardless of whether the instrument appears to be in calibration or not. Gas calibration checks shall be recorded on a sticker on the instrument which shows the date of the last calibration and the initials of the person who performed it.

2.11.7 Keep your instrument clean! Clean the face of the oxygen sensor with a soft, damp, clean cloth after each use. But under no circumstances clean the combustible gas sensor. In addition, the gas detector shall be function tested each day with calibration gas by the instrument technician.

2.11.8 If batteries will not recharge, check the condition of the battery charger cord and male plug.

FIRE WATCH

3.1 A properly trained fire watch will be assigned with a fire extinguisher during any cutting or welding operation where a hot work permit is required in the following situations.

- When combustible/flammable materials are within 35 feet.
- When working on or within 35 feet of hydrogen system/lines.
- Whenever working on or within 35 feet of natural gas lines.
- Whenever working on or within 35 feet of sulfuric acid or chlorine system/lines.
- Whenever welding or torch cutting (unless in shop)
- Anytime the permit issuer thinks it is necessary.

3.2 The fire watch shall be dedicated to the Hot Work job in order to view the vicinity of the Hot Work and shall act to prevent and control an inadvertent fire. A fire watch may not be assigned to more than one hot work job at a time. A person may not be performing other duties while being a fire watch.

3.2.1 Fire watches must be stationed on the opposite side of walls where heat may be conducted, or each floor level for Hot Work where floor openings cannot be covered and the potential for fire exists at lower levels.

3.2.2 Fire watches must have operable fire extinguishing equipment at the Hot Work site, and must be trained in the use of such equipment.

3.2.3 Fire watches must have a rapid means of sounding alarms and calling for assistance in the event of uncontrollable fires (e.g. audible alarms, radio communication, other workers within shouting distance, etc.)

3.2.4 Where welding or cutting must be done in the vicinity of combustible material, fire watches shall be maintained for at least one-half hour after completion of cutting or welding operations to detect and extinguish latent fires, then the area must be checked every hour for 4 hours, by the area owner.

3.2.5 The permit issuer will ensure that combustibles within 35 feet (such as cartons, bagged chemicals, etc.) are removed or covered with fire resistant material or properly disposed.

3.2.6 Fire watchers must be present during all hot work and at least observe area, if no combustibles are around for up to 1 hour.

3.2.7 If at any time during the job the combustible gas indicates greater than 0% LEL, the job will be stopped and the Hot Work Permit is voided.

3.2.8 If at any time during the job the oxygen reading drops below 20.5% or goes above 21.5%, the job will be stopped and the Hot Work Permit is voided.

PERMIT ISSUE AND HANDLING

4.1 The area owner will be responsible for completing all items on the Hot Work Permit. This person is also responsible to ensure that each item is checked off as carried out. The supervisor issuing the permit is responsible for checking out the entire job and signing the hot work permit along with the Maintenance supervisor or designee. The permit also needs to be signed by the fire watch and persons performing work.

4.2 Any supervisor can void the permit should it be found that any permit condition is not being met or they consider current job practice(s) to be unsafe.

4.3 The hard copy of all Hot Work Permits shall be posted at the job site. Other copies shall be retained in the control room (if applicable).

4.4 Hot Work Permits expire at the end of the work period listed on the permit. A new permit is necessary at the beginning of each new work period.

4.5 If an unsafe condition occurs in the immediate or surrounding area of work; (e.g. accidental spillage of flammable liquids, site emergency, etc.) the "Hot Work" must be stopped immediately and not restarted until the unsafe condition is corrected and a new permit has been issued.

AFTER THE WORK IS DONE

5.1 The area owner shall inspect the site and equipment worked on to satisfy that it can be safely put back into service and that employees have removed all waste generated by their work . All used fire extinguishers shall be turned into the warehouse. Extinguishers assigned to a specific location shall be exchanged for a new one at the warehouse and replaced in the proper location. Only then will he accept the work as completed.

5.2 The area owner shall sign the bottom of the permit as cancelled.

5.3 Both copies of the completed permit will be forwarded to the Safety Department.

TRAINING

6.1 All plant employees who enter process areas must be aware of the Hot Work permit Procedure and will be trained to this awareness level.

6.2 Employees who may perform or supervise hot work will be trained to complete a Hot Work Permit.

6.3 Supervisors and their designees, who approve Hot Work Permits, will be trained in the procedure, permit, and other significant aspects of hot work activities.

6.4 Refresher training will be performed annually.

End of this procedure

PURPOSE:
This procedure outlines general information on methods of air testing for Hydrogen Sulfide (H2S).

SCOPE: This procedure is to be followed by terminal employees when working in area with possible Hydrogen Sulfide exposure.

RESPONSIBILITY: The respective Operations Manager & Maintenance Manager shall ensure that this procedure is followed by qualified terminal personnel working in areas where exposure to Hydrogen Sulfide is possible and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task. This procedure is to be reviewed on an annual basis.

The below listings are the specific items required to successfully accomplish this task.

FIXED AREA H2S MONITORS

1.1 Fixed area monitors are usually located in transfer areas of high H2S where hydrogen sulfide releases are most likely to occur.

1.2 Fixed monitors may also be installed in air intakes for buildings located downwind from possible H2S release points.

1.3 The function of air intake H2S monitors includes shut-off of air intakes on air conditioning units when predetermined concentrations are detected. Typically 10 ppm is selected.

1.4 Visual and/or audible alarms may be located in the area where detectors are located and/or in a remote location such as the control room.

1.5 When determining where to place fixed detectors the follow factors can be considered:
- Probable H2S emission points nearest employee breathing zones.
- Natural ventilation or lack thereof
- Operational history.
- H2S reported incidents
- Amount of H2S in the process
- Phase of H2S rich product in the liquid)
- Temperature of H2S rich product in process
- Routine work duties of employees assigned to the area
- Potential for generating downwind exposures
- Intakes that could introduce H2S into occupied buildings.

1.6 Fixed alarms are typically configured to provide remote read outs and alarms on consoles and/or in the control room. Area alarms may also be provided.

FIXED AREA H2S MONITOR CALIBRATION

2.1 Fixed detector sensors require calibration at least quarterly (more often if recommended by manufacturer). Monthly calibration is frequently required.

2.2 The function of the panel alarm in remote locations (i.e., control room) should be checked when the fixed monitor sensors are calibrated.

2.3 Records of calibration should be maintained per facility requirements. Typical information recorded for calibration checks include the following:
- Person performing calibration check
- Date

- Unit/Location
- Sensor I.D.
- Sensor Reading (ppm)
- Calibration Gas (ppm)
- Description of Adjustments to System or Panel/Comments
- Notification of Abnormal conditions (made to whom and date)

2.4 Calibration gas should contain a known concentration of H2S high enough to activate the H2S instrument's alarm (25 to 50 ppm are typical calibration gas concentrations).

2.5 Failure of a sensor or zero drift of a sensor can occur and cause false alarms.

CAUTION: You need to safely verify that there* has *been no "release event" before sirens are silenced manually.

CALIBRATION AND BUMP TESTING

3.1 All instruments should be calibrated according to manufacturer instructions.

3.2 Instrument manufacturers will typically provide an appropriate calibration kit for their instruments, these kits may include docking stations and should be used whenever possible.

3.3 Calibration gas should be purchased specifying National Bureau of Standards (NBS) traceable standards.

3.4 Calibration gases should not be "field mixed". The concentration of the calibration gas used should conform to the manufacturer's recommendations.

3.5 Manufacturers typically indicate a recommended calibration frequency. This recommendation is often considered a minimum acceptable frequency. Facility experience with detector calibration may indicate that more frequent calibration is needed for accurate concentration measurements.

3.6 Bump tests can be done to calibration-capable instruments prior to instrument use and between specific and documented calibration intervals.

3.7 A bump test simply exposed the instrument to a calibration gas and serves as a "go" or "no go" test. It indicates that the instrument is working properly. However, bump tests do not eliminate the need for regular, documented and more thorough calibrations for instruments that can be calibrated.

3.8 Some personal H2S monitors can only be subjected to bump testing, resulting in a pass or fail test result. Personal monitors that fail bump testing must be replaced immediately unless repair and re-calibration is possible.

3.9 Documentation of each calibration in a calibration log is important and should include the following:

- Calibration date/time
- Person performing calibration
- Calibration gas used
- Instrument serial number
- Readings prior to calibration
- Readings following calibration

3.10 Individuals who perform calibrations should be trained and qualified.

3.11 Retention time for training records and retention time for calibration records should be specified in a written program.

PERSONAL H2S MONITORS

Use Locations

4.1 Personal H2S monitors with alarms are used in transfer areas or other locations such as tank farms where over-exposure to H2S might occur without benefit of an early warning alarm from continuous area monitor.

4.2 Facilities that handle H2S-containing streams and provide H2S alarms should develop a list of areas where personal H2S monitors are to be worn.

4.3 Personal H2S gas detectors must be worn in the breathing zone (an area approximately one (1) square foot around the nose and mouth).

4.4 Suggested locations for placement of the detector include:

- Shirt collar or pocket (sensor should be OUTSIDE the pocket)
- Upper half of the shirt
- In cold weather, and when donning chemical protective clothing, the detector must be placed on the outermost layer of clothing.
- If worn on a hard hat, the hard hat cannot be removed in an area where H2S exposure above 10 ppm might occur.
- Personal gas monitors should not be worn on the belt which is out of the breathing zone, or covered inside a coat or inside a pocket.
- Personal H2S detectors should be worn so that it is likely to be seen and /or heard if the device alarms.

Instrument Specifications

5.1 Personal electronic gas detectors (for H2S) should be equipped with audible and visual signals to alert the user when the alarm set points have been exceeded. Detectors with vibrating alerts are also available, and are recommended.

5.2 Personal H2S monitors should be set to alarm at 10 ppm. High alarm set points are typically set at 15 or 20 ppm.

5.3 Personal gas detectors SHOULD NOT be used as a gas testing device for permitting or for area monitoring.

5.4 Examples of brand names of personal H2S monitors include Industrial Scientific Corporation (ISC) and BW Technologies.

ALARM RESPONSE

6.1 All employees in the area where the H2S is detected should evacuate immediately.

6.2 Employees should immediately leave the area if a personal H2S monitor goes into alarm.

6.3 Evacuate crosswind, then upwind in a manner that will not entail closer approach to the source.

6.4 H2S may overcome quickly--DO NOT remain to investigate, try to stop the leak or to perform rescue.

6.5 Notify the appropriate operation personnel of the release.

6.6 Entry into the release area should only be attempted by properly trained emergency response personnel wearing a Self-Contained Breathing Apparatus (SCBA), and then only if back-up personnel with proper protective equipment are standing by.

6.7 Two SCBA wearing emergency responders may be required for entry into a release zone or hot zone at some facilities.

PERSONAL H2S MONITOR CALIBRATION

7.1 Manufacturer recommendations on calibration and/or bump testing should be followed. Requirement for additional daily bump testing can be added to facility procedures. For some instruments, calibration and/or bump testing can be done using docking stations made specifically for the instrument used.

7.2 Calibration or bump testing should be done using a designated calibration station or equipment that does not allow personal exposure to a concentration of H2S high enough to cause the monitor to alarm.

7.3 Monitors that do not pass calibration or bump testing, or that reach their end of service life must be immediately replaced with a functioning monitor.

PERSONAL H2S MONITORS DURING TURNAROUNDS (MAJOR PREVENTATIVE MAINTENANCE WORK)

8.1 Personal H2S monitor needs can vary during turnarounds in areas where personal monitors are normally required. Before a turnaround in an area where monitors are required, management should consider factors such as the following :

8.1.1 If the area is drained, cleaned and hydrocarbon and H2S free in preparation for turnaround, personal H2S monitors may not need to be required in the turnaround area. This would clearly apply if the entire Facility is shut down and/or if there is no potential for H2S release from adjacent equipment.

8.1.2 If the area is hydrocarbon and H2S free, but an adjacent unit might release H2S that could enter the turnaround area, at least four options, or a combination of these options, can be considered as alternatives:

- Require a personal H2S monitor for each turnaround operator, maintenance employee, and contractor employee in the area.
- Require at least one member of each contractor crew to wear a personal H2S monitor.
- Set up perimeter H2S monitors (using semi-portable instruments like rig Rats or Crowcons) between the area under turnaround and areas where H2S might be released. Provide an "alarm watch" person to continuously watch the H2S monitors and sound an evacuation signal if a perimeter H2S monitor alarms. Perimeter monitors could also continuously test for flammable vapors or other airborne hazardous material if appropriate (such as SO2).
- Fixed monitors in adjacent units may provide an early warning system for personnel working in an area undergoing turnaround. Some method of communicating the alarm to personnel in the turnaround area would have to be provided. Local alarms for the fixed monitors, or area operators, might be able to provide the evacuation signal if an H2S release occurred.

MULTI-GAS METERS

9.1 Multi-gas meters are used to test atmospheres before writing permits for work such as hot work or confined space entry.

9.2 Multi-gas meters may be used to monitor atmospheres during work if there is a possibility that atmospheric condition may change during the work.

9.3 Multi-gas meters should be calibrated at least as often as the manufacturer recommends. Monthly calibration is typically required as a minimum calibration frequency.

9.4 Daily bump testing or bump testing the device before each use can be required.

9.5 In addition to the regularly scheduled calibration or bump test, detectors should be calibrated if they fail the bump test, are dropped, get wet, or if subjected to extreme high exposure episodes to ensure the circuits are intact and the sensor has not been poisoned.

9.6 Multi-gas alarms for H2S should activate at no higher than 10 ppm.

POTENTIAL PRECAUTIONS FOR SAMPLING H2S STREAMS

10.1 Personal protective equipment may be needed for sampling H2S or monitoring atmospheric concentrations of H2S.

10.2 When performing routine operational tasks involving equipment potentially containing H2S, workers should avoid venting to atmosphere at grade, draining to the slab, and/or draining to the open sewer whenever feasible.

10.3 Appropriate safety precautions should be followed for any maintenance work where H2S exposure above 10 ppm can reasonably be expected.

10.4 The facility should ensure that personnel working in an H2S area have adequate indicators of wind direction. Windsocks, streamers, flags or other wind indicators shall be maintained in good working order.

10.5 Personnel shall have a pre-plan of escape based upon current wind direction. The preferred evacuation route is normally crosswind, then upwind in a manner that will not entail closer approach to the source.

PERSONAL PROTECTIVE EQUIPMENT FOR H2S MONITORING

11.1 Air purifying respirators are not used for protection from hydrogen sulfide.

CAUTION: H2S is considered to have poor warning properties because the odor may go unrecognized and unnoticed in high concentrations.

12.1 Only supplied air, positive pressure, respiratory protection should be used to enter atmospheres that may have H2S over 10 ppm. Either an SCBA or an airline respirator with separate egress emergency escape air bottle it typically allowed.

12.2 Entering atmospheres with potentially hazardous concentrations of H2S above 10 ppm requires supplied air respiratory protection.

12.3 When monitoring for airborne H2S while looking for sources of leaks, supplied air respiratory protection may be appropriate, even if the general area atmosphere does not have airborne concentrations above 10 ppm.

12.4 Egress emergency escape air bottles for airline respirators usually are rated 5 minutes, but may not last that long during actual use. Respirator wearers need to be aware that the egress bottles should remain closed unless needed to escape.

DEFINITIONS

13.1 The following definitions are applicable to this procedure:

Breathing Zone-- Area within one (1) foot radius of the mouth and nose.

Bump Test-- Exposing a personal H2S monitor to a known concentration of H2S above the alarm point to make sure it is working properly. This must be performed in a controlled fashion using a small quantity of calibration gas.

Calibration-- Introduction of a known concentration of H2S and adjustment of the instrument as needed for proper response and accurate reading.

Fixed H2S Detector-- A fixed device, normally located in an operating, pumping, or storage area, which detects high levels of H2S and displays a visual and audible warning.

H2S Hydrogen Sulfide-- A natural component of crude oil. A colorless and HIGHLY TOXIC gas that is also extremely soluble in water and liquid hydrocarbons. In the right concentration, H2S can be explosive, flammable, or corrosive, and is dangerously reactive with other chemicals. H2S can be detected in low concentrations by its characteristic, "rotten egg" odor, but because it temporarily deadens the sense of smell, its odor is not an adequate means of detecting it presence.

H2S Exposure Limits-- 10 ppm for 8-hour exposure and 15 ppm for 15-minute exposures should be used at facilities that handle H2S-containing streams. Federal OSHA currently has a 15-minute short term exposure limits of 20 parts per million (ppm). Federal OSHA also has an allowable 10-minute peak exposure limit of 50 ppm that can be used only if no other measurable H2S exposure occurs during the full shift. The ACGIH currently has established 10 ppm as an 8-hour average exposure limit and 15 ppm as a 15- minute short term exposure limit. Several States have adopted an 8-hour TWA of 10 ppm and a 15- minute STEL of 15 ppm as exposure levels.

H2S Stream-- For the purpose of this document, a hydrogen sulfide stream is defined as any gas, vapor or liquid that can release 10 ppm or more of H2S into the breathing zone or into an area that may become the breathing zone of employees.

IDLH (Immediately Dangerous to Life and Health)-- The lowest atmospheric concentration of any toxic, corrosive or asphyxiating substance that poses an immediate threat to life or would cause irreversible adverse health effects or would impair an individual's ability to escape from a dangerous atmosphere, the IDLH concentration for H2S is set at 100 ppm by NIOSH.

Odor of H2S-- The odor of hydrogen sulfide is described as a rotten egg odor. The lack of an H2S odor is not a reliable indicator of the absence of H2S. The odor threshold is low at around 0.02 ppm or (20ppb). But high H2S concentrations can cause an inability to detect odors so rapidly that the odor may not be noticed at all.

One problem with the "it's okay as long as you can smell it" attitude is that when the odor disappears, the cause may be either the absence of H2S or a concentration increase to a dangerously high level.

Personal H2S Monitor/Alarm (PA)-- Gas detectors for personal use, small enough to be clipped onto exterior clothing. Personal alarms alert personnel to presence of the toxic gas they were designed to detect in the local atmosphere. They provide continuous, direct reading gas detection with visual and audible alarms, and they are designed to be worn when working in locations where toxic gases may be released.

End of Procedure

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PURPOSE: This procedure outlines and defines the basic necessary steps essential for the promotion of proper machine operation for its intended use.

SCOPE: This procedure covers the safety aspects of operating the Genie Z-45/25 Aerial Lift.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when operating Genie Z-45/25 Aerial Lift and those personnel are adequately trained and qualified and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat (ANSI Z89.1 Certified)	Hearing Protection (Optional)	Miscellaneous Safety Equipment	
	Vancouver Energy Approved Uniform (FRCs)	Fall Protection		
	Safety Toed Boots - 6" laced above ankle with a defined heel (ASNI Z41.1 Certified)			
	Side Shield Safety Glasses (ANSI Z87.1 Certified)			
	Vancouver Energy Approved Gloves			
	Vancouver Energy Safety Vest			

OPERATING REQUIREMENTS

1.1 Only trained and authorized operators shall be permitted to operate the aerial lift.

1.2 Operators must avoid hazardous situations. Employees using aerial lifts shall be instructed on how to recognize and avoid unsafe conditions and hazards

1.3 Operators must perform a pre-operation inspection for each shift using the aerial lift.

1.4 Operators must perform function tests prior to use for each shift using the aerial lift.

1.5 Operators must inspect the workplace each shift.

1.6 Operators must only use the machine as it was intended. This machine is intended to be used only to lift personnel, their tools and materials to an aerial work site.

1.7 Operators must understand and obey all instructions, safety rules and governmental regulations associated with use of the aerial lift.

1.8 Any damaged or missing safety signs must be replaced.

1.9 Operator safety must be kept in mind at all times.

1.10 Safety signs should be kept clean, use only mild soap and water to clean these signs. Using a solvent based cleaner may damage the safety sign material.

1.11 A malfunctioning lift shall be shut down until repaired.

1.12 The controls shall be plainly marked as to their function.

1.13 The controls shall be tested each shift prior to use to determine that they are in safe operating condition.

1.14 All personnel in the platform shall, at all times, wear approved fall protection devices and other safety gear as required. A lanyard is to be attached to the anchor provided in the platform.

1.15 Load limits specified by the manufacturer shall not be exceeded.

1.16 Instruction and warning placards must be legible

1.17 Aerial lifts shall not be used near electric power lines unless the lines have been de-energized or adequate clearance is maintained. (See OSHA 29 CFR 1910.67 and 1926.453)

1.18 Ground controls shall not be operated unless permission has been obtained from personnel in the platform, *except in case of an emergency.*

1.19 Regular inspection of the job site and aerial lift shall be performed by competent persons.

1.20 Personnel shall always stand on the floor of the platform, not on boxes, planks, railing or other devices, for a work position.

NOTE: Your operating manual is your most important tool, keep it with the machine. Remember any equipment is only as safe as the operator.

WARNING: Modification or alteration of an aerial platform shall be made only with prior written permission of the manufacturer.

