

ALASKA LNG PROJECT	DOCKET NO. CP17-____-000 RESOURCE REPORT NO. 2 APPENDIX M – SPILL PREVENTION, CONTROL, AND COUNTERMEASURE (SPCC) PLAN	DOC NO: USAI-PE-SRREG-00- 000002-000 DATE: APRIL 14, 2017 REVISION: 0
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**APPENDIX M SPILL PREVENTION, CONTROL, AND
COUNTERMEASURE (SPCC) PLAN**



**SPILL PREVENTION CONTROL AND
COUNTERMEASURE PLAN**

USAI-P2-SPZZZ-00-000013-000

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STATEMENT OF CORPORATE COMMITMENT

The Project entity is committed to the prevention of discharges of oil to navigable waters and the environment, and maintains the required standards for spill prevention and control and countermeasures through regular review, updating, and implementation of this Spill Prevention Control and Countermeasure Plan.

[to be signed by Project entity's representative]

Date

PLAN CERTIFICATION

I hereby certify that I have examined the Project, and being familiar with the provisions of 40 CFR 112, attest that this SPCC Plan has been prepared in accordance with good engineering practices, including consideration of applicable industry standards, that procedures for required inspections and testing have been established, and that the plan is adequate for the Project.

[to be signed by Professional Engineer]

Date

This certification is valid for up to five years from the date signed by the professional engineer or until the plan is amended or superseded, whichever is sooner.

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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

1.2 PURPOSE

The purpose of the *Spill Prevention Control and Countermeasure (SPCC) Plan* is to protect human health and environment from spills and releases of hazardous materials. The *SPCC Plan* is used as a reference for chemical and hazardous material information and testing records, as a tool to communicate practices on preventing and responding to discharges with Project entity personnel, as a guide to facility inspections, and as a resource during emergency responses. This document is a template for the SPCC plans prepared by each Contractor based on their respective work scope and location.

1.3 SCOPE

This *SPCC Plan* applies to all construction activities, including commissioning activities prior to the start of regular operations. Separate SPCC plan(s) would be prepared for facilities, as applicable, for the operations phase.

1.4 REGULATORY FRAMEWORK

1.4.1 Federal Regulations

The U.S. Environmental Protection Agency's (EPA's) Oil Pollution Prevention Rule (or "SPCC Rule") became effective January 10, 1974 (40 CFR 112) and was promulgated under the authority of the Clean Water Act with significant amendments published in 2002. EPA finalized additional revisions in 2006, 2008, 2009, and 2011.

The term "oil" in the context of the rule broadly includes crude oil, petroleum (gasoline), fuel oil (diesel), aviation fuel, petroleum-based lubricants and solvents, mineral oils, naphtha, sludge, oil refuse, and oil mixed with wastes. Similarly, any general references to "oil" in this *SPCC Plan* would include these other substances.

In general, EPA uses the term "facility" interchangeably with the terms "release" and "site." The term "facility" may be defined as a location where a hazardous substance has been deposited, stored, disposed of, or placed.

To be subject to the SPCC rule, the facility must meet three criteria:

1. It must be non-transportation-related;
2. It must have an aggregate aboveground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons; and
3. There must be a reasonable expectation of a discharge into or upon navigable waters of the U.S. or adjoining shorelines.

Collectively, the construction phase of this Project meets the three criteria above.

1.4.2 State Regulations

EPA administers and enforces the SPCC program in Alaska for projects that have tank capacities between 1,320 and 420,000 gallons. The Alaska Department of Environmental Conservation (ADEC) administers the SPCC program for projects and facilities that have a refined product tank

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capacity greater than 420,000 gallons or a crude oil tank capacity greater than 210,000 gallons. The State Fire Marshal must approve the installation and change of fuel storage tanks before any work is started on a tank farm.

ADEC enforces the requirements of the state prevention programs which include:

- State oil pollution prevention requirements - 18 ACC 75.005 to 75.496;
- Oil discharge prevention and contingency plans: 18 AAC 75.400 to 75.496;
- Pollution Prevention and Contingency Plan Applications: 18 AAC 75.400 to 75.410;
- Plan contents: 18 AAC 75.425; and
- Verification log: 18 AAC 75.465.

1.4.3 North Slope Borough Regulations

The North Slope Borough (NSB) municipal code (NSBMC) also requires that impermeable lining and diking be used for bulk fuel storage facilities with a capacity greater than 660 gallons. The NSB typically requires secondary containment capable of containing 110% of the volume of all tanks greater than 660 gallons. Vinyl liners, with foam dikes and a capacity of 25 gallons, generally must be placed under all valves or connections to fuel tanks when located outside of secondary containment. For offshore locations, where space is limited, the NSB generally requires double walled tanks to meet this requirement. NSB bulk fuel storage requirements are detailed in the NSBMC, §19.70.050 (I), (11).

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2.0 RESPONSIBILITIES

Responsibilities for implementation of this *SPCC Plan*, including responsibilities of key personnel, are described in the following sections.

2.1 PROJECT ENTITY’S RESPONSIBILITIES

The Project entity would be responsible for:

- Providing this *SPCC Plan* to Contractor(s) and discussing the requirements herein with Contractor(s) prior to the start of work;
- Reviewing and approving Contractor SPCC plan(s) to verify adequacy;
- Performing due diligence oversight to ensure that this *SPCC Plan* is effectively implemented throughout construction;
- Employing Environmental Inspectors to oversee Contractor compliance with the provisions of this *SPCC Plan*;
- Notifying appropriate federal and state agencies in the event of a spill or release, in accordance with applicable regulatory requirements;
- Verifying prompt and appropriate response by the responsible parties to contain and clean up all spills or releases; and
- Providing copies of release reports required by the appropriate federal or state agencies and to any jurisdictional land-management agency.

2.1.1 Environmental Inspectors

In addition to the responsibilities defined in Section II.B. of the Alaska LNG Plan (see Resource Report No., Appendix D), the Environmental Inspector (EI) would be responsible for:

- Inspecting work sites for compliance and completing the weekly SPCC inspection checklist (Appendix C); and
- Completing a Spill Report Form (Appendix B).

2.2 CONTRACTOR RESPONSIBILITIES

The Contractor(s) would be responsible for:

- Using this *SPCC Plan* to develop their site-specific SPCC plan(s) (Contractor SPCC plan[s]) that incorporate site specific considerations (i.e. climate, geography, and logistics and infrastructure);
- Including drawings in SPCC plan(s) which depict the locations where fuels and other hazardous materials would be located, as well as where spill response equipment and materials are located;
- Designating a Construction Superintendent who is responsible for ensuring that all SPCC measures are implemented;
- Designating a SPCC Coordinator to support the Construction Superintendent in implementation of the *Contractor SPCC Plan*;

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- Designating personnel that are authorized to handle fuels and engage in refueling operations, and providing a roster of such personnel to EIs on a weekly basis;
- Retaining the services of a spill response subcontractor capable of emergency spill response in the applicable geographic area and possessing or cooperatively accessing trained personnel and equipment capable of responding to the largest expected (worst case) spill incident for that work scope; and
- Providing evidence to the Project entity of executed contracts/agreements with spill response subcontractors and commitments of personnel and equipment availability.

2.2.1 SPCC Coordinator

The SPCC Coordinator would be responsible for:

- Immediately notifying the Environmental Inspector of any spill upon discovery;
- Assisting the Environmental Inspector in completion of spill report forms;
- Promptly mobilizing on-site personnel, equipment, and materials for containment and/or cleanup actions commensurate with the extent of the spill;
- Determining when spill sites would be evacuated (in consultation with the Project entity's representatives and regulatory agency representatives) as necessary to safeguard human health;
- Assisting the spill response subcontractor as necessary and monitoring containment procedures to ensure that the actions are consistent with the requirements of the SPCC Plan; and
- Coordinating spill response drills with appropriate personnel, including the Project entity's representatives, the Environmental Inspector, subcontractors, and local emergency response agencies, as appropriate.

2.2.2 Project Field Personnel

Project field personnel would be responsible for:

- Actively participating in training about the proper handling of potential contaminants and the critical importance of prevention of spills and releases; and
- Implementing SPCC procedures and protocols as trained and as communicated by Contractor managers or supervisors.