TIP-OVER HAZARDS

2.1 Occupants, equipment and materials shall not exceed the maximum platform capacity listed below.

Maximum platform capacity	500 lbs.	227 kg
Maximum Occupants		2

2.2 The weight of options and accessories, such as pipe cradles, panel cradles and welders, will reduce the rated platform capacity and must be factored into the total platform load.

2.3 The Operator must not raise or extend the boom unless the machine is on a firm and level surface.

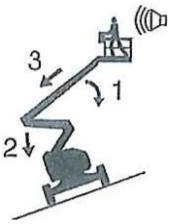
2.4 The Operator must not depend on the tilt alarm as a level indicator. The tilt alarm will sound in the platform only when the machine is on a severe slope.

2.5 If the tilt alarm sounds while the boom is lowered the Operator must not extend, rotate or raise the boom above horizontal.

2.6 If the tilt alarm sounds while the boom is lowered the Operator should move the machine to a firm, level surface prior to raising the platform.

2.7 If the tilt alarm sound when the platform is raised the Operator must use extreme caution.

Tilt Alarm Sounds with the Platform Uphill

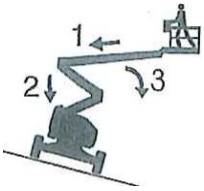


2.7.1 The Operator will lower the primary boom.

2.7.2 The Operator will lower the secondary boom.

2.7.3 The Operator will retract the primary boom.

Tilt Alarm sounds with the Platform Downhill



2.8 The Operator will retract the primary boom.

2.8.1 The Operator will lower the secondary boom.

2.8.2 The Operator will lower the primary boom.

2.9 The Operator must not raise the boom when wind speeds exceed 28 mph/ 12.5 m/s. If wind speed exceed 28 mph when the boom is raised the Operator must lower the boom and not continue to operate the machine.

2.10 The Operator must not operate the machine in strong or gusty winds.

2.11 The Operator must not increase the surface area of the platform or load. Increasing the area exposed to the wind will decrease the machine stability.

2.12 The Operator must use extreme care and slow speeds while driving the machine in the stowed position across uneven terrain, debris, unstable or slippery surfaces and near holes and drop-offs.

2.13 The Operator must not drive the machine on or near uneven terrain, unstable surfaces or other hazardous conditions with the boom raised or extended.

2.14 The Operator must not use the machine as a crane.

WARNING: Failure to comply with the safety precautions listed in this procedure and on the machine could result in machine damage, personnel injury or death and is a safety violation.

MINIMUM SAFE APPROACH DISTANCES (M.S.A.D.) TO ENERGIZED (exposed or insulated) POWER LINES AND PARTS.	
Voltage Range (Phase to Phase)	**Minimum Safe Approach Distance in Feet (Meters)**
0 to 50V	10 (3)
Over 50V to 200KV	15 (4.6)
Over 200Kv to 350Kv	20 (6.1)
Over 350Kv to 500Kv	25 (7.6)
Over 500Kv to 750Kv	35 (10.6)
Over 750Kv to 1OOOKv	45 (13.7)

DANGER: DO NOT maneuver the machine or personnel inside the PROHIBITED ZONE. ASSUME all electrical parts and wiring are ENERGIZED unless known otherwise.

3.1 Operator must maintain safe clearance from electrical lines and apparatus.

3.2 Operator must allow for boom sway, rock or sag and electrical line swaying.

WARNING: The machine does NOT provide protection from contact with or proximity to an electrically charged conductor.

3.3 Operator must maintain a clearance of at least 10 feet (3 Meters) between any part of the machine or its load and any electrical line or apparatus carrying up to 50,000 volts. One foot of additional clearance is required for every additional 30,000 volts or less.

3.4 Operator must allow for platform movement, electrical line sway or sag and beware of strong or gusty winds.

3.5 Keep away from the machine if it contacts energized power lines.

3.6 Personnel on the ground or in the platform must not touch or operate the machine until energized power lines are shut off.

3.7 Never use the machine as a ground for welding.

3.8 Never operate the machine during lightening or storms.

PRE-OPERATIONAL SAFETY PRECAUTIONS

4.1 Operators should read the manual and understand what he/she has read prior to beginning operations.

4.2 Only authorized and qualified personnel are allowed to operate the aerial lift. These persons must be able to demonstrate that they understand safe and proper operation and maintenance of the unit.

4.3 An operator must not accept operating responsibilities until adequate training has been given by competent and authorized persons.

4.4 Prior to operation, the Operator should check the work area for overhead electric lines, machine traffic such as bridge cranes, highway, and railway and construction equipment.

4.5 Never disable or modify the footswitch or any other safety device.

WARNING: Any unauthorized modification of the machine is a safety violation and a violation of OSHA regulations and ANSI standards.

WORK AREA SAFETY

5.1 Do not push the machine or other objects with the boom.

5.2 Do not contact adjacent structures with the boom.

5.3 Do not tie the boom or platform to adjacent structures.

5.4 Do not place loads outside the platform perimeter.

5.5 Do not push off or pull toward any object outside of the platform.

NOTE: The maximum allowable side force-ANSI & CSA is 150 lbs/667 N.

5.6 Do not alter or disable machine components that in any way affect safety and stability.

5.7 Do not replace items critical to machine stability with items of different weight or specification.

5.8 Do not replace factory-installed tires with tires of different specification or ply rating.

5.9 Do not use air-filled tires as these machines are equipped with foam-filled tires. Wheel weight and proper counterweight configuration are critical to stability. Operator must ensure tires are in good condition and lug nuts are properly tightened prior to use.

5.10 Do not modify or alter an aerial work platform without prior written permission from the manufacturer.

5.11 Do not place or attach overhanging loads to any part of this machine.

5.12 Do not place ladders or scaffolds in the platform or against any part of the machine.

5.13 Tools and materials must not be transported unless they are evenly distributed and can be safely handled by the person(s) in the platform.

5.14 The machine should not be used on a moving or mobile surface or vehicle.

5.15 The platform controls must not be used to free a platform that is caught, snagged or otherwise prevented from normal motion by an adjacent structure.

5.16 Prior to attempting to free the platform using the ground controls all personnel must be removed from the platform.

FALL HAZARDS

6.1 All occupants must wear a safety belt or harness, lanyards are to be attached to the anchor provided in the platform.

6.2 Occupants must not sit, stand or climb on the platform guard rails.

6.3 Occupants must maintain a firm footing on the platform floor at all times.

6.4 Never climb down from the platform when raised.

6.5 The platform floor must be kept clear of debris.

6.6 Before operating the platform entry must be lowered mid-rail or the entry gate closed.

6.7 The platform must not be entered or exited unless the machine is in the stowed position and the platform is at ground level.

COLLISION HAZARDS

7.1 Operator must be aware of limited sight distance and blind spots when driving or operating the machine.

7.2 The Operator must be aware of the boom position and tail swing when rotating the turntable.

7.3 The Operator must check the work area for overhead obstructions or other possible hazards.

7.4 The Operator needs to be aware of crushing hazards when grasping the platform guard rail.

7.5 Operators must observe and use the color-coded direction arrows on the platform controls and drive chassis for drive and steer functions.

7.6 The boom must not be operated in the path of any crane unless the controls of the crane have been locked out and/or precautions have been taken to prevent any potential collision.

7.7 Stunt driving or horseplay while operating a machine is prohibited.

7.8 The boom must not be lowered unless the area below is clear of both personnel and obstructions.

7.9 Travel speed should be limited according to the condition of the ground surface, congestion, slope, location of ground personnel and any other factors which may cause a collision.

BODILY INJURY HAZARD

8.1 The machine must not be operated with a hydraulic oil or air leak.

8.2 The machine should be operated in a well-ventilated area to avoid carbon monoxide poisoning.

8.3 Any improper contact with components under any cover will cause serious injury. Only trained maintenance personnel should access compartments. Access by the Operator is only advised when performing a pre-operation inspection.

8.4 During operation all compartments must remain closed and secured.

EXPLOSION AND FIRE HAZARDS

9.1 If you smell or detect liquid petroleum gas (LPG), gasoline, diesel fuel or other explosive substances do not start the engine.

9.2 The machine is not to be refueled with the engine running.

9.3 The machine is to be refueled and the battery charged only in an open, well ventilated area away from flames, sparks or lighted tobacco.

9.4 The machine is not to be operated in hazardous locations or locations where potentially flammable or explosive gases or particles may be present.

9.5 In engines with glow plugs do not spray ether into the engine.

DAMAGED MACHINE HAZARDS

10.1 Never use a damaged or malfunctioning machine.

10.2 Each operator must conduct a thorough pre-operation inspection of the machine and test all functions prior to his/her work shift.

10.3 Any damaged or malfunctioning machine must be immediately tagged and removed from service

10.4 All maintenance must be performed in accordance with this procedure and the Genie service manual.

10.5 The Operator must ensure all decals are in place and are legible.

10.6 The Operator must ensure the operator's, safety and responsibilities manuals are complete, legible and properly stored in the storage container located on the platform.

COMPONENT DAMAGE HAZARDS

11.1 Do not use any battery or charger that is greater than 12V to jump start the engine.

11.2 The machine is never to be used as a ground for welding.

BATTERY SAFETY

12.1 Batteries contain acid therefore the Operator should always wear protective clothing and eyewear when working with batteries.

12.2 Avoid spilling or contacting battery acid. To neutralize battery acid spills use baking soda and water.

12.3 Keep sparks, flames and lighted tobacco away from batteries as batteries emit explosive gas.

12.4 Avoid contact with electrical terminals.

PRE-OPERATION INSPECTION

13.1 It is the responsibility of the Operator to perform a pre-operation inspection and routine maintenance. A pre-operation inspection is a visual inspection done by each operator prior to his/her shift. (See Pre- Operation Inspection Sheet)

13.2 If during the inspection any damage or unauthorized variation from factory delivered condition is discovered the machine must be tagged and removed from service.

13.3 Repairs made to the machine are to be made only by a qualified service technician.

13.4 After repairs are completed, the Operator must perform a pre-operational inspection again prior to performing function tests.

13.5 Scheduled maintenance inspection shall be performed by qualified service technicians.

***FUNCTION* TEST**

14.1 Function tests are designed to discover any malfunctions before the machine is put into service.

14.2 Never use a malfunctioning machine. If malfunctions are discovered the machine must be tagged and removed from service.

14.3 Repairs made to the machine are to be made only by a qualified service technician.

14.4 After repairs are completed, the Operator must perform a pre-operational inspection again prior to performing function tests.

INSPECTIONS AT THE GROUND CONTROLS

15.1 The Operator selects a test area that is firm, level and free of obstructions.

15.2 The Operator turns the key switch to ground control.

15.3 The Operator pulls out the red Emergency Stop button to the ON position. The beacon, if equipped, should flash.

15.4 The Operator starts the engine.

Test the Emergency Stop

15.5 The Operator pushes in the red Emergency Stop button to the OFF position. The engine will shut off after 2-3 seconds.

15.6 The Operator pulls out the red Emergency Stop button to the ON position and restarts the engine.

Test the Machine Functions

15.7 Do not hold the function enable switch to either side. The Operator attempts to activate each boom and platform function toggle switch. At this point all boom and functions should not operate.

15.8 The Operator holds the function enable switch to either side and activates each boom and platform function toggle switch. All boom and platform functions should operate through a full cycle. The descent alarm should sound while the boom is lowering.

Test the Tilt Sensor

15.9 The Operator turns the key switch to the platform control.

15.10 The Operator pulls out the platform red Emergency Stop button to the ON position.

15.11 The Operator opens the engine side turntable cover and locates the tilt sensor to the right of the hydraulic pump.

15.12 The Operator presses down one side of the tilt sensor. The alarm, located in the platform, should sound.

Test the Auxiliary Controls

15.13 The Operator turns the key switch to ground control and shuts off the engine.

15.14 The Operator pulls out the red Emergency Stop button to the ON position.

15.15 The Operator simultaneously holds the auxiliary power switch ON and activates each boom function toggle switch. All boom functions should operate.

NOTE: To conserve battery power, test each function through a partial cycle.

AT THE PLATFORM CONTROLS

Test the Emergency Stop

15.16 The Operator turns the key switch to platform control and restarts the engine.

15.17 The Operator pushes in the platform red Emergency Stop button to the OFF position. The engine will shut off after 2-3 seconds.

15.18 The Operator pulls out the red Emergency Stop button and restarts the engine.

Test the Horn

15.19 The Operator pushes the horn button. The horn should sound.

Test the Foot Switch

15.20 The Operator pushes in the platform red Emergency Stop button to the OFF position.

15.21 The Operator pulls out the red Emergency Stop button to the ON position but does not start the engine.

15.22 The Operator presses down the foot switch and attempts to start the engine by moving the start toggle switch to either side. The engine should not start.

15.23 Do not press down the foot switch and restart the engine. The engine should start.

15.24 Do not press down on the foot switch and test each machine function. The machine functions should not operate.

Test the Machine Functions

15.25 The Operator presses down the foot switch.

15.26 The Operator activates each machine function control handle or toggle switch. All boom/platform functions should operate through a full cycle.

Test the Steering

15.27 The Operator presses down the foot switch.

15.28 The Operator presses the thumb rocker switch on top of the drive control handle in the direction

indicated by the blue triangle on the control panel OR slowly moves the control handle in the direction indicated by the blue triangle. The steer wheel should turn in the direction that the blue triangles point on the drive chassis.

15.29 The Operator presses the thumb rocker switch on top of the drive control handle in the direction indicated by the yellow triangle on the control panel OR slowly moves the control handle in the direction indicated by the yellow triangle. The steer wheel should turn in the direction that the yellow triangles point on the drive chassis.

Test Drive and Braking

15.30 The Operator presses down the foot switch.

15.31 The Operator slowly moves the drive control handle in the direction indicated by the blue arrow on the control panel until the machine begins to move, then returns the handle to the center position. The machine should move in the direction that the blue arrow points on the drive chassis and then come to an abrupt stop.

15.32 The Operator slowly moves the drive control handle in the direction indicated by the yellow arrow on the control panel until the machine begins to move, then returns the handle to the center position. The machine should move in the direction that the yellow arrow points on the drive chassis and then come to an abrupt stop.

NOTE: The brakes must be able to hold the machine on any slope it is able to climb. Test the Drive Enable System

15.33 The Operator presses down the foot switch and lowers the boom to the stowed position.

15.34 The Operator rotates the turntable until the primary boom moves past one of the non-steer wheels. The drive enable indicator light should come on and remain on while the boom is anywhere in the range shown below.

15.35 The Operator moves the drive control handle off center. The drive function should not operate.

15.36 The Operator moves and holds the drive enable toggle switch to either side and slowly moves the drive control handle off center. The drive function should operate.

NOTE: When the drive enable system is in use, the machine may drive in the opposite direction that the drive and steer control handle is moved. Use the co/or-coded direction arrows on the platform controls and the drive chassis to identify the direction of travel.

Test Limited Drive Speed

15.37 The Operator pressed down the foot switch.

15.38 The Operator raises the primary boom approximately 2 feet (61 cm).

15.39 The Operator slowly moves the drive control handle to the full drive position. The maximum achievable drive speed with the primary boom raised should not exceed 1 foot per second.

15.40 The Operator lowers the primary boom to the stowed position.

15.41 The Operator raises the secondary boom approximately 2 feet.

15.42 The Operator slowly moves the drive control handle to the full drive position. The maximum achievable drive speed with the secondary boom raised should not exceed 1 foot per second.

15.43 The Operator lowers the secondary boom to the stowed position.

15.44 The Operator extends the primary boom approximately 1 foot.

15.45 The Operator slowly moves the drive control handle to the full drive position. The maximum achievable drive speed with the primary boom raised should not exceed 1 foot per second.

15.46 The Operator retracts the boom to the stowed position.

NOTE: If the drive speed with the primary boom raised, the secondary boom raised or the primary boom extended exceeds 1foot per seconds you must immediately tag and remove the machine from service.

Test the Oscillate Axle (oscillating axle-equipped models)

15.47 The Operator starts the engine from the platform controls.

15.48 The Operator drives the right steer tire up onto a 6 inch block or curb. The three remaining tires should stay in firm contact with the ground.

15.49 The Operator drives the left steer tire up onto a 6 inch block or curb. The three remaining tires should stay in firm contact with the ground.

15.50 The Operator drives both steer tires up onto a 6 inch block or curb. The non-steer tires should stay in firm contact with the ground.

Test Auxiliary Controls

15.51 The Operator shuts the engine OFF.

15.52 The Operator pulls out the red Emergency Stop button to the ON position.

15.53 The Operator presses down the foot switch.

15.54 The Operator simultaneously holds the auxiliary power switch ON and activates each function control handle or toggle switch. All boom and steer functions should operate. Drive functions should not operate with auxiliary power.

NOTE: To conserve battery power, test each function through a partial cycle. Test the Lift/Drive Select Function (if equipped)

15.55 The Operator presses down the foot switch.

15.56 The Operator moves the drive control handle off center and activates a boom function toggle switch. No boom function should operate. The machine will move in the direction indicated on the control panel.

15.57 Repair any malfunctions before operating the machine.

WORKPLACE INSPECTION

NO TIE: The workplace inspection helps the Operator determine if the workplace is suitable for safe machine operation. It should be performed by the Operator prior to moving the machine to the workplace.

NOTE: It is the responsibility of the Operator to read and remember the workplace hazards, then to watch for and avoid them while moving, setting up and operating the machine.

15.58 The Operator should be aware of and avoid the following hazardous situations:

- drop-offs or holes
- bumps, floor obstructions or debris
- sloped surfaces
- unstable or slippery surfaces
- overhead obstructions and high voltage conductors
- hazardous locations
- inadequate surface support to withstand all load forces imposed by the machine
- wind and weather conditions
- the presence of unauthorized personnel
- other possible unsafe conditions

OPERATING INSTRUCTIONS

NO TIE: Only trained and authorized personnel should be allowed to operate the machine. If more than one operator is expected to operate a machine at different times in the* same *work shift, they must all be qualified operators and are all expected to follow all safety rules and instructions in the operator's safety and responsibilities manual.

NOTE: Every new operator should perform a pre-operation inspection, function tests and workplace inspection prior to using the machine.

STARTING THE ENGINE

16.1 At the ground controls the Operator turns the key switch to the desired position.

16.2 The Operator ensures both the ground and platform control red Emergency Stop buttons are pulled out to the ON position.

16.3 On gasoline or LPG models, the Operator chooses the fuel by moving the fuel select switch to the desired position. On diesel models, the Operator moves the glow plug to either side and holds for 3-5 seconds.

16.4 On gasoline/LPG models the Operator moves the engine start toggle switch to either side. If the engine fails to start or dies, the restart delay will disable the start switch for 3 seconds. On diesel models, the Operator moves the engine start toggle switch to either side. If the engine fails to start or dies the restart delay will disable the start switch for 3 seconds.

16.5 If the engine fails to start after 15 seconds of cranking, the Operator needs to determine the cause and repair any malfunction. The Operator must wait 60 seconds before trying to start the machine again.

16.6 In cold conditions, 20°F/-6°C and below, the Operator needs to warm the engine for 5 minutes before operating to prevent hydraulic system damage.

16.7 In extreme cold conditions, 0°F/ -18°C and below, machines should be equipped with an optional cold start kit. Attempting to start the engine when temperatures are below 0°F may require the use of a booster battery.

NOTE: Gasoline/LPG models: In cold conditions, 20°F/ -6°C and below the machine should be started on gasoline and warmed for 2 minutes then switched to LPG. Warm engines can be started on LPG.

EMERGENCY STOP

17.1 The Operator pushes in either ground or platform red Emergency Stop button to the OFF position to stop all functions and turns OFF the engine.

17.2 The Operator repairs any function that operates when the red Emergency Stop button is pushed in.

NOTE: Selecting and operating the ground controls will override the platform red Emergency Stop button.

AUXILIARY CONTROLS

NOTE: Use auxiliary power if the primary power source (engine) fails.

18.1 The Operator turns the key switch to ground or platform control.

18.2 The Operator pulls out the red Emergency Stop button to the ON position.

18.3 The Operator presses down the foot switch when operating the auxiliary controls from the platform.

18.4 The Operator simultaneously holds the auxiliary power switch ON and activates the desired function.

NOTE: The drive and steer functions will not operate with auxiliary power.

OPERATION FROM GROUND

19.1 The Operator turns the key switch to ground control.

19.2 The Operator pulls out the red Emergency Stop button to the ON position.

19.3 The Operator starts the engine.

To Position Platform

20.1 The Operator holds the function enable switch to either side.

20.2 The Operator moves the appropriate toggle switch according to the markings on the control panel.

NOTE: Drive and steer functions are not available from the ground controls.

OPERATION FROM PLATFORM

21.1 The Operator turns the key switch to platform control.

21.2 The Operator pulls out both ground and platform red Emergency Stop buttons to the ON position.

NOTE: On gasoline/LPG models: The Operator chooses the fuel by moving the fuel select switch to the desired position.

21.2 The Operator starts the engine. Do not press down the foot switch when starting the engine.

To Platform Position

22.1 The Operator presses down the foot switch.

22.2 The Operator slowly *moves* the appropriate function control handle or toggle switch according to the markings on the control panel.

To Steer

23.1 The Operator presses down the foot switch.

23.2 The Operator slowly moves the control handle in the direction indicated by the blue or yellow triangles OR presses the thumb rocker switch located on the top of the drive control handle.

23.3 The Operator will use the color-coded direction triangles on the platform controls and the drive chassis to identify the direction the wheels will turn.

To Drive

24.1 The Operator presses down the foot switch.

24.2 To increase speed, the Operator slowly moves the drive control handle off center.

24.3 To decrease speed, the Operator slowly moves the drive control handle toward center.

24.4 To stop, the Operator returns the drive control handle to center or releases the foot switch.

24.5 The Operator will use the color-coded direction arrows on the platform controls and the drive chassis to identify the direction the machine will travel.

CAUTION: Machine travel speed is restricted when the booms are raised.

DRIVING ON A SLOPE

CAUTION: Do not drive the machine on a slope that exceeds the maximum uphill, downhill or side slope rating of the machine. Slope rating applies only to machines in the stowed position.

Maximum Slope Rating, stowed position, 2WD	
Platform downhill	30% (17°)
Platform uphill	25% (14°)
Side slope	25% (14°)

Maximum Slope Rating, stowed position, 4WD	
Platform downhill	45% (24°)
Platform uphill	25% (14°)
Side slope	25% (14°)

NOTE: Slope rating is subject to ground conditions and adequate traction.

25.1 The Operator determines the uphill, downhill and side slope ratings for the machine and determines the slope grade.

NOTE: Slope rating is subject to ground conditions and adequate traction. The term gradeability applies to the platform downhill configuration only.

25.2 The Operator ensures the boom is below horizontal and the platform is between the non-steer wheels.

25.3 The Operator moves the drive speed select switch to machine on incline symbol.

To Determine the Slope Grade

NOTE: To determine the slope grade the Operator will measure the slope with a digital inclinometer OR use the following procedure

Procedure

26.1 The Operator obtains the following items:
- carpenter's level
- straight piece of wood, at least 3 feet long
- tape measure

26.2 The Operator lays the piece of wood on the slope.

26.3 At the downhill end, the Operator lays the level on the top edge of the piece of wood and lifts the end until the piece of wood is level.

26.4 While holding the piece of wood level, the Operator measures the vertical distance from the bottom of the piece of wood to the ground.

26.5 The Operator divides the tape measure distance (rise) by the length of the piece of wood (run) and then multiplies by 100.

NOTE: If the slope exceeds the maximum uphill, downhill or side slope rating, then the machine must be winched or transported up or down the slope.

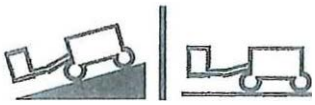
Drive Enable

27.1 The light on indicates that the boom has moved just past either non-steer wheel and the drive function has been interrupted.

27.2 To drive, the Operator holds the drive enable switch to either side and slowly moves the drive control handle off center.

27.3 The Operator needs to be aware that the machine may move in the opposite direction that the drive and steer controls are moved. Always use the color-coded direction arrows on the platform controls and the drive chassis to identify the direction the machine will travel.

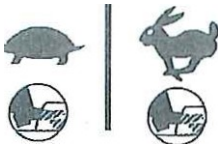
Drive Speed Select



28.1 Machine on incline symbol: Low range operation for inclines

28.2 Machine on level surface symbol: High range operation for maximum drive speed

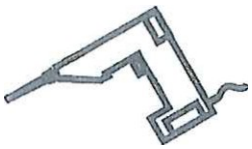
Engine Idle Select (rpm)



29.1 When the foot switch is not pressed, the engine will idle at the lowest rpm.

29.1.1 The Turtle symbol: foot switch activated low idle.

29.1.2 The Rabbit symbol: foot switch activated high idle.



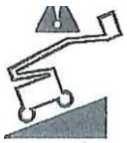
30.1 To start the generator, the Operator moves the generator toggle switch to the ON position.

30.2 The Operator plugs a power tool into the power to platform GFCI outlet.

30.3 The turn off the generator, the Operator moves the generator toggle switch to the OFF position.

NOTE: Machine functions will not operate while the generator is running and the foot switch is not pressed down. When the foot switch is pressed down, the generator will turn off and the machine functions will operate.

Machine Not Level Indicator (if equipped)



31.1 Light on indicates the machine is not level. The tilt alarm will be sounding when this light is on. The Operator will move the machine to a firm level surface.

Check Engine Light (if equipped)

32.1 Light on and engine stopped: The Operator tags the machine and removes it from service.

32.2 Light on and engine still running: The Operator contacts service personnel within 24 hours.

LOCKOUT AFTER EACH USE

33.1 The Operator selects a safe parking location. The location is to be a firm level surface, clear of obstruction and traffic.

33.2 The Operator retracts and lowers the boom to the stored position.

33.3 The Operator rotates the turntable so that the boom is between the non-steer wheels.

33.4 The Operator turns the key switch to the OFF position and removes the key to secure from unauthorized use.

33.5 The Operator chocks the wheels.

TRANSPORT AND LIFTING INSTRUCTIONS

34.1 Drivers are solely responsible for making sure machines are properly secured and the correct trailer is selected pursuant to US Department of Transportation regulations.

34.2 Only qualified aerial lift operators should move the machine on or off the truck.

34.3 The transport vehicle must be parked on a level surface.

34.4 The transport vehicle must be secured to prevent rolling while the machine is being loaded.

34.5 Be sure the vehicle capacity, loading surfaces and chains or straps are sufficient to withstand the machine weight. Genie lifts are very heavy relative to their size. See the serial label for the machine weight.

34.6 Be sure the turntable is secured with the turntable rotation lock before transporting.

34.7 Be sure to unlock the turntable for operation.

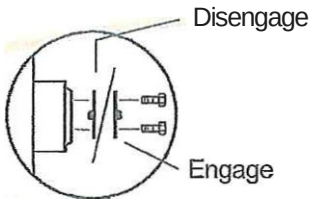
34.8 Do not drive the machine on a slope that exceeds the uphill, downhill or side slope rating.

34.9 If the slope of the transport vehicle bed exceeds the uphill or downhill maximum slope rating the machine must be loaded and unloaded using a winch.

FREE-WHEEL CONFIGURATION FOR WINCHING

35.1 The Operator chocks the wheels to prevent the machine from rolling.

35.2 The Operator releases the non-steer wheel brakes by turning over the drive hub disconnect caps.



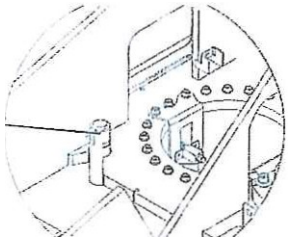
35.3 The Operator ensures that the winch line is properly secured to the drive chassis tie points and the path is clear of all obstructions.

35.4 The Operator will reverse the procedures to re-engage the brakes.

NOTE: Towing the Genie z-45/25 is not recommended. If the machine must be towed, do not exceed 2 mph.

SECURING TO TRUCK OR TRAILER FOR TRANSIT

36.1 Always use the turntable rotation lock pin each time the machine is transported.



36.2 The Operator turns the key switch to the OFF position and removes the key before transporting.

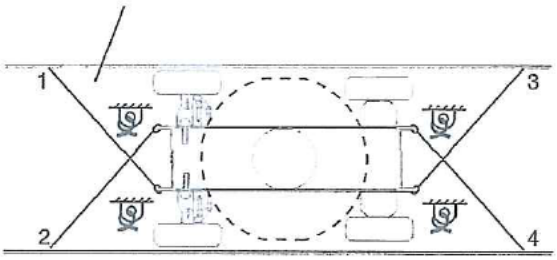
36.3 The Operator inspects the entire machine for loose or unsecured items.

Securing the Chassis

36.4 Ensure to use chains of ample load capacity.

36.5 Ensure to use a minimum of 4 chains.

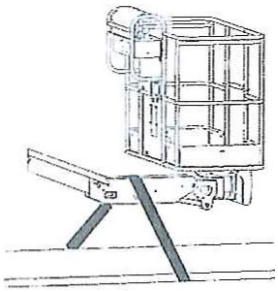
36.6 Adjust the rigging to prevent damage to the chains.



Securing the Platform

36.7 The Operator ensures the platform is in the stowed position.

36.8 The Operator secures the platform with a nylon strap placed over the platform mount near the platform rotator (see below).



36.9 Do not use excessive downward force when securing the boom section.

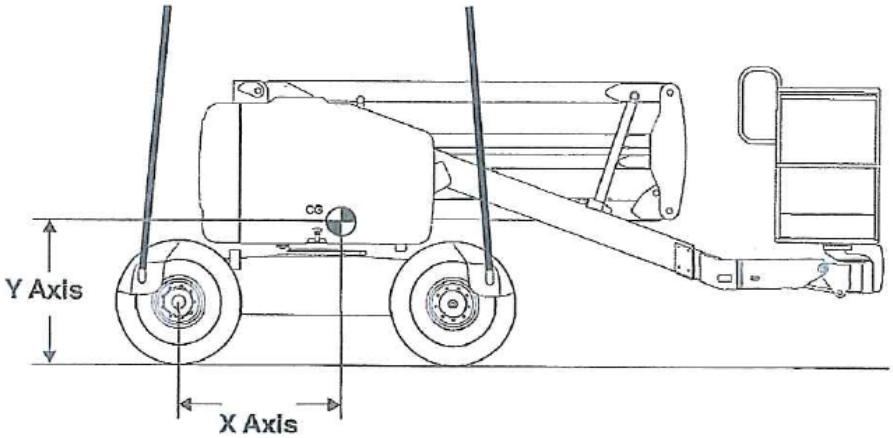
LIFTING INSTRUCTIONS

37.1 The Operator fully lowers and retracts the boom.

37.2 The Operator fully lowers the jib (if equipped).

37.3 The Operator removes all loose items on the machine.

37.4 The Operator determines the center of gravity of your machine using the table and picture below.

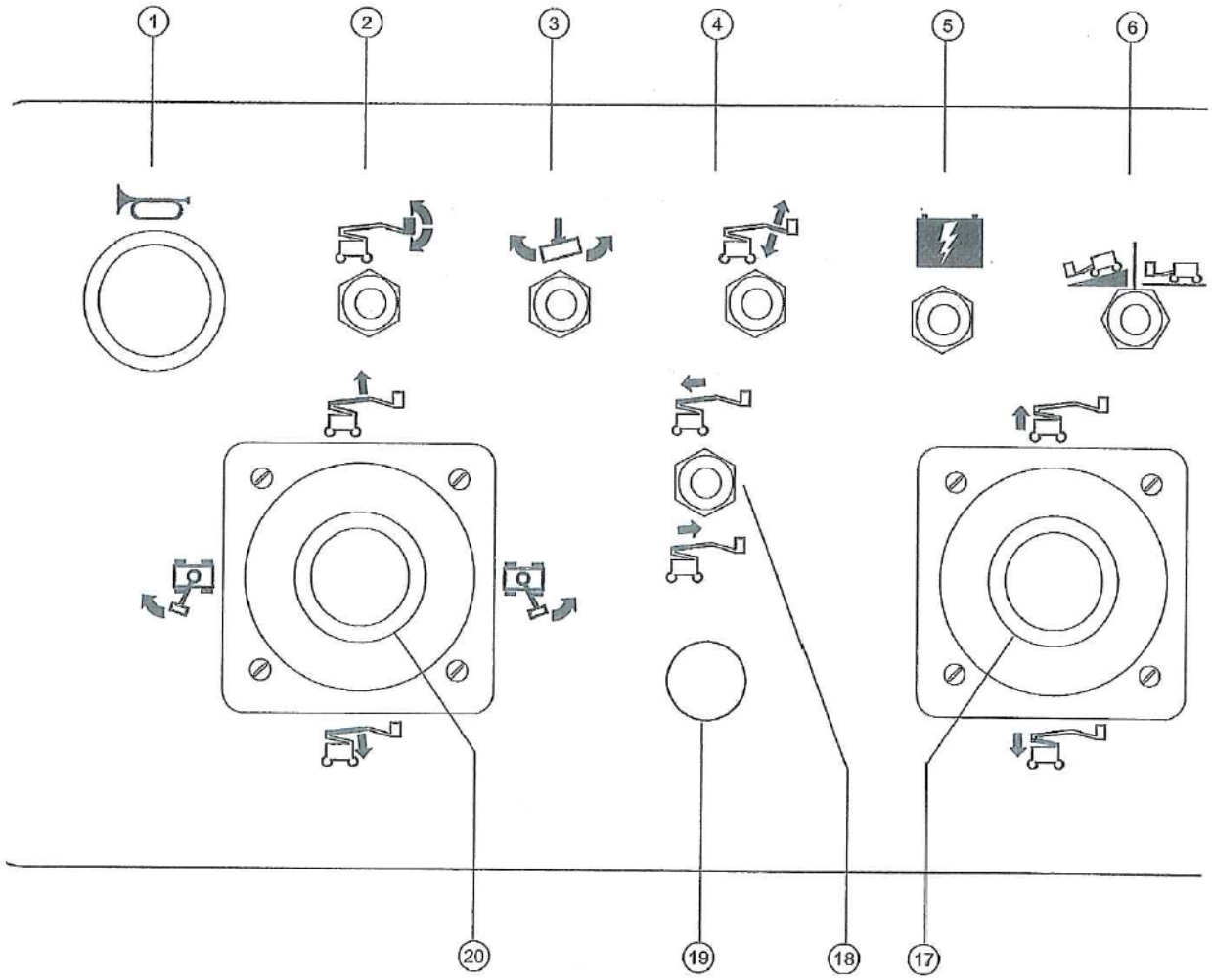


	X Axis	*Y Axis*
Z-45/25	47 inches/ 1.19 m	42 inches/ 1.06 m

37.5 The Operator attaches the rigging only to the designated lifting points on the machine. There are 4 lifting points on the chassis.

37.6 The Operator adjusts the rigging to prevent damage to the machine and to keep the machine level.

38.0 CONTROLS



38.1 Platform Control Panel

Horn Button (1)-- Push the horn button and the horn will sound. Release the horn button and the horn will stop.

Platform Level Switch (2)-- Move the platform level switch up and the level of the platform will raise. Move the platform level switch down and the level of the platform will lower.

Platform Rotate Switch (3)-- Move the platform rotate switch to the right and the platform will rotate to the right.
Move the platform rotate switch to the left and the platform will rotate to the left.

Jib boom up/down Switch (4)-- Move the jib boom switch up and the jib boom will raise. Move the jib boom switch down and the jib boom will lower.

Auxiliary Power Switch (5)-- Use auxiliary power if the primary power source (engine) fails.
Simultaneously hold the auxiliary power switch to either side and activate the desired function.

Drive Speed Select Switch (6)-- Machine on incline symbol: Low range operation for inclines.
Machine on level surface symbol: High range operation for maximum drive speed.

Glow Plug Switch (7)-- Move the glow plug switch to either side and hold for 3-5 seconds.

Engine Start Switch (8)-- Move the engine start switch to either side to start the engine.

Engine Idle (rpm) Select Switch (9)-- Move the engine idle select switch to the turtle position for foot switch activated low idle.
Move the engine idle select switch to the rabbit position for foot switch activated high idle.

Gasoline/LPG models: Fuel Select Switch (10)-- Move the fuel select switch to the gasoline position to select gasoline.
Move the fuel select switch to the LPG position to select LPG.

Red Emergency Stop Button (11)-- Push in red Emergency Stop button to the OFF position to stop all functions and turn the engine off.
Pull out the red Emergency Stop button to the ON position to operate the machine.

Dual axis proportional control handle for drive and steer functions OR Proportional control handle for drive function and thumb rocker for steer function (12)-- Move the control handle in the direction indicated by the blue arrow on the control panel and the machine will drive forward.
Move the control handle in the direction indicated by the yellow arrow and the machine will drive backwards.
Move the control handle in the direction indicated by the blue triangle and the machine will steer to the left.
Move the control handle in the direction indicated by the yellow triangle and the machine will steer to the right.

OR

Move the control handle in the direction indicated by the blue arrow on the control panel and the machine will drive forward.
Move the control handle in the direction indicated by the yellow arrow on the control panel and the machine will drive backwards.
Press the left side of the thumb rocker and the machine will steer to the left. Press the right side of the thumb rocker and the machine will steer to the right.

Not Used (13)

Machine not level indicator light (if equipped) (14)-- The machine not level indicator light will come on when the tilt alarm sounds.

Drive enable indicator light (15)-- Light on indicated that the boom has moved just past either non-steer wheel and drive function has been interrupted.

Drive Enable Switch (16)-- To drive when the drive enable light is on, hold the drive enable switch to either side and slowly move the drive control handle off center. Be aware that the machine may move in the opposite direction that the drive and steer controls are moved.

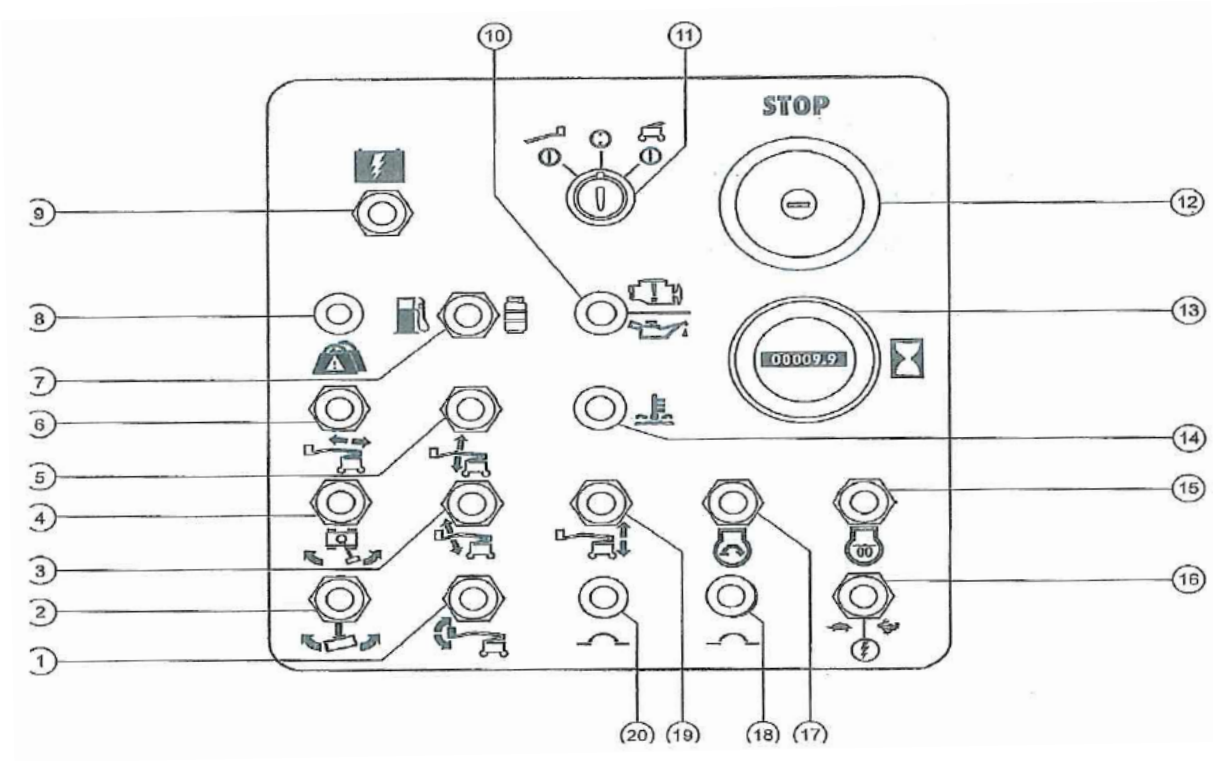
Proportional control handle for secondary boom up/down function (17)-- Move the control handle up and the secondary boom will raise. Move the control handle down and the secondary boom will lower.

Primary boom extend/retract switch (18)-- Move the primary boom switch up and the primary boom will retract. Move the primary boom switch down and the primary boom will extend.

Used for Optional Equipment (19)

Dual axis and proportional control handle for primary boom up/down and turntable rotate left/right functions (20)--
Move the control handle up and the primary boom will raise.
Move the control handle down and the primary boom will lower.
Move the control handle to the right and the turntable will rotate to the right.
Move the control handle to the left and the turntable will rotate to the left.

38.2 Ground Control Panel



Platform level switch (1)-- Move the platform level switch up and the level of the platform will raise. Move the platform level switch down and the level of the platform will lower.

***Platform rotate switch* (2)--** Move the platform rotate switch to the right and the platform will rotate to the right.
Move the platform rotate switch to the left and the platform will rotate to the left.

Jib boom up/down switch (3)-- Move the jib boom switch up and the jib boom will raise.
Move the jib boom switch down and the jib boom will lower.

Turntable rotate switch (4)-- Move the turntable rotate switch to the right and the turntable will rotate to the right.
Move the turntable rotate switch to the left and the turntable will rotate to the left.

Primary boom up/down switch (5)-- Move the primary boom up/down switch up and the boom will raise.
Move the primary boom up/down switch down and the boom will lower.