2.2.3 Refueling/Handling Personnel

Refueling/handling personnel would be responsible for:

- Completing training of how to handle fuel, lubricants or other regulated substances on Project sites;
- Be familiar with all the requirements of the Contractor's SPCC plan(s) and the consequences of non-compliance; and
- Properly implement SPCC measures during execution of their tasks.

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3.0 SPILL PREVENTION

3.1 EQUIPMENT INSPECTION AND PREVENTATIVE MAINTENANCE

All construction equipment that would be delivered to the Contractor Yard(s) and that has fuel tanks, fuel lines, and hydraulic hoses would be inspected upon delivery. Equipment that is worn or malfunctioning would be repaired before the equipment is deployed to the work area.

The Contractor would perform a pre-construction inspection and test of all heavy construction equipment to ensure that it is in good repair.

Ongoing inspections would be conducted daily and weekly according to a preventative maintenance schedule. The Contractor would resolve issues identified during inspections prior to using the equipment for work tasks.

Inspections would include, but are not limited to:

- Fuel lines, hoses, pipes, valves on construction equipment and vehicles;
- Secondary containment areas (i.e. tank and drum storage areas);
- Oil levels in oil-containing units;
- Visual inspection of aboveground tanks, particularly when tank is refilled (note that leaks in tanks would be repaired immediately upon discovery; tanks with leaks would not be refilled until repaired and tested);
- Spill response supply areas; and
- Visual inspection for sheen or trash when stormwater is collected in secondary containment.

3.2 EQUIPMENT STAGING AND SITING

At the end of each workday, construction equipment would be parked a minimum of 100 feet away from streams, wetlands, ditches, and other waterbodies. In locations where removal of equipment from the wetland or where temporary upland storage of potential contaminants is not practicable, other procedures which are specified in the Applicant's *Wetland and Waterbody Construction Procedures* (Applicant's *Procedures*) would be followed.

3.3 USE OF SURFACE LINERS/DRIP PANS

For certain locations, including the work areas on the Alaska North Slope, portable surface liners and/or drip pans would be used to provide secondary containment under the radiator and/or engine to ensure contaminant-free work sites.

A surface liner is any safe non-permeable portable container (drip pan, bucket, fold-a-tank, built in secondary containment system, etc.) designed to catch/hold fluids for the purpose of preventing unplanned releases to the environment. Reasonable or appropriately sized surface liners are determined by operator discretion based on worst case release risk and probability factors.

Appropriately sized liners are specifically required for the following circumstances:

- When parked, non-operating or non-running equipment is located off pads.
- Under all support equipment not equipped with adequately sized built-in containment systems (e.g. heaters, compressors, bleed tanks, etc.);

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- During all fluid transfers utilizing vacuum trucks, fueling trucks, tank transfers, pumping operations, etc.; and
- Under all drums used as primary containment for excess or waste fluids (pressure relief or temporary storage).

3.4 STORAGE OF FUELS AND HAZARDOUS LIQUIDS

Storage tanks and containers for fuels and hazardous liquids would meet applicable industry codes and may be located at contractor yard(s), fuel depots, construction camps, or other Project work sites. Fuels, lubricants, waste oil, and any other regulated substances would be stored in aboveground tanks or container storage facilities only. Tanks, drums or any containers would not be placed in areas subject to periodic flooding or washout. All aboveground tanks or storage facilities that are not double-walled would generally be enclosed within secondary containment that can contain 110 percent of the largest tank volume.

Fuel or hazardous substances that are stored in containers that are 55 gallons or more require secondary containment. Drain valves on any temporary storage tanks would be locked to prevent accidental or unauthorized discharges.

Bulk fuel loading into mobile refueling vehicles would be conducted only at the contractor yards/tank farms, designated fuel depot sites, or at staging areas that are remote from these locations. There would be no other truck loading locations permitted.

Product containers would be stored in a neat and orderly fashion, and would be properly and clearly labeled. Products would be kept in original containers with the original manufacturers' labels still affixed. If the original containers are not re-sealable, then the products would be transferred to appropriate containers that are properly labeled. The inventory of all MSDSs for each chemical would be available onsite at each storage location.