Primary boom extend/retract switch (6)-- Move the primary boom extend/retract switch to the right and the boom will retract.
Move the primary boom extend/retract switch to the left and the boom will extend.

Gasoline/LPG models: Fuel select switch (7)-- Move the fuel select switch to the gasoline position to select gasoline.
Move the fuel select switch to the LPG position to select LPG.

Not Used (8)-

Auxiliary power switch (9)-- Use auxiliary power if the primary power source (engine) fails.
Simultaneously hold the auxiliary power switch to either side and activate the desired function.

Gasoline/LPG models: Check engine light or Diesel models: Oil pressure light (10)-- Light on and engine stopped: Tag the machine and remove from service
Light on and engine running: Contact service personnel within 24 hours

Key switch for platform/off/ground selection (11)-- Turn the key switch to the platform position and the platform controls will operate.
Turn the key switch to the OFF position and the machine will be off.
Turn the key switch to the ground position and the ground controls will operate.

Red Emergency Stop button (12)-- Push in the red Emergency Stop button to the OFF position to stop all functions and turn the engine off.
Pull out the red Emergency Stop button to the ON position to operate the machine.

Hour meter (13)-- The hour meter displays the number of hours the machine has operated.

Diesel models: Water temperature light (14)-- Light on and engine stopped: Tag the machine and remove from service.
Light on and engine running: Contact service personnel within 24 hours

Diesel models: Glow plug switch (if equipped) (15)-- Move the glow plug switch to either side and hold for 3-5 seconds.

Function enable switch (16)-- Move the function enable switch to either side to enable the functions on the ground control panel to operate.

Engine start switch (17)-- Move the engine start switch to either side to start the engine.

15A breaker for engine electrical circuits (18)

Secondary boom up/down switch (19)-- Move the secondary boom up/down switch up and the secondary boom will raise.
Move the secondary boom up/down switch down and the secondary boom will lower.

15A breaker for control electrical circuits (20) MAINTENANCE

NOTE: Only routine maintenance items specified in this manual shall be performed by the operator.

NOTE: Scheduled maintenance inspections shall be completed by qualified service technicians.

NOTE: Use only Genie approved replacement parts.

CHECK ENGINE OIL LEVEL

NOTE: Maintaining the proper engine oil level is essential to good engine performance and service life. Operating the machine with an improper oil level can damage engine components.

NOTE: Check the oil level with the engine off.

39.1 The Operator removes the safety pin from the engine pivot plate latch.

NOTE: The engine pivot plate latch is located under the engine turntable pivot plate at the counterweight end of the machine.

39.2 The Operator opens the engine pivot plate latch and swings the engine pivot plate out and away from the machine.

39.3 The Operator checks the oil dipstick. Add oil as needed.

39.4 The Operator installs the engine pivot plate safety pin.

Perkins 404C-22 Engineer	
Oil type	15W-40
Oil type-cold conditions	SW-40
Ford DSG-423 EFI Engine (EPA Compliant)	
Oil type	SW-20
Deutz F3L 2011 Engine	
Oil type	15W-40
Oil type-cold conditions	SW-30

CHECK THE HYDRAULIC OIL LEVEL

NOTE: Maintaining the hydraulic oil at the proper level is essential to machine operation. Improper hydraulic oil levels can damage hydraulic components. Daily checks allow the inspector to identify changes in oil level that might indicate the presence of hydraulic system problems.

40.1 The Operator ensures that the boom is in the stowed position.

40.2 The Operator visually inspects the sight gauge located on the side of the hydraulic oil tank. Level should be within the top 2 inches/5 cm of the sight gauge.

NOTE: Use Chevron Rykon Premium MV equivalent hydraulic oil.

CHECK THE ENGINE COOLANT LEVEL (FORD AND PERKINS MODELS)

NOTE: Maintaining the engine coolant at the proper level is essential to engine service life. Improper coolant level will affect the engine's cooling capability and damage engine components. Daily checks will allow the inspector to identify changes in the coolant level that might indicate cooling system problems.

WARNING: Burn Hazard. Beware of hot engine parts and coolant. Contact with hot engine parts and/or coolant may cause severe burns.

41.1 The Operator checks the fluid level in the coolant recovery tank. The fluid level should be at the FULL mark.

41.2 The Operator will add fluid as needed.

NOTE: Do not remove the radiator cap.

CHECK THE BATTERIES

NOTE: Proper battery condition is essential to good engine performance and operational safety. Improper fluid levels or damaged cables and connections can result in engine component damage and hazardous conditions.

WARNING: ELECTROCUTION HAZARD! Contact with hot or live circuits may result in death or serious injury. Remove all rings, watches and other jewelry.

WARNING: BODILY INJURY HAZARD/ Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

42.1 The Operator ensures he/she dons protective clothing and eyewear.

42.2 The Operator ensures that the battery cable connections are tight and free of corrosion.

42.3 The Operator ensures that the battery hold-down bracket is secure.

42.4 The Operator removes the battery vent caps.

42.5 The Operator checks the battery acid level. If needed, replenish with distilled water to the bottom of the battery fill tube. Do no overfill.

42.6 The Operator installs the vent caps.

NOTE: Adding terminal protectors and a corrosion preventative sealant will help eliminate corrosion on the battery terminals and cables.

CHECK THE TIRE PRESSURE

WARNING: TIP-OVER HAZARD/ An over-inflated tire can explode which may compromise machine stability and cause the machine to tip over.

WARNING: TIP-OVER HAZARD/ The use of temporary flat tire repair products may lead to tire failure which could compromise machine stability and cause the machine to tip over.

WARNING: BODILY INJURY HAZARD! An over inflated tire can explode and may cause death or serious injury.

NOTE: This procedure does not need to be performed on machines equipped with foam-filled tires.

43.1 The Operator checks each tire with an air pressure gauge and adds air as needed.

TIRE SPECIFICATIONS	***2WD MODELS***	***4WD MODELS***
Standard base models Industrial tire Tire size: 9-14.5 LT	100 psi/ 6.9 bar	
Standard base models Rough Terrain Tire Tire size: 355/55D625 14 ply	50 psi/ 3.5 bar	50 psi/ 3.5 bar
High Flotation Tires Tire size: 33/16LL500	38 psi/ 2.6 bar	38 psi/ 2.6 bar

SCHEDULED MAINTENANCE

44.1 Maintenance performed quarterly, annually and every two (2) years must be completed by a person trained and qualified to perform maintenance on this machine according to the service manual for this machine.

44.2 Machines that have been out of service for more than three (3) months must receive the quarterly inspection before they are put back in service.

End of this procedure

	PRE-OPERATION INSPECTION				
ITEM	***SHIFT***	***N/A***	***PASS***	***FAIL***	***COMMENTS***
Operator's safety and responsibilities manuals are complete, legible and in the storage container located in the platform.					
All decals are legible and in place.					
Engine Oil					
Any leaks present					
Oil at proper level					
Oil added					
Hydraulic Oil					
Any leaks present					
Oil at proper level					
Oil added					
Engine Coolant					
Any leaks present					
Coolant at proper level					
Coolant added					
Battery Fluid					
Any leaks present					
Proper fluid level					
Fluid Added					
Tires					
In good condition					
Air pressure (if equipped with air filled tires)					
Check the following components or areas for damage, improperly installed or missing parts and unauthorized modifications					
Electrical components, wiring and electrical cables					
Hydraulic hoses, fittings, cylinders and manifolds					
Fuel and hydraulic tanks					
Drive and turntable motors and drive hubs					
Boom wear pads					
Tires and wheels					
Engine and related components					
Limit switches and horn					
Alarms and beacons (if equipped)					
Nuts, bolts and other fasteners					
Platform entry mid-rail or gate					
Check entire machine for the following					
Cracks in welds or structural components					
Dents or damage to machine					
Excessive rust, corrosion or oxidation					
Ensure that all structural and other critical components are present and all associated fasteners and pins are in place and properly tightened					
After inspection is complete ensure that all compartment covers are in place and latched.					

Date ***Terminal***

Signature

PURPOSE: This procedure outlines and defines the basic necessary steps needed to safely inspect Trains and perform an Air Brake Test.

SCOPE: This procedure is to be followed by terminal employees when inspecting trains and performing air brake tests in accordance with FRA regulations.

RESPONSIBILITY: The respective Quality Supervisor and Logistics Director shall ensure that this procedure is followed by terminal personnel when performing train inspections and air brake tests and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task. This procedure is to be reviewed on an annual basis.

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment PPE	Hard Hat		Miscellaneous Safety Equipment	
	Vancouver Energy Approved Uniform (FRCs)			
	Safety Toed Boots - 6" laced above ankle with a defined heel (ASNI Z41.1 Certified)			
	Side Shield Safety Glasses (ANSI Z77.1 Certified)			
	Leather Gloves			

NOTE: All Employees helping with any part of this procedure must don all PPE (Personal Protection Equipment)

Tools & Transfer Equipment			Environmental Equipment	

SAFETY INSPECTIONS OF FREIGHT CARS

1.1 The Employee will inspect and test the brake equipment on locomotives and cars in accordance with FRA regulations.

1.2 The Employee will perform a safety inspection on all cars at the initial terminal or that are added enroute.

1.3 Inspections and air brake tests may be performed by either a "Qualified Person" (Trainman who has been given fundamental training on freight car inspections and air brake tests. In this procedure all trainmen are "Qualified Persons") or a "Qualified Mechanical Inspector" (A person who has received more extensive training that provides for a more detailed inspection. Inspections and air brake tests by Qualified Mechanical Inspectors provide for a greater distance that a train may travel before additional inspections are required.)

1.4 The Employee must inspect equipment on both sides during an inspection and air brake test to verify that all moving parts of the brake system is functioning properly on each car.

NOTE: Roll-by inspections may only be used to determine that all brakes have released and may not be used to perform all other inspection requirements for either side of the train.
COUPLING AND SECURING HOSES

2.1 Before coupling air hoses between locomotives and/or cars the Employee must shake out the debris out of the hoses.

2.2 The Employee must also blow all condensation from the locomotive brake pipe or yard airline before coupling air hoses between locomotives and /or cars.

2.3 Whenever possible the Employee should secure the air hoses on locomotives and cars during all movements in order to prevent the hoses and glad-hands from dragging and becoming damaged.

OPERATIVE BRAKES

3.1 Unless the brakes fail enroute, air brakes on all cars must be operative unless they are being moved for repairs and properly tagged.

3.2 A Qualified Mechanical Inspector is to provide three (3) tags on cars given to train crews to be moved to repair facilities.

3.3 Cars with defective air brake equipment are to be tagged on each side and the third tag is to be kept on the locomotive.

3.4 Tags will only be required on one (1) side of the car and on the locomotive when no crossover platform is available to crossover between cars or when adjacent tracks are involved which could present a risk of injury.

Exception: Scale test cars are not required to be equipped with air brakes. If however, they are equipped with air brakes the brakes must be operable.

3.5 Cars discovered with brakes that fail enroute have to be tagged on both sides of the car and also noted on the space provided on the train documentation. This must be left in the controlling locomotive cab form holder for the relieving crew.

3.6 The Employee must include the following information on the tags:

- Reporting Mark and Number of the defective locomotive or car (i.e., BNSF 601234)
- Name of the inspecting or discovering Railroad (i.e., SBG Railroad)
- Name and Job Title of the Inspector Inspection Location and Date (i.e., Trenton, ND 07/30/12)
- Type of Defect (i.e. Brake was cut out because it would not release)
- Movement Restrictions (i.e., None)
- Repair Destination (Mechanical Desk will advise on location)
- Employee Signature

3.7 The Train documentation may also reflect such cars by electronic means to subsequent crews after defective brakes are initially discovered and reported.

3.8 At least 85% of the cars in a train must have operative brakes under all circumstances.

3.9 The Engineer must allow his/her train to be inspected when departing terminals, where required.

PERSON IN CHARGE OF AIR BRAKE TEST

4.1 The Employee performing the air brake test is in charge of the train while the test is being conducted.

4.2 It is the responsibility of the Employee in charge to ensure that all other employees are safely positioned prior to giving permission to apply or release the brakes.

4.3 The Engineer at the controls of the locomotive may not apply or release train brakes without receiving permission from the Employee performing the air brake test.

STANDARD BRAKE PIPE PRESSURE

5.1 The regulating valve must be set at 90 psi for freight service or yard.

CHARGING THE AIR BRAKE SYSTEM

6.1 The Employee will need to charge the air brake system to ensure that the system is functioning properly.

6.2 The Employee should not charge the train's air brake system with more than one automatic brake valve cut in unless using distributed power locomotives.

6.3 The Employee should not increase diesel engine RPM to maintain main reservoir pressure unless the pressure fails to stay 10 psi above the regulating valve setting.

6.4 Should the Employee need to increase the diesel engine RPM he/she must not exceed throttle 4 position.

NOTE: Locomotive* consists *with a single locomotive equipped with an electric air compressor (GE C40-8 or C44-9, for example) may only require advancing the throttle to Run 1position in order to increase charging speed. Some EMD locomotives (such* as *SD70MAC) will automatically increase the engine speed as needed to maintain main reservoir pressure.

6.5 In yards where trains are made up unattended locomotives may be used to charge the brake system when the ambient temperature requires additional charging time.

AIR BRAKE TESTS USING AN END-OF- TRAIN TELEMETRY DEVICE (ETD)

7.1 When an air brake test requires determining that the brake pipe pressure is restored or the air brake system is to be charged to a specified pressure at the rear end of the train any of the following may be used:

- An accurate gauge
- an ETD
- A DP locomotive consist

7.2 When an air brake test requires an inspection to determine that the brakes apply and release on the rear car of the train, the requirement is considered to be fulfilled when either an ETD or a distributed power unit attached to the rear of the train indicates the following:

- A brake pipe pressure decrease of at least 5 psi, the brakes are applied
- A brake pipe pressure increase of at least 5 psi, the brake are released.

AIR BRAKE* TESTS *USING HANDHELD GAUGES

8.1 The Employee must verify that the handheld gauges used for performing an air brake test has been determined to be accurate within the last 92 days.

To Check the Accuracy of Handheld Gauges

8.2 Using a locomotive brake pipe gauge the Employee will have the engineer release the automatic brake valve and charge the brake pipe to 90 psi.

8.3 The Employee will attach the handheld gauge to the brake pipe of the controlling locomotive.

8.4 The Employee will compare the pressure indicated by the handheld gauge to the locomotive brake pipe gauge.

8.5 If the pressure indicated by the handheld gauge is within 3 psi of the locomotive brake pipe gauge reading, the handheld gauge may be used to conduct the air brake tests. If the gauge reading is not within 3 psi of the locomotive reading the gauge must not be used to conduct the air brake test and must be turned into the mechanical department for repair or recalibration.

8.6 The Employee must note on a sticker the date of the most recent pressure comparison and apply the sticker to the gauge or on a document in the possession of the user.

INITIAL TERMINAL AND ROAD AIR BRAKE* TEST *(CLASS I AIR BRAKE TEST)

9.1 A Qualified Employee must conduct an initial terminal air brake test to inspect the air brake and safety appliances and to test the brake pipe integrity.

9.2 The Employee will perform the test when any of the following occur:

- Where the train is originally assembles (the initial terminal)
- Where the train consist is changed, other than by adding or removing a car or a solid block of cars, or by removing cars that are determined to be defective
- Where a unit or cycle train has traveled 3,000 miles since it's last Class I Air Brake Test, or where the train is received in interchange and the train consist is changed. However, an inspection and test are not needed if the train consist is changed by any one or a combination of the following:
  - Removing a solid block of cars from the train
  - Changing motive power
  - Removing or changing the caboose, if used

- On a portion of the train as specified below:
  - On one or more cars added that have not been pre-tested by the initial terminal air brake test.
  - On a portion of train that has not been kept charged (off air for over 4 hours)
  - On a solid block of cars being added to the train that is comprised of cars from more than one previous train
  - On each solid block of cars that is comprised of cars from only one previous train but the cars have not remained continuously and consecutively coupled together with the train line remaining connected, other than for removing defective equipment , since being removed from its previous train.

NOTE: Cars are still considered a "solid block" if from only one previous train and divided into smaller segments to accommodate space or trackage constraints as long as placed back in the same relative order as when removed from the previous train.

PROCEDURE FOR INITIAL TERMINAL AND ROAD AIR BRAKE TEST AND INSPECTION

***Note: The Employee will inspect each of the following both before and during the air brake* test.**

10.1 The Employee will inspect the angle cocks and verify that they are properly positioned.

10.2 The Employee will inspect the air hoses to verify that they are in good condition for service and are properly coupled.

10.3 The Employee will inspect the system for leakage. If leakage occurs the Employee will make the necessary repairs to reduce the leakage to a minimum.

10.4 The Employee will inspect the retaining valves and verify that they are in EXHAUST.

AIR BRAKE TEST PROCEDURE

11.1 The Employee charges the air brake system to within 15 pounds of the locomotive regulating valve setting as indicated by a gauge or device at the rear of the train.

11.2 The Employee performs a leakage test as specified in the Brake Pipe Leakage Test.

11.3 The Employee in charge gives the Engineer permission to apply the brakes. The Engineer will then make a 20 pound brake pipe reduction.

11.4 The Employee inspects the entire train or cars added not pre-tested to ensure that the brakes are applied and remain applied on each car until he/she gives the signal to release the brakes.

NOTE: Any car whose brakes release prior to the signal to release the brakes is given may be re-tested once. The brakes must remain applied until a release is initiated for a period of not less than 3 minutes.

11.5 The Employee also verifies that the piston travel meets the requirements listed below:

- As outlined on the stenciling or badge plate or
- On Truck Mounted Brake Cylinders the piston travel must:
  - Provide brake shoe clearance when brakes are released
  - Not exceed 4" where the piston acts directly on the brake beam
- On Body Mounted Brake Cylinders the piston travel must be adjusted to between 6 and 9" at the initial terminal.
- On Body Mounted Brake Cylinders the piston travel must not exceed 10 1/2' at Intermediate Inspection Points

11.6 The Employee needs to make sure 100% of the train brakes are operative before departing.

11.7 The Employee verifies that the brake rigging does not bind or foul.

11.8 The Employee verifies that all parts of the brake equipment are properly secured.

11.9 When the test and inspection of the air brake application is complete the Employee will notify the Engineer and have him/her release the brakes.

11.10 After receiving permission to release the brakes, the Engineer will place the automatic brake valve handle in the RELEASE position.

11.11 The Engineer will notify the Employee in charge of the brake test that the brakes have been released.

11.12 The Employee will inspect each brake to verify that all brakes have released. This inspection may be made as the train departs at a speed not to exceed 10 MPH.

NOTE: An ETD pressure drop and rise of 5 psi during the air brake test may be used to determine application and release of cars within the train that have been previously tested.
ENGINEER NOTIFICATION

12.1 A written record of Class I inspections that are performed at the train's origin and at any 1500 mile Extended Haul inspection location (either at origin or enroute) must be retained on the locomotive to the train's destination.

12.2 Cars that are picked up, inspected and air tested enroute by the train crew do not require written documentation of the Class I inspections.

NOTE: Since which trains are designated as "Extended Haul" trains may not be communicated to train crews assume all car man inspections re for "Extended Haul", unless notified otherwise. Retain all Form 15287 inspection forms provided by a car man to the destination.

12.3 When a written record is required a Qualified person or Qualified Mechanical Inspector who participated in the test and inspection or anyone who knows the test was completed must notify the Engineer in writing that the initial terminal air brake test has been completed satisfactorily including the name, date, time, location and number of cars inspected. Class I inspections and tests may also be communicated to the Engineer so that it may be entered on the space provided on train documentation.

Engineers Responsibilities

12.4 Engineers receiving written notification of the air brake test must accept the notification as authority that the initial terminal air brake test has been completed satisfactorily.

12.5 The Engineer must maintain the written record of all Class I inspections and brake test in the cab of the locomotive in the form holder provided until the train reaches its final destination.

12.6 The written notification of the initial terminal inspection and air brake test may be provided the locomotive engineer by any one of the following methods:

- On Form 15287 at the initial terminal
- By written record on space provided on TRAIN PROFILE. NOTE: Any written record is acceptable if profile is unavailable.
- By electronic means on the space provided on the TRAIN PROFILE.

NOTE: Electronic records of Class I inspections on TRAIN PROFILE are only to be used in the absence of the originals and should a discrepancy occur, the original will be used as the official record. All other brake tests other than Initial Terminal Tests (Class I) do not require any written documentation to be maintained in the train. The number of cars indicated on your Class I test record(s) may not correspond to the number of cars on your train due to pick-ups and set outs enroute.

12.7 In addition to maintaining written documentation on locomotive as outlined above, the conductor must use the Voice Train Reporting (VTR) method to report all Class I inspections performed by the train crew at the train's origin (where the train is initially made up) and at all locations where the train crew performs an Intermediate Brake Test and Inspection (Class IA Brake Test) enroute.

BRAKE PIPE LEAKAGE TEST

13.1 The brake system leakage can be tested by using either the Air Flow Method (AFM) or the Brake Pipe Leakage Method.

13.2 The Air Flow Method is the preferred method when required equipment is available.

13.3 A brake pipe leakage test is required when:

- Conducting an Initial Terminal and Road Air Brake Test
- Conducting an Initial Terminal Air Brake Test From Yard Test Plant

- Conducting an Intermediate Brake Test
- Adding cars to a train that have not been pre-tested
- An Air Turbine ETD is used to replace an existing end-of-train device on a train.

AIR FLOW METHOD

14.1 To qualify a train's air brake system using AFM, the train must be equipped as follows:
- The controlling locomotive has a maintaining-type automatic brake valve
- The train has a gauge or device at the rear of the train
- The locomotive has an air flow indicator with a direct reading of air flow in increments no greater than 10 cubic feet per minute (CFM).

NOTE: Some locomotives without digital displays of air flow have air flow meters with a scale that does not correspond to a specific CFM and may not be used for conducting an air flow method brake pipe leakage test. These are identified by their lack of any reference to CFM on the gauge.

AFM Test Procedure

14.2 The Engineer charges the brake system to within 15 psi of the regulating valve setting as indicated by a gauge or device at the rear of the train.

14.3 When the air flow does not exceed 60 CFM the test is complete. If air flow exceeds 60 CFM the train must be inspected for leakage.

Brake Pipe Leakage Method

15.1 If the train does not meet AFM test conditions the Employee conducts a brake pipe leakage test.

15.2 The Engineer charges the brake system to within 15 psi of the regulating valve setting as indicated by a gauge or device at the rear of the train.

15.3 The Engineer waits for the signal to apply the brakes.

15.4 When the Engineer receives the signal to apply the brakes he/she reduces the brake pipe pressure by 20 psi.

15.5 The Engineer allows the brake pipe exhaust to stop.

15.6 The Engineer will wait 1 minute and cut out the automatic brake valve.

15.7 The Employee waits 1 additional minute to allow the brake pipe pressure to equalize.

15.8 The Employee will time the brake pipe leakage for 1 minute, if the leakage does not exceed 5 psi the test is complete.

15.9 If the leakage exceeds 5 psi the Employee must inspect the train for leakage and re-test.

15.10 When the Engineer is given the signal to release the brakes, he/she moves the automatic brake valve handle to RELEASE position and cuts the automatic brake valve in.

NOTE: Use the Distributed Power Systems automated brake pipe leakage mode when checking leakage on DP trains.

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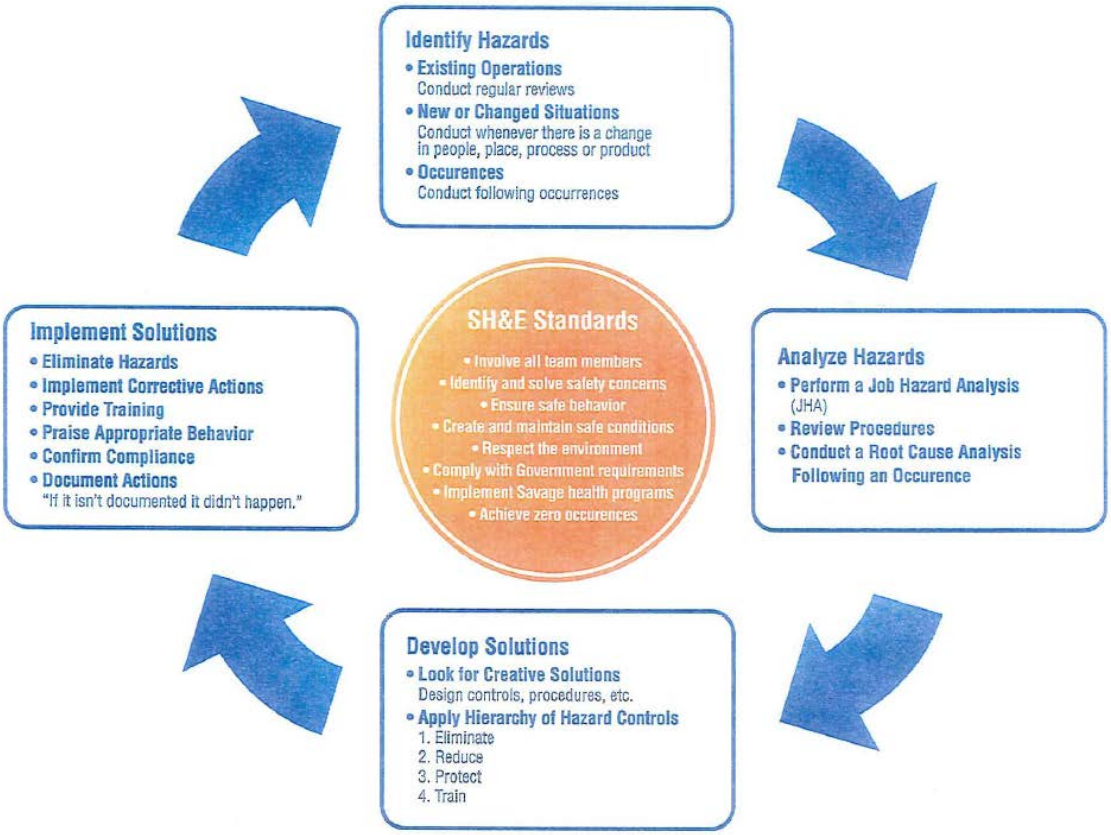
9.0 SHAPS
Savage Hazards Analysis & Prevention System



SHAPS WORKSHEET

Operation: _____

Prepared by: _____

Date: _____

IDENTIFY: What are the hazards?

_____

_____

_____

ANALYZE: Prioritize the list of hazards above and for the top hazards (high frequency, probability, or severity), list key issues or ways you could be injured or damage property. Do you need more detail? If so, a more formal JHA may need to be done.

_____

_____

_____

DEVELOP SOLUTIONS: Come up with as many ideas as you can for creative ways to control the hazards. Keep in mind you first want to eliminate the hazard, then to reduce the hazard, protect against it, and lastly to train to avoid the hazard.

_____

_____

_____

IMPLEMENT SOLUTIONS: For the creative solutions, list the things you will do to ensure they are implemented and effective and any changes are managed.

_____

_____

_____

ACTIONS TAKEN: Document any actions taken to control hazards in the workplace. This includes changes to procedures, JHAs, equipment, training, etc.

_____

_____

_____

_____

SHAPS: Identifying Hazards in New or Changed Situations

SHAPS should be used whenever there is a change in people, place, process, or product. In other words, we should make a conscious effort to *identify hazards* in situations such as:

- New employees, or an employee is helping out from another operation
- Assignment of a process to an employee for the first time, or when an employee is unfamiliar with a particular step in a process
- New piece of equipment, new hose, new fitting, new gasket, new tool, etc.
- New business, new products, additional products shipped from the same shipper, different grades of product
- Change in procedure, or a modification in the process
- A change in assignment or personnel, such as passing off a task from one employee to another to finish a task already in process
- Difficulties, troubleshooting, abnormal railcars or trailers

Any time there is a unique, out of the ordinary, different, or other than normal situation or exception, it is time to STOP, regroup, and discuss the hazards.

Suggested discussion point:

- Discuss some upcoming new or changed situations that we are expecting at our operation. How should we approach this situation with SHAPS?
- Discuss how even repetitive tasks might be hazardous. Is it possible for "repetitive" tasks to be different each time and present us with the choice and opportunity each time to do the task safely or unsafely?

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Week Number:
Effective: 05/21/2012

SAFETY TOPIC OF THE WEEK

With safety there is no room for guesswork.
If you don't know, STOP and REGROUP.

Purpose

To establish a weekly Safety Topic that all Rail Solutions site employees will know and focus on for the week. Designating one Safety Topic per week will give each employee ample opportunity to:

1. Have broad knowledge of specific rules.
2. Increase individual knowledge of the Safety process.

Responsibilities for Safety

The Company shall ensure that the safety and health at work of every person employed by them is protected.

All managers, supervisors and employees of the Company share the responsibility for developing and maintaining a safe and healthy work environment.

This week's Safety Topics of the Week addresses **Alert and Attentiveness**

Technology has come a long way in our lifetime and will only continue to become more affordable and accessible. All this technology can be a huge time saver but can also become a huge distraction. Telephones ;they went from hanging on your wall, to being mounted in your vehicle, to being able to hang on your belt, to slipping them in your pocket, to receiving texts and email messages on them, to being able to watch anything from the Super Bowl to your favorite television program on them. Cell phones, or the new term Smart phones, become very tempting to slip into your pocket while you are out working and check for messages, look at scores, or just call that favorite someone. But not only is that not smart, it is not fair. It is not fair to you, your coworker, your customer, your family, and anyone else who might be exposed to you while you have taken a hiatus from using that gray mass that is tucked inside your hardhat wisely.

When you are doing anything that requires you to focus on the task, any distraction no matter how minor can take your focus away for a split second. As we all have been made aware of too many times that moment of non-focus can create severe and most often unpleasant consequences.

Leave the phone in the office so when you have the oppo1iunity to use it you can give it your undivided attention.

Alert and Attentive

Employees must be careful to prevent injury to themselves and to others. They must be alert and attentive when performing their duties and plan their work to avoid injury.

a. Personal Electronic Devices (cell phone, iPod, computer, etc.) are not permitted on site while performing your job duties. The only permitted use is during your scheduled lunch and breaks.

Please take some time with your teams to discuss this rule and also SHAPS this hazard at your sites and your homes where ale1and attentive operation of equipment and vehicles will become a win-win for yourself and your family.

Please take a few minutes each shift to ask yourself this simple yet powerful question: What specifically have I done, personally, to make sure that my team members go home safely?

Remember the Cardinal Rule

Cardinal Rules for Zero Occurrences

Be Knowledgeable of What Products You Handle

Review Your Operation's MSDS

Savage Services Revised 08/22/11

11.0 Rail Bulletins

Savage Rail Solution Group

SAMPLE:

Safety Director's Bulletin Date: 5/09/12

Rules to focus on during the month of May

1. Week of 5/14 -Handling of Switches/Derails
2. Week of 5/21 -Separation Of Equipment
3. Week of 5/28 -Applying/Releasing Handbrakes

Safety Director:

All SAVAGE Rail Operations Sites
General Order Bulletin

Order Number: 11-01

Effective: January 3, 2011

To: All Savage Rail Operations Employees

Purpose: Instructions for Safe and efficient Railroad Operation

Effective immediately

The following will be an addition to the Savage Rail Operations Manual:

Addition to Rule 7.1 (f)

Protection secured by the locomotive operator upon request.

This protection will, at a minimum, be: Independent brake fully applied

- Apply the Automatic Brake (10 lbs.)
- Center the Reverser Handle and
- Open the Generator Field Switch (Down position)

Steve Johnson

Director of Health and Safety

Savage Industrial Rail Operations

12.0 Ergonomics and Back Safety

What is Ergonomics?

Definition

Ergonomics is the science of adapting products and processes to human characteristics and capabilities in order to improve well-being and optimize productivity.

- Rani Lueder (ed.), The Ergonomics Payoff (Holt, Rinehart & Winston)

Why is ergonomics important?

Ergonomic injuries estimated to cost U.S. industry $20 billion per year.

- Increased worker's compensation costs
- Decreased productivity
- Increased number of lost workdays

What is an ergonomics injury?

- Terms, such as repetitive stress injury (RSI) and cumulative trauma disorder (CTD) refer to soft tissue disorders in the upper limbs and hands.
- OSHA refers to the term MSD or "musculoskeletal disorders"
- MSDs are a group of injuries that affect the nerves, tendons, muscles, and supporting structures of the body
- Examples of MSDs: carpal tunnel (wrists and fingers; keyboarding), trigger finger, and back strains

What causes MSDs?

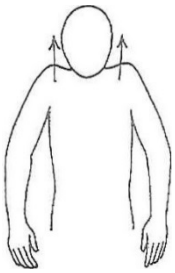
- Repetitive and heavy lifting
- Bending and twisting
- Repeating an action too frequently
- Uncomfortable working position
- Exerting too much force
- Working too long without breaks
- Adverse working environment (e.g., hot, cold)
- Psychosocial (e.g., high job demands, time pressures and lack of control)

Prevention

- Match the work station to the person
- Job/task rotation (use different muscle groups)
- Take breaks (or mini-breaks)
- Avoid unnatural motions such as twisting or lifting above head
- Get help lifting heavy objects
- Exercise! Warm up before strenuous activity

Shoulder and Arm Stretching

Raise your shoulders towards your ears until you feel a slight tension in your neck and shoulders. Hold for 5 to 10 seconds. Slowly release your shoulders downward to their normal position. Repeat 3 to 5 times.



Slowly roll your shoulders backward five times in a circular motion. Slowly roll your shoulders forward five times in a circular motion.

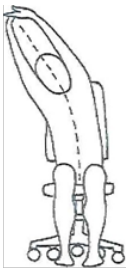
Interlace fingers. Tum palm upwards above your head as you straighten your arms. Stretch and hold for 5 to 10 seconds. Repeat 3 to 5 times.

Fingers interlaced behind your back. Slowly turn your elbow outward while straightening your arms. Hold for 5 to 10 seconds. Repeat 3 to 5 times.

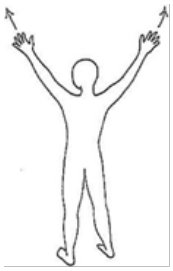
Interlace fingers. With palms facing out, straighten arms out to the front of you. Hold for 5 to 10 seconds. Repeat 3 to 5 times.

Back Stretching

Sit upright. Grasp the left knee. Lift left leg off the floor. Bend forward (curling the back), bringing the nose toward the knee. Repeat 3 to 5 times. Repeat with right leg.



Sit or stand upright. Interlace fingers and lift arms overhead. Keeping the elbows straight, press arms as far back as you can. Slowly bend to the left side until you feel a stretch. Hold for 5 to 10 seconds. Slowly bend to the right side until you feel a stretch. Hold for 5 to 10 seconds. Repeat 3 to 5 times.

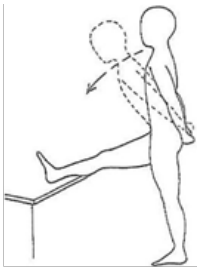


Sit or stand upright. Slowly reach your arms overhead. Reach outward and upward until you feel a stretch. Hold for 5 to10 seconds. Repeat 3 to 5 times.

Sit with left leg across right leg. Rest elbow or forearm of right arm on the outside of the left upper thigh. Gently apply pressure with right elbow or forearm towards the right. As you apply pressure, look over your left shoulder. Hold for 5 to 10 seconds. Repeat 3 to 5 times. Repeat with the other side.

Leg Stretching

Stand upright with right hand supported on a wall or the back of a stationary chair. Grab your left ankle with your left hand. Keep left knee pointed towards the ground. Slowly pull the left leg towards the buttock until you feel a stretch in the front of the thigh. Hold for 5 to 10 seconds. Repeat 3 to 5 times. Repeat with the other leg.



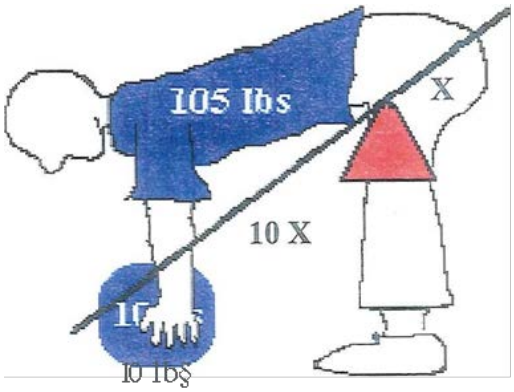
Stand upright. Place left leg on an elevated stationary surface that is at a comfortable height (knee height or lower is recommended). Keep head up and lower back arched. Slowly leaned forward until you feel a stretch in the back of the thigh. Hold for 5 to 10 seconds. Repeat 3 to 5 times. Repeat with the other leg.

Stand arm's length from a wall or other support, feet facing forward. Place right foot forward and keep the left leg straight and the heel on the ground. Lean your body towards the wall until you feel a stretch in the left calf. Hold for 5 to 10 seconds. Repeat 3 to 5 times. Repeat with the other side.

Sit slightly forward on the chair so your back is not touching the chair's back. Maintain your balance by holding onto the seat pan. Place feet flat on the floor. With leg straight, lift left foot 5 to 10 cm. off the floor. Hold for 5 to10 seconds and return it to the floor. Repeat with other side.

Back Safety

To lift a 10-pound object actually involves lifting a 105-pound torso also. As this picture indicates, this lift requires a pressure on the back of **1150 pounds**. A healthy young back can handle about 1600 pounds of pressure.



To increase capacity or reduce stress on the back, bend at the knees and not at the hips. Lift with the legs not the back. Avoid twisting.

Other Back Safety Considerations

Ask for assistance for awkward objects or objects weighing more than 50 lbs.

Plan a move by clearing a pathway, opening doors and clearing the surface where the object will be placed.

Avoid stretching, twisting or over-extending reach when lifting, transporting or placing the object.

Use lift aids (powered tables, hoists) whenever possible.

What about back belts?

The below listings are the specific items required to successfully accomplish this task.

Personal Protective Equipment (PPE)	Hard Hat (ASNI Z89.1 Certified)	Air purifying Respirator	Miscellaneous Safety Equipment	Wheel Chocks
	Vancouver Energy Approved Uniform			Vehicle Jack
	Safety-Toed Boots - 6" laced above ankle with a defined heel (ASNI Z41.1 Certified)			Jack Stands
	Safety Glasses with Side Shields (ANSI Z77.1 Certified)			Lug Wrench
	Leather Gloves			
	Hearing Protection			

The miscellaneous procedures are as follows.

REPLACE THE TRUCK TIRE

PURPOSE: This procedure outlines and defines the basic necessary steps needed to safely change a tire on a vehicle.

SCOPE: This procedure is to be followed by terminal employees when changing tires.

RESPONSIBILITY: The respective Operations Manager shall ensure that this procedure is followed by terminal personnel when changing tires and those personnel are adequately trained and are provided with the necessary personal protective equipment (PPE) and tools to accomplish this task. This procedure is to be reviewed on an annual basis.

WARNING: HAZARD OF BECOMING CAUGHT UNDER/BETWEEN EQUIPMENT EXISTS!
Precautions: Never rely on the vehicle jack. Prior to placing your body under a vehicle a sufficient number of Jack Stands must be placed under the vehicle and secured between the vehicle and the ground.

PRE-REPLACEMENT

1.1 Ensure the vehicle is on solid and level ground.

1.2 Ensure the vehicle is secured with a parking brake and chocked.

1.3 Ensure a spare or replacement tire is available and ready for service.

1.4 Review the Owner's Manual to identify proper jacking locations.

PROCEDURE

2.1 Ensure the vehicle is properly secured.

2.2 Ensure that the motor is turned off and the keys are removed and in the possession of the person performing the work.

2.3 Ensure the vehicle is properly secured with a parking brake.

2.4 Ensure the vehicle is properly chocked

2.5 Remove the jack and associated parts from the cab of the truck and inspect for condition.

2.6 Remove and inspect the Jack Stand(s) from the tool box.

2.7 Remove any lug nut covers (if applicable) and using the wrench located with the jack, loosen the lug nuts three complete rotations.

2.8 Position the jack under the vehicle at designated point for the applicable wheel (should be identifiable per owner's manual located in the glove box of the vehicle).

2.9 Jack the vehicle only as far as sufficient to install the replacement tire (note: the distance will be higher than necessary when removing the old tire so allow for sufficient space to accommodate the replacement and high enough to position the jack stand(s) under the axle.

2.10 Once the jack stand is in place, drop the jack down to allow the vehicle to come to rest on the Jack Stand located under the axle.

2.11 Place the second Jack Stand under the jacking point designated by the Owner's Manual and inspects to ensure it is stable.

2.12 Continue loosening the lug nuts on the wheel to be replaced until they are removed. Place them in a location where they will be free from debris and where they will not be misplaced.

2.13 Remove and replace the wheel. Take care to roll the wheel when possible and lift only when already stopped, using proper lifting techniques (legs, back straight).

2.14 Secure all the lug nuts on the wheel and hand tighten alternating sides.

Note: For odd number of lug nuts use a star pattern and for an even number skip each one until all have been tightened.

2.15 Remove the secondary jack stand located under the jack point and position the jack under the proper jacking location.

2.16 Jack the vehicle up sufficient to remove the jack stand under the axle.

2.17 Remove the Jack stand under the axle and lower the jack until the wheel is in contact with the ground.

2.18 Tighten the lug nuts with the same wrench provided with the jack, utilizing the same method, alternating sides, until all the lug nuts are tight.

2.19 Lower the vehicle down the rest of the way and remove the jack.

2.20 Mark the defective tire indicating in need of repair and place it in the truck bed.

2.21 Replace the lug nut covers.

2.22 Replace the Jack Stands and tools in the designated location.

2.23 Indicate on the shift report and on the vehicle inspection report that the tire was replaced and that the defective tire is located in the truck bed.