Whenever practical, all contents of a container would be used prior to its disposal. Any surplus product would be disposed of in accordance with the manufacturers' and federal or state methods for proper disposal.

Vehicle maintenance wastes, including used oils and other fluids, would be handled and managed by personnel trained in the procedures outlined in this *SPCC Plan*. Vehicle maintenance wastes would be stored and disposed of in accordance with this *SPCC Plan*.

Tools and materials to stop the flow of leaking tanks and pipes would be kept on site. Such equipment would include, but would not be limited to, plugs of various sizes, hammers, and assorted sizes of metal screws with rubber washers, screwdrivers, and plastic thread tape.

Hazardous materials, including fuel, lubricants, chemicals and hydraulic fluid, would not be stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless otherwise approved by FERC. Where stationary equipment must remain within 100 feet of a waterbody or wetland, adequate secondary containment must be provided. All equipment would be parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a waterbody, unless otherwise approved by FERC¹. These activities can also occur closer only if the EI determines that there is no reasonable alternative, and the Project sponsor and its

¹ The Project entity proposes to adopt FERC's 2013 Wetland and Waterbody Construction Procedures, with site specific modifications. A copy of the requested modifications is provided in Resource Report No. 2, Section 2.6.

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contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill.

3.4.1 Tank Farms

Tank farms would be established at each of the construction camps (both pipeline and facilities), airstrips, contractor yards, or other designated fuel depot sites. During construction periods, the Contractor's diesel fuel storage tanks would constitute the vast majority of the total volume being held at the main tank farm (at site) and a somewhat lesser quantity would be located closer to the camp generators.

Tanks used to store fuel for both the construction camp and the construction activities would be serially linked to one service (active) tank from which all fuel would be drawn. All tanks would have valves and overfill protection devices.

Tank farms would be surrounded by containment berms which would provide a minimum containment volume equal to 110 percent of the largest tank within the farm, and would include a freeboard equal to 110 percent of the highest locally recorded weekly rain/snow fall for the locality. Service tanks within the tank farm would be located within the containment berm for the tank farm. Where earthen containment dikes are used, they would be constructed with slopes no steeper than 3:1 (horizontal to vertical) to limit erosion and provide structural stability.

Secondary containment areas would be under-lined with an impermeable membrane, chemically resistant to damage by the product(s) being stored within the containment area, having a minimum thickness equal or greater than that determined by prevailing industry standards and suitable for the climactic conditions.

Secondary containment areas would have locked drains. Any uncontaminated accumulated precipitation within the secondary containment may be discharged if authorized by the EI, based on the absence of visible sheen. If drawn off, accumulated water may be sprayed on the surrounding upland areas. Accumulated precipitation that has a visible sheen would be collected for proper storage and disposal. If spillage has occurred within the structure, then the accumulated waste would be drawn off and pumped into drum storage for proper disposal.

The secondary containment system would be maintained free of debris, vegetation, excessive accumulated water, snow, or other materials or conditions that might interfere with the effectiveness of the system. Facility personnel would visually check for the presence of oil leaks or spills within secondary containment areas during routine operations, and, unless precluded by safety concerns or weather conditions, would conduct documented weekly inspections of secondary containment areas, including checking for:

- Debris and vegetation;
- Proper alignment and operation of drain valves;
- Visible signs of oil leaks or spills; and
- Defects or failures of the secondary containment system.

Polyethylene drum spill skids would be used for storage of 55-gallon drums of fuel or hazardous materials that may be placed temporarily in the immediate work area.

3.5 SECONDARY CONTAINMENT AND DIVERSIONARY STRUCTURES

Secondary containment or diversionary structures as appropriate to prevent spills from reaching navigable waters would be installed at each storage or bulk fuel transfer location. Fuel storage tanks would be manually filled and attended while filling. All temporary fuel storage tanks would

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have secondary containment. Double-walled storage tanks would be fitted with leak-detecting sensors in the interstitial space. Pumps operating within 100 feet of a waterbody or wetland boundary would use appropriate secondary containment systems. There would be no field-fabricated aboveground primary storage containers or buried transfer piping of oil.

3.6 SECURITY

Drain valves would be locked in closed position when in non-operating or standby status. Contractor yard(s) would use area lights to illuminate fuel storage areas.

3.7 HANDLING OF FUELS AND HAZARDOUS LIQUIDS

Supervisors (e.g., minimum Foreman level) would oversee major fuel handling and transfer operations (greater than 1,320 gallons). All refueling operations would be performed under constant attendance of the individual conducting the refueling (i.e., Authorized Refueling/Fuel Handlers). Fuel trucks transporting fuel to onsite equipment would travel only on approved access roads. Fuel nozzles would be equipped with functional automatic shut-offs.

Where conditions require that construction equipment (e.g., barge equipment, dewatering pumps) be refueled within 100 feet of water bodies or wetlands, during fueling operations would be manned continuously to ensure that overfilling, leaks, and/or spills do not occur. Refueling and fuel storage in the vicinity of wetlands and waterbodies would adhere to AK DOT procedures, and the Applicant's *Procedures*.

Auxiliary fuel tanks solidly attached to construction equipment or pumps are not considered storage facilities.

3.7.1 Onsite Fluid Transfers

Fueling of onsite equipment and other fluid transfer operations at Project worksites would follow the following guidelines, which are adapted from the *North Slope Environmental Field Handbook* February 2005:

- Park vehicles and equipment away (minimum 100 feet) from waterbodies. Do not park on the edges of work sites.
- Position equipment so that valves, piping, tanks, etc., are protected from damage by other vehicles or equipment.
- Verify that adequate spill response equipment (including surface liners and sorbents, plastic bags with ties, and a shovel) is on hand.
- Only authorized personnel would dispense fuels and implement fluid transfers.
- Inspect hoses, connections, valves, etc., before starting any fluid transfers.
- Verify that valves are in the proper on/off position and each connection is tightened properly.
- Ensure adequate lighting if refueling after dark.
- Before starting, check all tank and container levels, valves, and vents to prevent overfilling or accidental releases.
- Place surface liners, drip pans, or drip buckets under all potential spill points.

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- Maintain a constant line-of-sight with critical components throughout the transfer procedure. Be prepared to stop the transfer immediately if a leak is discovered.
- Do not attempt to fix a leak while fluid is being transferred.
- Never leave fluid transfer operations unattended.
- After the transfer is complete, continue to take precautions while breaking connections.
- When finished, check the area for spills. Report all spills immediately upon discovery according to established procedures for that work site.

Typically, diesel tanks would be filled via transfer of fuel from trucks using a fuel hose. Personnel involved in fluid transfers would be specifically trained in accordance with fluid transfer guidelines described in 18 AAC 75.007 through 18 AAC 75.027. For transfers between trucks and tanks, manual shutoff valves would be readily available to the truck operator to stop transfers. Personnel involved in the transfer would have radios and would be able to communicate quickly if a transfer would need to be stopped.

In large wetlands where no upland site is available for refueling, auxiliary fuel tanks on construction equipment are recommended to reduce the frequency of refueling.

3.7.2 Transfer at Fuel Pump Areas

The following procedures apply to fuel pump areas:

- Liners would be required during all fueling operations at the fuel pumps.
- A marked drum would be placed at the fuel pumps for sorbent disposal.
- All fuel storage tanks would be constructed of steel. All fuel storage tanks are atmospheric vessels with permanently installed vents.
- The fuel discharge connection on each tank is equipped with manually operating valves.
- The fuel storage tanks have no automatic fluid level control devices. The tank fuel levels are observed and controlled manually.
- Fuel is transferred to and from the storage tanks through Schedule 80 steel pipe lines and/or steel flex Arctic grade fuel handling hoses.
- All lines have threaded connections; including “No-Drip” quick connect couplings and/or unions. All threaded connections are accessible for inspection and repair, if required.
- All fuel transfer lines meet or exceed the maximum fuel transfer pressure of 100 psi, with a 2:1 design margin.
- The routing of all hazardous materials transfer lines would be visibly marked. The placement of these lines would provide maximum protection from damage from external sources.
- Liners are required at all connection points from the beginning of hook-up to the time of disconnect during all fluid transfers. This includes vacuum trucks, fuel trucks, tank transfers, and other pumping operations such as the transfer of freeze protection fluids. Liners are required at all swivel, manifold, tank, truck, and vessel connections.