End of this procedure

NOTES:

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Communications Meeting

Date	Time	Duration: min.	Operation	Operations Manager	Safety Specialist

Agenda/Items/Topics for Discussion	Follow-up on assignments and items from previous meetings (e.g., status of projects, action items, other initiatives, etc.)
	1. Customer (e.g., new business start-up, service issues, changes in requirements, etc.)
	2. Employees (e.g., SH&E training topic, S7 training topic, etc.)
	3. Safety, Health, and Environmental (e.g., safety observations, safety inspections, root cause review, JHA identification, etc.)
	4. Operational Effectiveness (e.g., KPIs, transfer schedule, utilization of people or equipment, assess needs, etc.)
	5. Asset Management and Maintenance (e.g., maintenance schedule, pre/post trip inspections, documentation, equipment performance, parts/vendors, etc.)
	6. Performance (e.g., financial standings in regards to employee incentive bonus program, etc.)
	7. Professionalism (e.g., cleanliness/orderliness inspection)
	8. Action items (e.g., projects, individual responsible, expected completion dates, etc.
Attendees	Employee's Name (Print) and Signature
	Employee's Name (Print) and Signature
	Employee's Name (Print) and Signature
	Employee's Name (Print) and Signature
	Employee's Name (Print) and Signature
	Employee's Name (Print) and Signature
	Employee's Name (Print) and Signature
	Employee's Name (Print) and Signature

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This permit to be kept at job site. Return job site copy to Safety Officer following job completion.

Date & Time Issued: _____ Date & Time Expires: _____
Job Site/Space ID.: _____ Job Supervisor: _____

Equipment to be worked on: _____ Work to be performed: _____

Stand-by personnel: _____ _____ _____

1. Atmospheric Checks: Time _____
   Oxygen_____%
   Explosive_____% LEL
   H_2S_____%

2. Tester's Signature_____

3. Source Isolation (No Entry):

	NA	Yes	No
Pumps or lines blinded,	( )	( )	( )
disconnected or blocked	( )	( )	( )

4. Ventilation Modification:

	NA	Yes	No
Mechanical	( )	( )	( )
Natural Ventilation only	( )	( )	( )

5. Atmospheric check after Isolation and Ventilation:
   Oxygen _____% > 19.5%
   Explosive_____% LEL< 10%
   H2S_____%< 15%
   Tester's Signature

6. Communication procedures:_____
   _____

7. Rescue procedures: _____
   _____

8. Entry, standby and back up persons:

	Yes	No
Successfully completed required training?	( )	( )
Is it current?	( )	( )

9. Equipment:

	NA	Yes	No
Direct reading gas monitor tested	( )	( )	( )
Safety harness and lifelines for entry and standby persons	( )	( )	( )
Hoisting Equipment	( )	( )	( )
Powered Communications	( )	( )	( )
SCBA's for entry and standby persons	( )	( )	( )
Protective Clothing	( )	( )	( )
All electric equipment listed Class I, Division I, Group D and non-sparking tools	( )	( )	( )

10. Periodic atmospheric tests:

Oxygen	%	Time	Oxygen	%	Time
Oxygen	%	Time	Oxygen	%	Time
Oxygen	%	Time	Oxygen	%	Time
Explosive	%	Time	Explosive	%	Time
Explosive	%	Time	Explosive	%	Time
Explosive	%	Time	Explosive	%	Time
H_2S	%	Time	H_2S	%	Time
H_2S	%	Time	H_2S	%	Time
H_2S	%	Time	H_2S	%	Time

We have reviewed the work authorized by this permit and the information contained herein. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit Prepared By: (Supervisor) _____ _____
Approved By: (Unit Supervisor) _____ _____
Reviewed By: (Cs Operational Personnel) _____ _____
(printed name) (signature)

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HOT WORK PERMIT

All temporary operations involving open flames or producing heat and/or sparks require a Hot Work Permit. This includes, but is not limited to, brazing, cutting, grinding, soldering, thawing and welding.

Name of Person or Contractor doing the How Work: _____

Date: _____ Time Started: _____ Time Expires: _____

Operations Manager: _____

Emergency Phone Numbers: (1) _____ (2) _____

Location (be specific): _____

_____

Description of Work Being Performed: _____

_____

_____

_____

List Flammable and Combustible Materials Located within 35 Feet of the Hot Work Area: _____

_____

_____

_____

_____

List Hazards within 35 Feet of the Hot Work Area: _____

_____

_____

Person Assigned Fire Watch: _____
(name and signature)

Person Assigned doing Hot Work: _____
(name and signature)

I certify that I have reviewed the above conditions and the location of the Hot Work and approve the proposed Hot Work Operation.

Operations Manager: _____
(name and signature)

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Report of Satisfactory Initial Terminal Air Brake Test (Class 1) has been performed on The Train Identified Below as Prescribed in CFR 232.205

CLASS 1 AIR BRAKE TEST

LOCATION _____

DATE _____

TIME COMPLETED _____

TRAIN _____

LOCATION _____

ENGINE NUMBER _____

REAR CAR # _____

BRAKE PIPE LEAKAGE _____

AIR FLOW _____

QUALIFIED PERSON(s) PARTICIPATING IN AIR BRAKE TEST

_____

HEAD END DEVICE

DATE TESTED: _____
TIME TESTED: _____
LOCATION TESTED:_____

TESTED BY: _____

REAR END DEVICE

REAR END DEVICE #: _____
% OF BATTERY LEFT: _____
TIME 2-WAY TESTED: _____
DATE 2-WAY TESTED: _____

TESTED BY: _____

EXTENDED HAUL TRAIN (PER CFR 232.13) _____***YES*** _____***NO***

ORIGINAL—PLACE ON CONTROL STAND OF LEAD LOCOMOTIVE IN PLAIN VIEW OF ENGINEER. FEDERAL LAW REQUIRES THIS CERTIFICATE REMAIN ON LEAD LOCOMOTIVE UNTIL FINAL DESTINATION.

COPY—LOCAL COPY, MUST RETAIN FOR A MINIMUM OF 30 DAYS

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Visitor Sign-in Log

Date	Name (First, MI & Last)	Company/Agency Information			Purpose of Visit	Time		Identity Verification	SFTY Briefing	EMPL Initials
		Employer	Address	Phone #		Arrival	Departure			
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	
						AM PM	AM PM	☐ Yes ☐ N/A	☐ Yes ☐ N/A	

Visitor Sign-in Log

Date	Name (First, MI & Last)	Company/Agency Information			Purpose of Visit	Time			Identity Verification		SFTY Briefing		EMPL Initials
		Employer	Address	Phone #		Arrival	Departure						
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
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						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	
						AM PM	AM PM		☐ Yes	☐ N/A	☐ Yes	☐ N/A	

14. Waste Management and Disposal

14.1 Waste Definitions and Characteristics

A facility is legally responsible for properly identifying ALL of its waste. Any person who generates a solid waste must determine if a waste is hazardous using the following:

- Determine if it is excluded, or
- Determine if it is a listed hazardous waste, or
- Determine, through analysis, if the waste is hazardous due to a hazardous characteristic.

14.1.1 Waste Definition

The initial step in waste management occurs when a waste is first generated. A waste is any solid, semisolid, liquid, sludge, or contained gas that is discarded and not excluded in the regulations. It can be a product or raw material that has been used to the extent it is no longer fit for its purpose. Discarded materials include those which are disposed of, burned, incinerated, accumulated/stored/treated prior to disposal, applied to the land, burned for energy recovery, reclaimed, or accumulated speculatively.

14.1.2 Waste Types

Wastes can be classified as follows:

- Refuse
- Toxic Substances Control Act (TSCA)
- Industrial
- Recyclable
- Hazardous

14.1.3 Refuse

Refuse, or garbage, includes things like milk cartons, coffee grounds, wall board, and empty containers. Office and lunchroom trash are considered refuse.

14.1.4 Industrial Wastes

Industrial wastes are wastes which pose a potential for environmental contamination, have potential long term cleanup liability, but do not qualify for regulation as hazardous waste. These wastes include oily debris and soil, carbon zinc and alkaline batteries, sand blast materials, used antifreeze treated wood (e.g. poles, crossarms, railroad ties), etc. They may be accepted by sanitary landfills, but require advance notification and special disposal arrangements.

14.1.5 Recyclables

Recyclables are items that are recycled or reused. Many of these items would be classified as hazardous waste if they were not recycled. Examples of recyclables are wet cell batteries, scrap metals, and used and waste oil/off spec fuels. Waste oil and off-spec fuel can be recycled by an approved oil recycler.

14.1.6 Hazardous Waste

Hazardous waste displays a hazard characteristic(s) or is specifically listed. These wastes include spent solvents, mercury, and oils/oily debris contaminated with halogenated solvents. This type of waste is the most stringently regulated and must be recycled, treated and/or disposed of only at specially permitted facilities. The SHE&Q manager is responsible for proper classification of wastes.

As a generator, Vancouver Energy is liable for environmental contamination that may be caused by waste shipped off-site and retains responsibility should the transporter or off-site handlers be unable to

pay the costs of cleanup. For this reason, special care is needed to ensure that wastes are properly managed during transport and at the point of off-site recycling, treatment, storage, or disposal.

The SHE&Q Manager will be directly responsible for the following shipping activities:

- Packaging
- Receiving Shipping Manifest and Labels
- Loading
- Return Manifest

15. Lockout/Tagout Procedures

15.1 Policy

All employees who may be exposed to energized or potentially energized equipment shall be properly protected from the unexpected energy or start-up of that equipment.

15.2 Purpose and Scope

The purpose of this procedure is to establish minimum guidelines to ensure the safety and health of personnel who may be required to work on any type of equipment capable of being energized or harboring stored energy.

This procedure applies to all employees and subcontractors engaged in operations covered by the Company Health and Safety Program and who may be required to work on this type of equipment or otherwise be exposed to the unexpected energy of this equipment.

Additionally, the purpose of this lock and tag out procedure is to prevent injury and/or death to personnel by requiring that certain precautions be taken before servicing or repairing equipment. This includes shutting "off" and "locking out" the electrical power source of the equipment.

On pneumatic and hydraulic systems, the pressure must be released and lines either disconnected or double blocked (with bleed) or blinded, and locked out; if possible. In addition, a DANGER, "Do Not Use", "Do Not Open", or "Do Not Operate" tag is to be placed at the power sources and valves of all equipment being serviced.

15.3 References

- OSHA 29 CFR 1910.147; Control of Hazardous Energy; Lockout/Tagout
- OSHA 29 CFR 1926.417; Lockout and Tagging of circuits

15.4 Attachments

- Attachment 1: Lockout/Tagout Training Record
- Attachment 2: Lockout/Tagout Inspection Report
- Attachment 3: Examples of Lockout/Tagout Devices
- Attachment 4: Test

15.5 Definitions

1. Affected Employee. An employee whose job requires him/her to operate or use a machine or equipment on which servicing is being performed under the lockout/tagout program, or whose job requires him/her to work in an area where such servicing is performed.
2. Authorized Employee. A person who locks or tags out machines or equipment in order to perform work on that machine or equipment.
3. Caution Tags. May be used to inform personnel of special precautions or instructions relative to safe and proper operation of equipment. This tag is not to be used to prevent equipment and systems from being operated.
4. Danger Tag-Electrical. The tag is attached to a switch, circuit breaker, and other electrical controlling devices to warn others that the equipment and/or system has been isolated from its power source (de-energized) and that employees are working on the equipment or system. The Danger Tag-Electrical placed on equipment or system is not to be removed by anyone other than the person whose signature is on the tag and the equipment and system is not to be operated with the tags in place.

5. Danger Tag-Mechanical. The tag is attached to valve handles, all applicable circuit breaker switches, and other operating mechanisms to prevent manipulation or operation of mechanical equipment and pressurized systems when work is being performed on same. It shall also be used to secure valves between operational and non-operational sections of a system. All Danger Tags-Mechanical shall be numbered in sequential order, and the letter M shall identify that the danger tag is to be used for MECHANICAL tagging only.
6. Danger Tag Log. Is a form that is completed by the Tagging Coordinator from the information supplied to him by users of danger tags.
7. Energy. Electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other source.
8. Energy Isolating Device. A mechanical device that physically prevents the transmission or release of energy.
9. Lockout. The placement of a lock out device (usually a lock) on an energy isolating device to ensure that the energy isolating device and the equipment being controlled may not be operated until the lockout device is removed.
10. Tagout. The placement of a tagout device (usually a tag) on an energy isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

15.6 Responsibilities

1. Safety Support Team
   a. The Safety Support Team will prepare and maintain a companywide safety air policy.
   b. Provide assistance to the various locations, as requested, in the implementation of this policy.
   c. Conduct regularly scheduled reviews of the policy to ensure compliance with the S7 operating system and any applicable regulatory agencies.

2. Operations Managers and Supervisors
   a. Operations Managers and Supervisors are responsible for assuring the overall implementation of and compliance with the Company's compressed air procedure.

3. Lead Safety Specialist and Safety Specialist: It is the responsibility of each Lead Safety Specialists and Safety Specialists to assist the management to
   a. Continuously monitor the work to assure compliance with this procedure.
   b. Confirm each job has been properly evaluated for hazards and that these hazards have been properly eliminated or controlled.
   c. Ensure employees are aware of any hazards associated with their work.
   d. Ensure employees have received proper training.
   e. Ensure an adequate supply of energy isolating devices (i.e., locks, tags, etc.) are readily available.
   f. Confirm each job is properly prepared by operations/customer personnel prior to Company employees implementing lockout/tagout procedures.
   g. Ensure employees adhere to all requirements of this procedure.

4. Employees: Employees performing work tasks covered by this procedure must
   a. Be knowledgeable of the any hazards or requirements associated with their work.
   b. Wear the appropriate equipment according to training received and knows the uses, limitations and care of this equipment.
   c. Inspect equipment prior to each use and remove any defective equipment from service.
   d. Maintain assigned equipment in a clean and operable condition, and store/dispose of it according to training received.
   e. Report any problems or questions to Supervision promptly.

15.7 General Procedures

1. Energy Isolating Devices (Locks and Tags)
   a. Locks
      1) Multi-lock devices and locks (hereafter "lockout devices") used for the purpose of isolating an energy source shall not be used for any other purpose. Lockout devices for energy source isolation must have a means of identification that distinguishes them from any other locking device on the project. A particular color, shape, or size may be used as the means of identification. Lockout locks must be

individually keyed, and while in use, the key shall remain in the possession of the individual who placed the lock. Master keys for lockout locks must be placed in a lock box in the possession of the uppermost Company Supervisor assigned to the Site or his/her Designee.

2) A lockout roster should be used to identify the location of a lockout lock while it is in use. Lockout devices must be durable and able to withstand the environment to which they are exposed for long periods of time.

3) All devices must include the identity of the employee applying the device.

2. Tags
   a. Tags used in conjunction with lockout devices for the purpose of isolating an energy source shall be standardized in such a way to serve as a prominent warning, i.e., DANGER - DO NOT OPERATE. The tag must have informational spaces available for date, identification of energy source, and name of individual placing tag. The construction, markings, and written information on the tag shall be of such to ensure deterioration will not occur when exposed to weather and/or corrosive environment.
   b. The means of attachment shall be of a non-reusable type, attachable by hand, self-locking with a strength to withstand at least 50 lbs of pull and have the basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

3. Isolation
   a. Prior to isolating (hereafter locking out) or taking equipment out of service, approval must be obtained by the Customer Operations Depa1tment. If the equipment to be locked out is not under the control of the customer or other third parties, Company Supervision must make certain the requirements of this procedure are followed.
   b. There are two methods of locking out, dependent upon the complexity of the system and/or equipment involved. The uppermost Company Supervisor assigned to the site shall determine which method is appropriate.
      1) Individual Lockout Method
         The individual lockout method may be used for routine tasks that require locking out an energy source for a short period of time and such work will affect only a minimum number of employees. In this instance, each employee working on, or who could possibly be exposed to a hazard by the unexpected energization or release of energy shall:
         a) Place a lockout device on each appropriate energy isolating device.
         b) Place a completed tag onto each lockout device.
         c) Remove individual lockout devices and tags after verification that all work is completed.
      2) Complex Lockout Method
         The complex lockout method may be used, at the discretion of the uppermost Company Supervisor assigned to the project, when many isolation devices must be locked out such as a unit or system shutdown. In this instance, each uppermost Department Supervisor of the workers affected by the lockout must:
         a) Place a single lockout device on each energy isolating device.
         b) Place a single completed tag on each lockout device.
         c) Ensure that all work of employees under his/her supervision is completed and that his/her employees will no longer be affected by the lockout prior to removal of lockout devices and tags.

4. Electrical Lockout
   a. Whenever electrical work is scheduled to be performed on electrical equipment or services, the power source (disconnects, circuit breakers, switches) controlling the electrical powered equipment or systems shall be de-energized. A completed Danger Tag-Electrical shall be attached to the controlling device by the person responsible for de-energizing the system. The Project Supervisor shall then place his completed Danger Tag-Electrical on the controlling device after it has been placed in an open position (de-energized).
   b. Technicians required to work on the de-energized equipment or systems shall ascertain that the Project Supervisor and/or their supervisor's completed Danger Tag-Electrical is attached to the controlling device or devices before they commence work.
   c. In those instances where the controlling devices permit, a lock and tag shall be placed on the device by each employee to ensure that the controlling device is not inadvertently energized while the work is being done.

d. The de-energized equipment or system shall be tested by using a voltmeter on the downstream side of the tagged-out controlling device. If the equipment is wired directly to a power panel box and is energized by turning on the push-button or butterfly switch on the equipment, the power panel box on the downstream side must be tested by using a voltmeter.

e. Lockout of Electrically Powered Shop Equipment- to provide maximum employee safety, a power disconnect switch shall be installed between the main power supply panel and each piece of electrically driven equipment, which is directly connected to the power panel box. (This does not apply to equipment that is equipped with a plug connection, including welding equipment.) This disconnect switch should be located in close proximity to the equipment and properly identified. Push-buttons or butterfly controls of equipment should not be locked out. A short circuit can occur between a locked out push-button and relay resulting in rendering the equipment energized with full power. Some equipment is wired with dual controls and the locking out of one push-button would not render that equipment as being inoperable. After tag and lockout, try the "start" button to be certain the disconnection is complete.

f. Whenever maintenance of shop equipment is required, such as changing the blade of a radial arm saw, the craft operator shall ascertain that the controlling device (power disconnect) has been tagged and locked out before the maintenance work commences.

g. Following the application of the lockout or tag out devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe. If there is a possibility of re-accumulation of stored energy level, verification of isolation will be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

5. Mechanical Lockout

a. Whenever work, is scheduled to be performed on mechanical equipment or pressurized systems, the controlling devices, such as circuit breakers, switches, valve handles, and other operating mechanisms, shall be locked and tagged out to prevent the manipulation or operation of such equipment or systems.

b. Those craft workers required to work on equipment or a pressurized system shall ascertain the Project Supervisor and their supervisor's completed Danger Tag-Mechanical is attached to the controlling device or devices before they commence work.

c. In instances where the controlling devices permit, a lock shall be placed on the device by each employee to ensure that the controlling device is not inadvertently energized.

d. The de-energized equipment or system must be checked out or tested to ascertain that the equipment is inoperable or the pressurized system has been drained of its contents on the downstream side. Pressurized systems must then be flushed out with water if liquids are involved or with inert air if compressed gases are involved to prevent harmful exposure.

e. Appropriate air tests shall be conducted whenever pressurized systems have previously contained hazardous gases or liquids; especially should welding and burning operations be involved when the system has been shut down. When valuing of a pressurized system, blanks are preferred with an open drain cock between valves.

6. Use of Danger Tags

a. Danger tags are not to be considered as a positive means of securing equipment, but are to be used in conjunction with locks. Tags will be used only to identify that work is being done on a valve, switch, or piece of equipment when injury or property damage could result from the operation. No work is to be done on any operable equipment until the operation of it is prevented by the use of this procedure.

b. Danger tags should be used as outlined below:

1) Only the standard construction DANGER tags will be used. These may also include either the words "DO NOT USE" or "DO NOT OPEN" depending on the operations at hand.

2) All tags are to be securely attached, dated, and signed by the person performing the work.

3) Tags should be destroyed immediately on removal except those that are designed to be reused. However, no alterations are permitted.

4) No piece of equipment or device should be operated when there is a tag or lock attached, regardless of circumstances.

5) No person should ever remove worker's tag or lock. Only the worker who placed the lock and tag on the equipment should remove it.

6) It is the responsibility of the Project Supervisor or supervisor to see that no work is performed beyond the protection of locks and tags that have been installed.
7) Workers may place "multi-lock" devices on the equipment if other employees or trades are involved. All persons working on the equipment must have their own lock and tag in place.

c. Unauthorized Use of Danger Tag
1) The standard Danger Tag, Electrical or Mechanical, shall be used only for the purpose of identifying a de-energized piece of equipment or system. It is not to be used as a substitute for a defective tag or a caution tag.
2) The unauthorized operation of a controlling device of a de-energized system or piece of equipment that has been tagged-out with a Danger Tag shall be grounds for immediate termination of the involved employee(s).