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3.7.3 Fuel Transfers from Barges to Onshore Bulk Fuel Tanks

During barge fuel transfers, a containment boom would be deployed around the barge. Such transfers would comply with the requirements of 18 AAC 75.025 and would be covered by a U.S. Coast Guard Facility Operations Plan (Title 33 of the Code of Federal Regulations [CFR], Part 154, Subpart D). Emergency spill response subcontractor equipment and staff would provide immediate assistance if needed.

3.7.4 Other Activities

Certain activities which may have higher risk for spills may follow certain procedures listed in this *SPCC Plan*. In particular, concrete coating activities would not be performed within 100 feet of a waterbody boundary. These activities may occur closer than 100 feet if the EI determines that there is no reasonable alternative, and appropriate steps have been implemented to avoid the potential for spills and enable prompt cleanup in the event of a spill.

3.8 DISPOSAL OF OILY WASTES

ADEC regulations state that prior approval is required for the ultimate disposal of a hazardous substance and for soil, cleanup materials, or other substances contaminated with a hazardous substance per [18 ACC 75.130(a)].

Disposal of oily waste materials from secondary containment would be according to the following procedures:

- All recyclable oily waste would be picked up with a vacuum truck and hauled to an approved location specified in the Contractor SPCC plan; and
- All non-recyclable oily waste would be disposed of in an approved manner in accordance with ADEC regulations.

3.9 COLLECTION AND TRANSPORT OF OILY/HAZARDOUS WASTES GENERATED DURING CONSTRUCTION

Hazardous wastes that are oils, as well as hazardous substances or hazardous wastes that are mixed with oils, would be containerized, labeled, and stored within designated waste accumulation areas located at each Contractor yard. All hazardous waste accumulation areas would have secondary containment features; this requirement may be satisfied by the secondary containment features of the buildings or by the installation of secondary containment features at the accumulation areas.

Small amounts of hazardous wastes or contaminated soils generated at remote sites would be containerized and brought back to the closest contractor yard hazardous waste accumulation area. Hazardous waste accumulation generally occurs in containers with a 55-gal capacity or less. There would be no accumulation or storage of hazardous waste in tanks. The Contractor would collect hazardous waste from all work areas on a regular schedule, weather permitting.

Currently, no permitted RCRA TSDFs exist within the state of Alaska. Therefore, the hazardous waste contractor(s) would transport all hazardous wastes to out-of-state RCRA-permitted TSDF(s). All such transport and transfers would take place utilizing hazardous waste manifest documentation procedures.

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4.0 SPILL RESPONSE

In the event of a spill, the Contractor(s) would follow applicable federal, state, and local regulations with respect to cleaning up the spill. All cleanup and other construction-related spill activities would be completed by the Contractor with support from a spill response subcontractor.

4.1 SPILL RESPONSE EQUIPMENT

The SPCC Coordinator would make known to applicable personnel the locations of spill control equipment and materials and have them readily accessible during construction activity. On each or near each piece of heavy equipment and in certain field construction vehicles, the Contractor would maintain spill response kits containing a sufficient quantity of absorbent and barrier materials to adequately contain and recover the volume of oil that could potentially be discharged from the heavy equipment. These kits may include, but are not limited to absorbent pads (“diapers”), straw bales, absorbent clay, sawdust, floor-drying agents, spill containment barriers, plastic sheeting, plastic bags with ties, shovels, skimmer pumps and holding tanks.

In the event that small quantities of soil become contaminated, shovels would be used to collect the soil and the material would be stored in a sealed container. Large quantities of contaminated soil may be bio-remediated on-site, subject to government and Project entity’s approval and/or landowner permission, or collected utilizing heavy equipment, and stored in drums or other suitable containers prior to disposal;

Suitable impermeable, plastic lining materials would also be available for placement below and on top of temporarily-stored contaminated soils and materials.