7. Lockout/Tagout Sequence
a. Prior to an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the methods or means to control the energy.
b. The machine or equipment shall be turned off or shutdown using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazards to employees as a result of the equipment stoppage.
c. All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source.
d. The worker places the tag on all controls to warn others that the equipment is not to be operated. The worker writes the reason on the tag(s), identifies the equipment and dates and signs each tag.
e. Lockout or tag out devices shall be affixed to each energy isolation device by authorized employees. Lockout devices shall be affixed in a manner that will hold the energy isolating devices in a safe or off position. Tag out devices shall be affixed in such a manner that will clearly indicate that the operation or movement of energy isolating devices from the safe or off position. Where tag out devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached. Where a gat cannot be affixed directly to the energy isolating device, the tag shall be located as close as safety possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
f. The worker will pull power switches and/or circuit breakers and place a lockout clip(s) and a lock(s) on the controls to make them inoperative. Other power sources such as air, steam, tension, or hydraulic may require blinding, disconnection, or valve locking.
g. After the worker has tagged and locked the equipment, the equipment should then be tried to assure that it will not operate.
h. All Company locks and tags should be installed first and removed last, if possible.
i. When other crafts are required to work on the same equipment, they must place their personal locks and tags on each piece of equipment.
j. All crafts must "try" equipment after installing their personal locks to assure, once again that it will not start.
k. Locks and tags must remain on controls until work has been completed and it is safe to statt the equipment. If maintenance or electrical work is to continue into the next shift, persons going off shift shall remove their "personal" lock and leave their tag on the equipment. Persons coming on shift must install their own personal lock(s) and tag(s) if they will be working on the equipment.
l. Upon completion of work, all other crafts will remove their locks and tags first. Company locks and tags are to be removed last after it is determined that the equipment is safe to operate.
m. No equipment should be started by anyone (including bumping to check rotation) without permission from the Company Project Supervisor or supervisor responsible for the equipment.
n. Following the application of lockout or tag out devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained and otherwise rendered safe. If there is a possibility of re-accumulation of stored energy level, verification of isolation shall be continued until the servicing or maintenance is completed or until the possibility of such accumulation no longer exists.
o. Prior to starting work on machines or equipment that have been locked or tagged out, the authorized employee will verify that isolation and energization of the machine or equipment have been accomplished.

p. When the lockout/tagout devices must be temporarily removed, the following will take place: tools will be cleared away; employees will be removed from the area; the lockout/tag out device is removed; the equipment will be energized and testing will proceed; the equipment will be de-energized and control measures will be reapplied. This procedure will be documented by a qualified person.

8. Group Lockout/Tagout
An authorized employee who has primary responsibility for a set number of employees working under the protection of a group lockout or tagout will ascertain the exposure status of individual group members. Each employee shall attach a personal lockout or tag out device to the group's device while he/she is working and then removes it when finished. During shift change or personnel changes, specific procedures are reviewed to ensure the continuity of the lockout or tagout procedures.

9. Shop Equipment
   a. The qualified operator of shop equipment may lock out his equipment to change tools, chucks, blades, and perform similar tasks.
   b. A power disconnect switch must be provided for this purpose at or near the equipment unless the equipment can be unplugged.
   c. Push-button or butterfly controls may not be used for purposes of lockout.
   d. A lock with a tag may be used for this purpose.
   e. The above does not apply to any maintenance or repair work that is done by other than the authorized operator.

10. Locks
   a. Only individual keyed locks will be used. The key will remain in the possession of the person placing the locks.
   b. A master series of locks to be used specifically for lockout may be provided to each department that requires them. Master keys for the department will remain in the possession of the Safety Specialist.

11. Records
A log book is to be maintained in a controlled central location. Each Tag number will be listed in the Log Book. After completion of the job task, the tags will be removed and turned into the customer.

12. Warning
Due to the serious consequences of not following this procedure:
   a. Any person who operates an energy source isolation device to which lockout devices and tags are attached, or removes a lockout device or tag without authorization will be subject to immediate discharge.
   b. Any person who works on an energy source without following this procedure will be subject to immediate discharge.
   c. Prior written approval from uppermost Company Manager must be obtained in order to deviate from this procedure.

15.8 Training

1. All employees who are responsible for following this procedure must receive training in the procedure. This includes all employees who perform the following duties: maintenance, repair, or construction personnel, janitorial or clean-up personnel.
2. Following initial training in lockout/tagout principals, each employee will receive an annual follow-up training session. Each training session shall include at minimum the following.
   a. Recognition of the hazardous energy source, type and magnitude of energy available, methods and means necessary for energy isolation and control.
   b. The purpose and use of the energy control procedure.
   c. Provisions for when any other employee whose work operations are or may be in an area where energy control procedures may be utilized.
   d. When tagout systems are used, including the limitations of a tag.
   e. A tag is not to be removed without authorization.
   f. The tag is never to be ignored or defeated in any way.

3. Employee Retraining
   a. Retraining shall be provided for all authorized and affected employees whenever there is a change in their job responsibilities, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.
   b. Additional retraining shall also be conducted whenever a periodic inspection reveals that the procedure and the requirements of the standard are not being followed, or whenever the employer has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures. Retraining will re-establish the employee's proficiency and introduce new or revised control methods and procedures. The retraining shall be documented, containing each employee's name and dates of retraining.
4. Training documentation, including copies of all quizzes and training rosters, will be maintained at the site on the Lockout/Tagout Training Record Forms (Attachment 1).

15.9 Inspection and Storage

1. Periodic Inspection
   a. A periodic inspection of the lockout/tag out procedure shall be performed at least annually and also after any incident involving implementation of the lockout/tagout procedure to ensure the requirements of the procedure are being followed.
   b. The periodic inspections shall be performed by an Authorized Employee other than the one(s) utilizing the lockout/tagout procedure.
   c. The periodic inspection shall be conducted to correct any deviations or inadequacies identified.
   d. Where lockout/tagout is used for energy control, the periodic inspection between the inspector and each authorized and affected employee shall include a review of that employee's responsibilities while using the Lockout/Tagout Procedure.
   e. The site shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.
   f. See Lockout/Tagout Inspection Report Form (Attachment 2).

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Attachment 1
Training Record

My signature below acknowledges that I have received training on the Lockout/Tagout procedure, and that I fully understand the requirements of this procedure. I further agree to abide by these requirements and understand that violation is subject to disciplinary action up to and including discharge.

Name (Print)	Signature	SSN	Date of Training

Attachment 2
Inspection Report

Project Number: _____ Location: _____

Project/Site Manager: _____

Date of Inspection: _____

Machine/Equipment Used: _____

_____

_____

_____

Employees included in Inspection: _____

_____

_____

_____

Inspection Results: _____

_____

_____

_____

Review of Incidents (involving lockout/tagout): _____

_____

_____

_____

Conclusion and Findings: _____

_____

_____

_____

Annual Training Completed and Documented: Yes _____ No _____

Inspector: _____ Signature: _____

Site Manager: _____ Signature: _____

Attachment 3
Examples of Lockout/Tagout Devices

Typical Lockout Locks

Typical Tagout

Typical Multiple Lockout HASP

Attachment 4
Lockout/Tagout Test

Name: _____ Date: _____

1. Lockout is the preferred method over tagout for isolating machines or equipment from energy sources.

   TRUE _____ FALSE _____

2. All devices must be durable and able to withstand weather and corrosive environments and standardized within the facility either by color, shape, or size and must contain standardized print.

   TRUE _____ FALSE _____

3. A system of one lock and one key will be used.

   TRUE _____ FALSE _____

4. Tagout device attachments must be of the non-reusable type and have the basic strength characteristics of a one-piece all-weather nylon cable tie.

   TRUE _____ FALSE _____

5. Tags should provide warnings, such as

   a. DO NOT OPERATE
   b. DO NOT OPEN/CLOSE
   c. DO NOT START
   d. DO NOT TOUCH
   e. All of the above

6. The sequence of lockout or tagout system procedure is as follows:

   a. Notify all affected employees that a lockout or tagout system is going to be utilized.
   b. If the machine is operating, shut it down by the normal stopping procedure.
   c. Operate the switch, valve, or other energy isolating device(s) to isolate the equipment from its energy source.
   d. Lockout and/or tagout the energy isolating device(s) with assigned individual lock(s) and/or tag(s).
   e. After ensuring that no personnel are exposed, try to operate the push-button or other normal operating controls to make certain the equipment will not operate.
   f. All of the above.

_____ _____

Employee's Signature Date

_____ _____

Trainer's Signature Date

Vancouver Energy
16.0 - Fire Protection Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590
30 April 2015

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Vancouver Energy
Fire Protection Plan (Section 16.0)

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1. Introduction

This document has been developed at the request of Tesoro Savage Petroleum Terminal LLC (the Applicant) to provide a high level overview of the Fire Protection (FP) and Fire Alarm (FA) systems and equipment proposed for Vancouver Energy (Facility). This document describes: the conditions which activate or trip the respective fire safety systems; what alarms or signals are transmitted; the anticipated result of the system; and site water supply.

2. Facility and Area Overview

2.1 Facility Overview

The Facility is located at the Port of Vancouver in the City of Vancouver, Washington. This Facility will unload crude oil from railcars, pump the crude oil to storage tanks and then pump the crude oil from the storage tanks to the transport vessels at the Marine Terminal Area. The Facility has been broken down into five separate and distinct areas: 1) Area 200 – Unloading and Office; 2) Area 300 – Storage; 3) Area 400 – Marine Terminal; 4) Area 500 – Transfer Pipelines; and 5) Area 600 – West Boiler. Below is a brief description of each area.

2.2 Area 200 – Unloading and Office

The rail unloading facilities will include three tracks and associated equipment for unloading of crude oil. The unloading tracks will be located inside a structure. Each unloading track will accommodate 30 cars for a total length of approximately 1,800 feet. The structure will be approximately 1,850 feet long and 90 feet wide to accommodate the length of these unloading tracks and the unloading operations.

The structure has a complete metal roof, while the walls will only consist of seven metal wall panels spaced along the south side of the structure. These seven metal wall panels will be spaced at locations corresponding with E-houses, the fire pump/foam skid building, and other appurtenances that are to be located on the south side of the structure. The remainder of the wall area on the structure will be open. Within the structure there will be two elevated walkways running the length of the structure used in the unloading process, and five crossover egress walkways providing access to the north and south sides of the structure spaced approximately every 357 feet. There will be three rail tracks running east to west, two trenches (approximately 7- 9 foot wide by 5 foot deep) accommodating the piping system that is used to transport the crude oil to the pump basins (located between the tracks), and 10 pump basins (5 per trench), which will be spaced approximately every 355 feet that house the transfer pumps. These transfer pumps will be used to pump the crude oil from Area 200 to the storage tanks in Area 300. The structure will be completely protected by a fire detection and sprinkler system.

Access stairs will be provided between the railcars which will enable workers performing any unloading operations at the track level to exit up the stairs to the elevated crossovers and over the railcars to reach an exterior exit from the structure.

Other structures located in the Area 200 include control room/E-houses and the fire pump/foam skid building.

The Facility will require three approximately 3,400-square-foot office buildings to house administrative functions, lockers, restrooms, and other employee support facilities. These buildings will be located approximately 225 feet to the North of the rail unloading structure. These buildings consist of modular office trailers that are pre-built off site and placed at their specific location on the job site. The Office Building and change rooms will not be provided with an automatic suppression system.

2.3 Area 300 – Storage

Six above ground storage tanks will be constructed in Area 300. The storage tanks will have a nominal storage capacity of 380,000 barrels (15,960,000 gallons) each and they will be approximately 50 feet tall with a diameter of 240 feet. All tanks will be located inside a perimeter dike capable to contain 110% of the volume of the largest tank plus the anticipated precipitation from a 24 hour, 100 year storm. The tanks will be positioned so that the distance between each tank is 120 feet in any direction. The distance from the tank to the dike varies from a minimum distance of approximately 33 feet to a maximum of 150 feet.

Other structures located in the Area 300 will include a Pump Basin for the pumps that will be used to transfer the crude from the tank storage area to the vessels at Berth 13. A Storage Building, a control room/E-house, and a Fire Pump and Foam Building will also be located in Area 300.

2.4 Area 400 – Marine Terminal

The Marine Terminal Area will consist of berths 13 and 14. Crude oil will be pumped from the Storage Area in a 36-inch pipe to Berth 13. The berth will be able to accommodate vessels with varying capacities, with loading rates of up to 32,000 barrels per hour. Safety measures include automatic shutoff valves, a return and stripping line for the crude to return back to the storage tanks, a marine vapor combustion unit, floating booms and manual fire protection features.

Berth 14 will be used for storage of and access to a skiff that will be used to deploy a fence boom in the water around the ship. There are no crude loading operations planned for Berth 14. Safety measures include manual fire protection features.

Other structures located at the Marine Terminal Area will include a control room/E-house, vapor blower staging unit, Fire Pump and Foam Building, and a dock safety unit.

2.5 Area 500 – Transfer Pipelines

The transfer pipelines consist of the pipeline runs between Area 200 Unloading and Office and Area 300 Storage and between Area 300 and Area 400 Marine Terminal. The transfer pipelines will be mainly constructed aboveground and on supports. Where road or rail crossings occur and in other areas of limited space, the piping would be located underground or raised above the ground in accordance with standard American Railway Engineering and Maintenance-of-Way Association (AREMA) clearances.

2.6 Area 600 – West Boiler

The West Boiler area contains a boiler building that will house equipment utilized to generate steam to heat heavier crudes to assist with unloading operations inside the unloading structure at Area 200. Other than the E-house, no other buildings will be located on the Area 600 site. The west boiler building will not include an automatic fire suppression system.

3. Applicable Design Criteria

Below is a list of codes and standards are applicable for this Facility and have been used or referenced as it relates to the fire protection and safety features related to this Facility. There may be other Codes and Standards referenced or utilized, but these are the ones that have been used or referenced for the fire protection aspects of the Facility:

- ANSI Z358.1, Standard for Emergency Eyewashes and Shower Equipment, 2009
- API 2021 – Management of Atmospheric Storage Tank Fires
- API 2030 – Application of Fixed Water Spray Systems for Fire protection in the Petroleum Industry
- API STD 2610 - Design, Construction, Operation, Maintenance, and Inspection of Terminal and Tank Facilities

- Factory Mutual Data Sheet 2-0, Installation Guidelines for Automatic Sprinklers, April 2011
- Factory Mutual Data Sheet 3-0, Hydraulic of Fire Protection Systems, March 2010
- Factory Mutual Data Sheet 3-26, Fire Protection Water Demand for Nonstorage Sprinklered Properties, July 2011
- FMDS 4-0, Special Protection Systems, April 2012
- FMDS 4-7N, Low Expansion Foam Systems, September 2010, (Interim Revision January 2013)
- Factory Mutual Data Sheet 4-12, Foam-Water Sprinkler Systems, October 2011
- Factory Mutual Data Sheet 5-40, Fire Alarm Systems, September 2007
- Factory Mutual Data Sheet 5-48, Automatic Fire Detection, January 2011
- Factory Mutual Data Sheet 7-32, Ignitable Liquid Operations, April 2012
- Factory Mutual Data Sheet 7-88, Flammable Liquid Storage Tanks, October 2011
- International Building Code, 2012
- International Fire Code, 2012
- International Safety Guide for Oil Tankers and Terminals (ISGOTT), Fifth Edition
- NFPA 10, Standard for Portable Fire Extinguishers, 2010
- NFPA 11, Standard for Low-, Medium-, and High-Expansion Foam, 2010
- NFPA 13, Standard for the Installation of Sprinkler Systems, 2010
- NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection, 2012
- NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems, 2011
- NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, 2010 Edition
- NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances, 2010
- NFPA 30, Flammable and Combustible Liquids Code, 2012 Edition
- NFPA 70, National Electrical Code, 2011
- NFPA 72, National Fire Alarm and Signaling Code, 2010
- NFPA 307, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves, 2011 Edition

4. Site Water Supply

4.1 Water Supply Overview

Currently the site has existing water mains provided from both the City of Vancouver and the Port of Vancouver. Two tests were performed on May 30, 2013 on fire hydrants at Area 300 - Storage and Area 400 - Marine Terminal on the City of Vancouver water distribution system. They yielded the following flow test results:

Area 300 - Storage:

Static Pressure = 84 psi

Residual Pressure = 63 psi

Flow = 2,005 gpm

Area 400 - Marine Terminal:

Static Pressure = 81 psi

Residual Pressure = 62 psi

Flow = 2,127 gpm

Based on the information provided by the City of Vancouver, below is the available water supply for the Area 200 rail unloading structure:

Static Pressure = 50 psi

Residual Pressure = 20 psi

Flow = 2,500 gpm

The City of Vancouver water distribution system will supply water to the fire hydrants on the South side of the rail unloading structure as well as the fire pump that feeds the suppression systems inside the Rail unloading structure.

Additionally, the City of Vancouver water distribution system will supply water to the fire pump, which in return will supply water to the suppression systems on the tanks, and the fire hydrants around the dike at the Storage Area.

The City of Vancouver water supply at the Marine Terminal Area will supply the fire pump that feeds the elevator monitor nozzles equipment to the dock.

4.2 Adequacy

The current available water supply will be supplied from the on-site dedicated fire water gridded distribution system. It is been discussed and confirmed that the on-site system water supply available from the City of Vancouver to the Facility is more than adequate to meet the demand of the manual fire operations and the automatic fire suppression system. The City of Vancouver system is accessible at all Facility site locations and has been deemed reliable; therefore, the City of Vancouver water supply will be the water service used in the design of this Facility, not the Port of Vancouver water supply.

4.3 Arrangement of Fire Hydrants and Water Supply

4.3.1 Area 200 – Unloading and Office

Fire hydrants will be provided on the south side of the Rail unloading structure spaced at every 300 feet accessible fire department apparatus. The fire hydrants will be supplied by the City of Vancouver water distribution system.

The hydrants will be located on the south side of the track that is located south of the Rail unloading structure. Procedures will be in place for cooperation with those companies using the tracks to the south of the unloading building to allow access to the unloading building from the hydrants

The fire pump supplying water to the automatic fire suppression systems in the Rail unloading structure is supplied from the City of Vancouver water distribution system. The fire pump is located in the Fire Pump/Foam Building immediately adjacent to the Rail unloading structure.

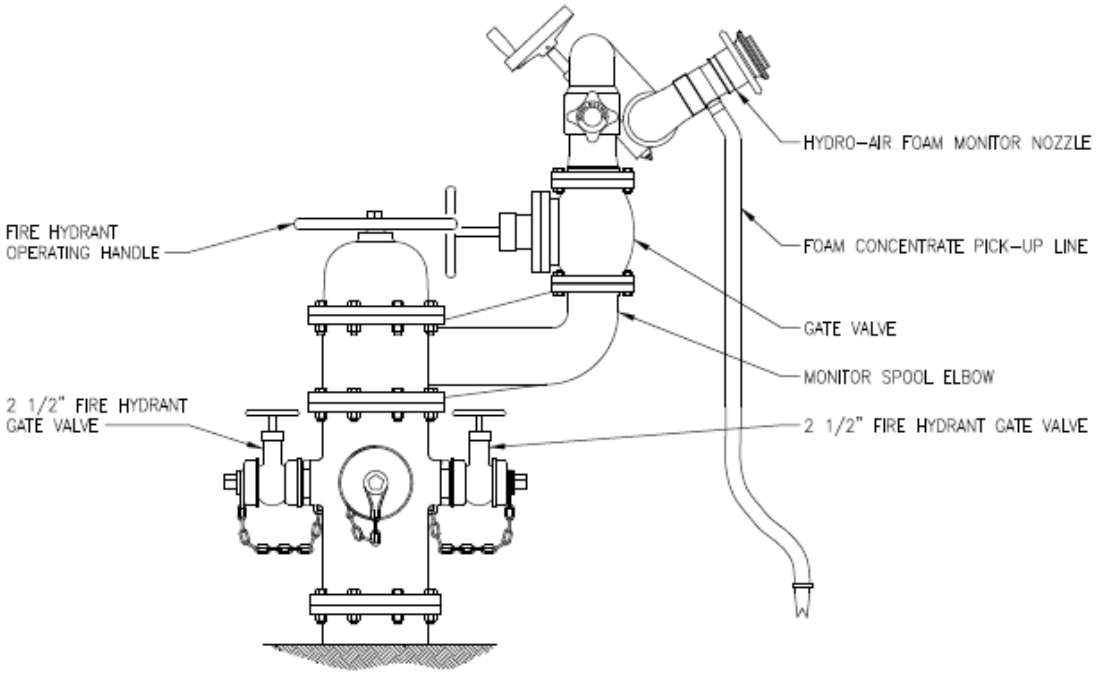
4.3.2 Area 300 – Storage

Fire hydrants will be provided for fire department use around the perimeter of Area 300 - Storage accessible by fire department apparatus. The fire hydrants will be located on the dike spaced every 300 feet, with two fire hydrants located inside the dike area near the intersection of the intermediate dikes. These fire hydrants will be supplied from the fire pump for the storage area and will include a monitor nozzle that can be used to cool the tanks, reduce fire exposure and also be used to apply the self-healing biodegradable foam.

Each hydrant will be equipped with a monitor nozzle and foam eductor and pick-up line that can be placed in a bucket, pail or other portable device of foam concentrate, which through a venture effect, will draw foam concentrate from the pail/container to generate a foam solution (see figure below).

The flow of water from these monitor nozzles are provided to create a cooling effect on the tank wall. The foam educator provided on each monitor nozzles will allow the hydrant to spray a foam water solution and control a small pool fire within the dike area. A predetermined size of foam concentrate stored in bucket, pail or other portable device will be kept in the Fire Pump / Foam Building. When the need arises for its use, such as a small spill or rubbish fire, the foam concentrate will be taken to the appropriate fire hydrant and the hose placed in the bucket, pail or other portable device. The nozzle will draw the foam in at the manufacturer determined proportioning rate to achieve the desired concentration of foam/water solution.

Additionally, an elevated monitor nozzle supplied with foam-water from the Fire Pump / Foam Building will be located near the crude oil pump basin with the primary purpose of providing manual fire suppression to the pump basin. This monitor nozzle for the crude oil pump basin will be capable of providing a 3% foam application to the pump basin area. Utilizing a flow rate of 750 gpm will provide coverage of the crude oil pump basin.



The City of Vancouver water distribution system will supply water to the fire pump being provided to supply water to the automatic fire suppression systems for the storage tanks and to the fire hydrant/monitor system around the perimeter of the storage area. The fire pump is located in the Fire Pump/Foam Building immediately west of the storage tanks along the edge of the dike.

4.3.3 Area 400 – Marine Terminal

A fire hydrant will be provided for fire department use near Area 400 - Marine Terminal. The on-site City of Vancouver water distribution system will supply water to the fire hydrant and the fire pump for this area to support the fire protection systems at the Marine Terminal area. The fire pump will be located in the Fire Pump/Foam Building immediately adjacent to the Marine Terminal area.

4.4 Cross-Connection Control

A backflow prevention assembly will be on the water supply for each of the above described areas upstream of the fire pump to protect the potable water distribution system. Due to the design including foam, reduced pressure backflow prevention assemblies will be utilized.

5. Fire Pumps

5.1 General Overview

Fire pumps will be required to supplement the city water supply at all locations; the rail unloading structure, the Area 300 - Storage, and Area 400 - Marine Terminal. The fire pumps will be diesel driven, as power is not considered to be reliable per the definition in NFPA 20, and there are no plans for the Facility to have backup power. The fire pumps will be located in a skid enclosure that will also contain the fire suppression system risers as well as fire alarm equipment. The Fire Pump / Foam Buildings will be completely sprinklered and separated from any other occupancies/structures as required by NFPA 20 to help ensure the reliability of the fire protection systems and fire pumps.

The fire pumps will be set up to automatically start upon a drop in pressure downstream of the fire pump system. The pressure drop will be monitored to a pressure switch in each fire pump controller. Once the pressure switch reaches the predetermine setting, a signal will be sent from the fire pump controller to the diesel engine to automatically start the engine/pump. The fire pump will boost the pressure and flow rate in the respective system to provide the required flow rate and pressure to the respective fire suppression system.

Upon the opening of a fire hydrant around Area 300 - Storage, or the tripping of one of the fire suppression systems (sprinkler or foam system) the pressure would reduce requiring the respective fire pump at the respective area to activate increasing the pressure in the fire protection system to provide adequate fire flow (pressure and flow rate) to meet the demand of the respective system.

The Area 300 - Storage Fire Pump and Foam Building will also include a jockey pump to maintain pressure of the underground piping around the dike. The jockey pump is only meant to maintain pressure to account for thermal expansion, minor leaking in the underground piping and small fluctuations in pressure, having a flow rate of 5 – 10 gpm.

Below are the sizes of the fire pumps to be provided for each respective area:

- Area 200 Unloading and Office– 2000 gpm at 125 psi
- Area 300 Storage– 2500 gpm at 125 psi
- Area 400 Marine Terminal– 2000 gpm at 125 psi

6. Fire Suppression Systems

6.1 Sprinkler Systems, Monitors, and Foam Suppression Systems

6.1.1 Use of Foam Fire Suppression Agents

The best method of controlling a flammable or combustible liquid fire is through the use of foam fire extinguishing agents. The current plan is to use a self-healing biodegradable foam manufactured by Solberg which is an environmentally friendly product. Further discussion regarding environmental impact can be found in NFPA 11, Annex F.

The Harmonized Offshore Chemical Notification Format (HOCNF) applies to all chemicals used in connection with offshore exploration and production activities in the OSPAR maritime area. OSPAR is the mechanism by which fifteen Governments of the western coasts and catchments of Europe, together with the European Union, cooperate to protect the marine environment of the North-East Atlantic. This program includes any chemical that can be discharged into a river and ultimately find its way into the North Sea.

The raw materials used in the Solberg self-healing biodegradable foam have been evaluated to the HCNOF and is the only foam to date that has gone through this evaluation. This evaluation, which determines the impact of products discharged into marine and freshwater environments, concluded that the Solberg self-healing biodegradable foam is acceptable for use in the North Sea and in areas that discharge into the North Sea. As well, the German Institute of Hygiene has found the Solberg self-healing biodegradable foam to be of low impact upon discharge to the environment. It should be noted that fluorinated foam products will not achieve those listings because of the persistence of the fluorine molecule. For example, Solberg self-healing biodegradable foam is permitted by the Norwegian Government to allow runoff directly into the Fiords of the North Sea. This is not permitted with fluorinated surfactant based foam products.

Foam application will be limited to the minimum amount needed to control and extinguish a flammable or combustible liquid fire and to avoid to the extent practicable releases of foam to surface water.

6.1.2 Area 200 – Unloading and Office

A closed-head foam-water pre-action sprinkler system will be installed inside the rail unloading structure at the roof level, under walkways (as required by code) and in the pump basin areas. The structure will be divided in to five zones, each zone will be activated either manually from the foam manual release stations or automatically from the linear heat detection that will be installed at the roof level and at the pump basin level for that associated zone. The pump basins are located in the center of each zone respectively between the tracks. Note that this system is a closed-head pre-action foam-water system; therefore, foam-water solution will only be discharged once the fire is large enough to activate the linear heat detection, trip the valve and then activate the sprinklers above the fire. Foam will be used to control and extinguish the crude oil pool fire and will also provide cooling to the railcars and any adjacent equipment or building elements.

A closed-head wet-pipe sprinkler system (water only, no foam) will be provided for the Fire Pump / Foam Building in accordance with NFPA 20, Section 4.12.1.1.2. The wet-pipe system contains water under pressure, therefore, when a fire starts and grows large enough to trip a sprinkler at the ceiling/room a sprinkler or sprinklers are expected to control the fire.

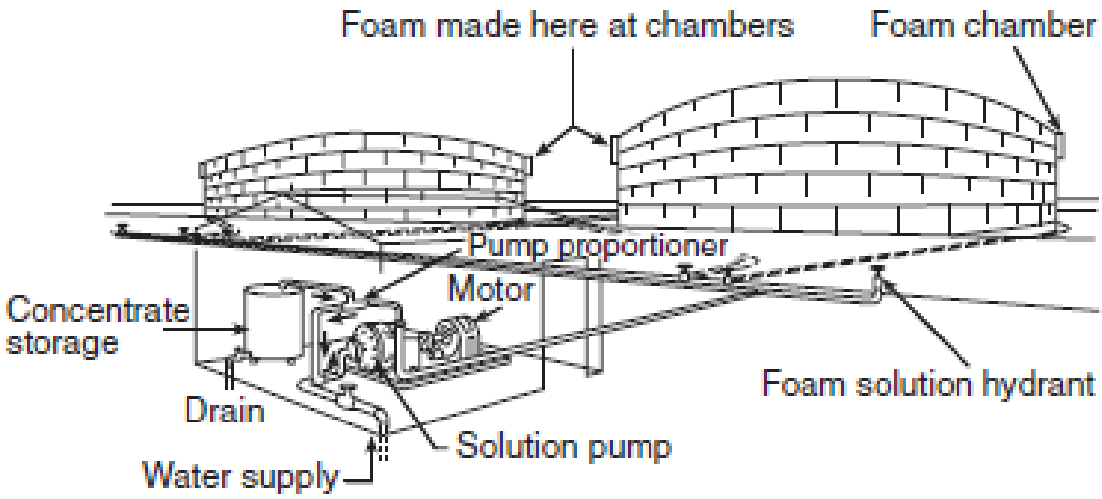
The closed-head foam-water pre-action sprinkler system and the closed-head wet-pipe sprinkler system will be pressurized by the City of Vancouver water distribution system and fire pump; therefore, when either system activates, and pressure drops on the downstream side of the fire pump, the fire pump will start and supplying adequate pressure to the system to control or extinguish the fire.

6.1.3 Area 300 – Storage Area

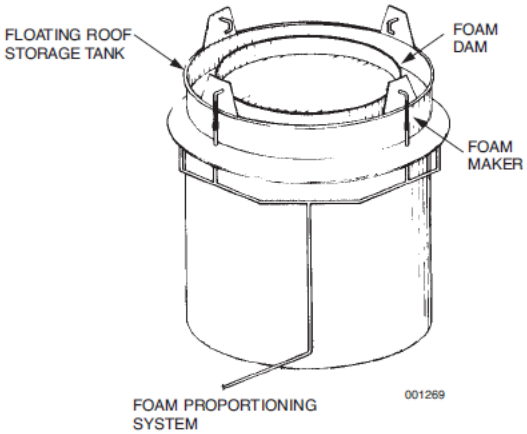
An automatic fixed foam system will be provided for each storage tank to protect the seal area of the internal floating roof. This system will be a Pre-Action Foam System activated by the linear heat detection system installed at the foam dam of the floating roof or by the manual foam release stations associated with each respective tank. See the figures below to reflect the typical configuration and installation of the foam maker on the tank. The linear heat detection cable located around the foam dam will be connected to the fire alarm system (see Chapter 7 for details on the fire alarm and linear detection system). The pre-action valve and foam concentrate tank will be located in the Fire Pump / Foam Building.

The internal floating roof tank will be protected by a Type II Discharge Outlet (i.e. foam chamber) which delivers foam onto the burning liquid at the seal area of the foam dam. The foam makers will be supplied from piping that loops the exterior of the tank at the top which in turn will have one supply from the fire pump. These will be single interlocked pre-action systems with automatic activation provided through linear heat detection and manual activation through the foam release stations. The floating roofs will have a 12- to 18-inch tall foam dam approximately 12 inches from the shell wall.

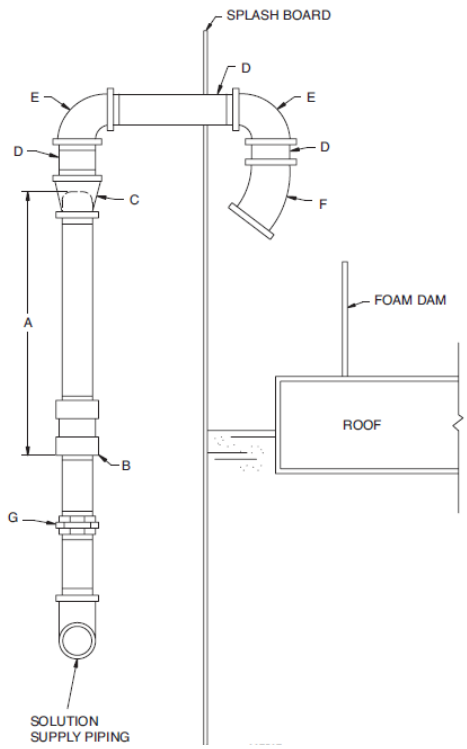
These automatic fixed foam systems are specifically designed to control a fire inside the tank. The Solberg self-healing biodegradable foam will be discharged inside the tank at the seal/foam dam area and provide a blanket of foam on top of the liquid at the floating roof. This blanket of foam is expected to limit the oxygen and extinguish the fire.



Typical Storage Tank Protection



Typical Floating Roof Tank Foam Maker Installation



A closed-head wet-pipe sprinkler system (water only, no foam) will be provided for the Fire Pump / Foam Building in accordance with NFPA 20, Section 4.12.1.1.2. The wet-pipe system contain water under pressure, therefore, when a fire starts and grows large enough to trip a sprinkler at the ceiling/room a sprinkler or sprinklers are expected to control the fire.

6.1.4 Area 400 – Marine Terminal Area

Two remote controlled elevated monitor nozzles will be provided on the dock for firefighting purposes. The monitor nozzles will be supplied from a Pre-Action Foam System located in the Fire Pump / Foam Building. Activation of the foam-water monitor nozzles will be by manual foam release stations located in the E-house and throughout Area 400 - Marine Terminal. The controller for the nozzles will be located in the E-house, located shore side.

A closed-head wet-pipe sprinkler system (water only, no foam) will be provided for the Fire Pump / Foam Building in accordance with NFPA 20, Section 4.12.1.1.2. The wet-pipe system contain water under pressure, therefore, when a fire starts and grows large enough to trip a sprinkler at the ceiling/room a sprinkler or sprinklers are expected to control the fire.

7. Fire Alarm System

7.1 Fire Alarm System Overview

Each area will receive its own fire alarm system control panel that will independently transmit back to a supervising station. The control panel and user interface will be located in the control room/E-house

facility at each site (E-house 3 for Area 200). The fire alarm panel in the fire pump/skid enclosure will be connected to the main fire alarm panel in the E-house at each location.

H2S and LEL detection will be provided in the pump basins at both the rail unloading structure and the pump basin at Area 300 - Storage. In addition, O2 monitoring is being provided for the pump basins located in the rail unloading structure. This monitoring will detect when oxygen levels are below the allowable limits for exposure and provide notification that entrance to the pump basins is not allowed without the appropriate personal protective equipment.

H2S and LEL detection is also provided strategically in the rail unloading structure near every unloading station.

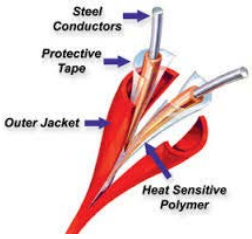
7.2 Fire Alarm Panel Reporting Capability

Each fire alarm panel will be FM Approved and will be provided with a way to directly communicate to the control operations HMI (human-machine interface); the panel will also be provided with a method to transmit/communicate all alarm signals to a supervising station. The rail unloading structure area, Area 300 - Storage, and Area 400 - Marine Terminal will each independently transmit their panel signals to the supervising station.

7.3 Initiating Devices

A fire alarm signal will be initiated by the following devices as explained in this section. Each of the initiating devices will be connected to the respective area fire alarm system control panel. The fire alarm panel will then acknowledge the alarm signal and initiate the sequence of operation commensurate for the respective alarm signal. The linear heat detection and manual release stations will activate the respective fire suppression system. All alarm signals will also initiate the audible and visual alarm, transmit the alarm signal to the supervising station and shut down the transfer operation, with all crude oil transfer valves closing in 30 seconds.

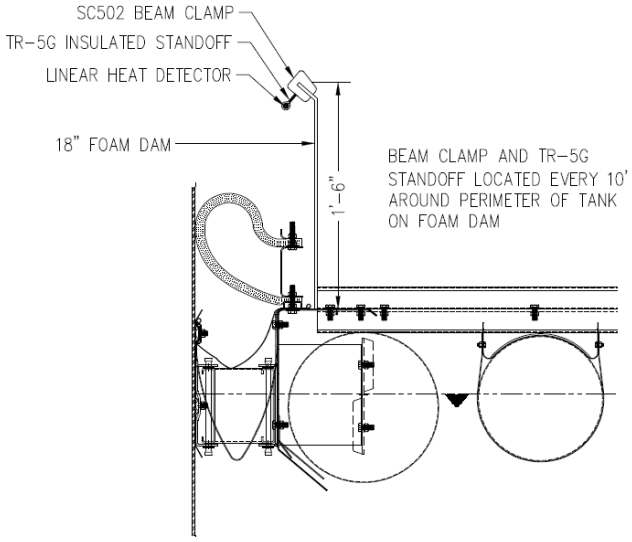
7.3.1 Linear Heat Detection



Linear Heat Detection is a line-type form of fixed temperature heat detection that will detect the heat from the fire anywhere along its entire length of cable. This proprietary cable is available in a range of temperature ratings in order to accommodate varying types of conditions or environments.

The outer jacket of the cable is specifically chosen for the environment and conditions where it will be installed. The linear detection cable is a combination of advanced polymer and digital technologies that can detect heat conditions anywhere along the length of the cable. The cable is comprised of two tri-metallic conductors individually insulated with a heat sensitive polymer outer layer/tape and engineered to break down at specific fixed temperatures. This allows the twisted conductors to make contact and initiate a fire alarm condition at the control panel without any calibration for changes in the ambient temperature. Nor is it required that a specific length be heated in order to initiate a fire alarm, adding to the versatility of this unique product.

The linear detection to be used for this Facility will have a 190°F temperature rating. The linear detection cable will be located at the top of the rail unloading structure (on or near the sprinkler pipe), at a lower elevation near the pumps themselves, and on the foam dam of the crude oil storage tanks. The linear detection is intended to activate/trip the pre-action foam systems which in return will discharge foam solution to control or extinguish the fire.



7.3.2 Foam System Manual Release Stations

The manual foam release stations will be located at the base and at the top of the stairs of the rail unloading structure, at every egress point of the rail unloading structure, at the base of the stairs on the tanks at Area 300 - Storage, at the top of the dike near the closest hydrant for each tank, and on a bank of release stations located at the foam/pump house.

These manual release stations when manually activated will send an alarm signal to the fire alarm panel, which in return will activate the respective foam fire suppression system, activate the audible and visual alarms and transmit the alarm signal to the supervising station.

7.3.3 Waterflow Switches

The wet-pipe sprinkler systems will be provided with a vane-type waterflow switch and the pre-action systems will be provided with a pressure-type waterflow switch. Each of these switches is designed to alarm upon the flow of water in the respective system.

If the vane-type waterflow switch, installed in the wet-pipe sprinkler system, is activated from the flow of water in the sprinkler system then an alarm signal will be sent to the fire alarm panel, which in return will activate the audible and visual alarms and transmit the alarm signal to the supervising station. Activation of the wet-pipe sprinkler system is caused by the heat from the fire activating one of the sprinklers on the system.

If the pressure-type waterflow switch, installed in the pre-action system, is activated from the flow of water in the foam system then an alarm signal will be sent to the fire alarm panel, which in return will activate the audible and visual alarms and transmit the alarm signal to the supervising station. Activation of the pre-action foam system is caused by the activation of either the linear heat detection system or the manual foam release station on the system.

7.3.4 Manual Pull Stations

The manual pull stations will be surface mounted, and typically located within 5 feet of every egress point and near the fire alarm control panel in the rail unloading structure, and be provided at every exit from the

Fire Pump / Foam Buildings and E-Houses for Area 200 Unloading and Office, Area 300 Storage and Area 400 Marine Terminal.

These manual pull stations, when manually activated, will send an alarm signal to the fire alarm panel, activate the audible and visual alarms and transmit the alarm signal to the supervising station.

7.3.5 Smoke Detectors

Smoke detection for this Facility is only provided above the fire alarm panels as required by NFPA 72, Section 10.4.4. The smoke detector above the fire alarm panel is intended to provide protection for the control unit/panel.

These smoke detectors, when activated by smoke, will send an alarm signal to the fire alarm panel, activate the audible and visual alarms and transmit the alarm signal to the supervising station.

7.3.6 Gas Detection

H2S, LEL, and O2 gas detection will be provided in the pump basins of the rail unloading structure. H2S and LEL detection will be provided near each unloading station in the rail unloading structure near grade. H2S and LEL detection will be provided in the pump basin at Area 300 - Storage. These gas detectors will be connected to the fire alarm system so they can be monitored.

Upon activation of any gas detector a signal will be sent to the fire alarm panel, which will then activate the gas detection alarm, which will be a different signal from the fire alarm audible and visual signals, and then transmit a signal to the supervising station.

7.3.7 Valve Tamper Switches

All water supply control valves that provide water to the fire suppression systems or foam concentrate to the fire suppression systems will be provided with an electronic tamper switch.

These electronic tamper switches will be connected to the building fire alarm system. Whenever one of the valves with an electronic tamper switch is moved from its off-normal position, a supervisory signal will be sent to the supervising station and an audible signal will also sound at the fire alarm panel to notify personnel.

7.4 Fire Alarm Notification Appliances

An audible and visual device will be located on the exterior of the foam/pump houses, exterior rail unloading structure, on the exterior of the control room/E-house facility and along the unloading rack area (the 1,800 feet long work area) for the rail unloading structure. The exterior fire alarm audible devices will be weatherproof devices and will be provided at each unloading work station.

The tone of the gas audible device will be different from that of the fire alarm tone which will be a three-pulse temporal pattern as required by NFPA 72. In addition, all gas notification devices will be equipped with a strobe that, upon detection of high gas, will activate the strobes in the zone that it was detected in only. This serves as a warning notification to avoid this area due to a detection of high gas.

8. Conclusion

This Fire System Operation Description has been prepared by John W. Poole, III a Washington licensed Fire Protection Engineer. Mr. Poole will also be serving as the Fire Protection Engineer of Record for the Facility.