All fuel and service vehicles would carry materials adequate to control the volume of fuel that could potentially be released. Each vehicle would be issued a spill response kit that would include, but not be limited to, absorbent pads, commercial absorbent material, plastic bags with ties, and a shovel.

4.2 SPILL RESPONSE IN UPLAND AREAS

In the event of a spill or release in upland areas, the following measures would be implemented:

- If a spill occurs during refueling operations, Contractor would stop the operation immediately upon discovery until the spill can be controlled and the situation corrected.
- Spill sources must be identified and contained immediately upon discovery.
- For large spills on land, the spill must be contained and pumped into tank trucks. The spill response subcontractor would excavate and haul the contaminated soil to a disposal facility. Appendix A of this *SPCC Plan* lists potential Emergency Response Contractors that are equipped to respond to large spills.
- Spilled material and contaminated soil would be treated and/or disposed of in accordance with applicable federal, state, and local requirements.
- Smaller spills on land would be cleaned up with absorbent materials. Contaminated soil or other materials associated with these releases would also be collected and disposed of in accordance with applicable regulations.
- Flowing spills must be contained and/or absorbed before reaching surface waters or wetlands.

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- Absorbent material(s) would be placed over spills to minimize spreading and to reduce its penetration into the soil.
- The EI and SPCC Coordinator, in consultation with appropriate agencies, would determine when spill sites would be evacuated as necessary to safeguard human health. Evacuation parameters would include consideration for the potential of fire, explosion, and hazardous gases.

4.3 SPILL RESPONSE IN OR NEAR WETLANDS AND WATERBODIES

In the event of a spill or release in or near a stream, wetland, or other waterbody, the following measures would be implemented:

- If a spill occurs during refueling operations, the operation would be stopped until the spill can be controlled and the situation corrected;
- For spills into wetlands, streams, lakes, or other waterbodies containing standing or flowing water, regardless of size, the Project's Environmental Manager would promptly notify the National Response Center (1-800-424-8802);
- For petroleum hydrocarbon and hazardous substance spills into waterbodies, the ADEC must be notified. Notifications are to be made to 1-800-478-9300;
- For spills in standing water, floating booms, skimmer pumps and holding tanks would be on-hand and used by the Contractor to recover and contain released materials on the surface of the water;
- For spills during winter construction, upon discovery, the spill must be contained and pumped immediately into tank trucks. The spill response subcontractor would excavate and haul the contaminated material to a disposal facility; and
- If necessary, for large spills in waterbodies, an Emergency Response Contractor would be secured to further contain and clean up the spill.

Contaminated wetland soils would be excavated, placed on, and covered by impermeable, plastic sheeting, further contained in bermed areas, a minimum of 100 feet away from the waterbody. Contaminated soil would be removed from the site and stored in a secure location at the Contractor yard for later shipping to a licensed hazardous waste disposal facility.

4.4 STORAGE AND DISPOSAL OF CONTAMINATED MATERIALS

All contaminated soils, absorbent materials, and other wastes would be stored and disposed of by the Contractor(s) in accordance with applicable state and federal regulations. If it is necessary to temporarily store excavated soils on site, these materials would be:

- Contained in plastic bags; or
- Placed on, and covered by, impermeable, plastic sheeting.

The storage area would be bermed to prevent and contain runoff.

These materials would be transferred to the contaminated materials storage facility at the Contractor Yard, which would be approved by the Project entity, as soon as practicable.

Currently, there are no licensed hazardous waste treatment or disposal facilities in the State of Alaska. The nearest approved disposal facilities may be located in other Pacific Coast states. The Contractor SPCC Plan would identify these locations and would provide evidence of preconstruction agreements for their use.

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Hazardous waste and contaminated soils may be temporarily stored in a secure location at the Contractor Yard until shipment to a licensed disposal or treatment facility. Temporary storage would be in compliance with applicable laws. The Contractor SPCC Plan would provide site-specific measures for the temporary storage facility to ensure proper containment, waste segregation, and security.

Only licensed hazardous waste carriers may be used to move contaminated material from the Contractor Yards to the final permanent disposal facility. Such transport would be documented by the appropriate chain-of-custody transfer procedures. The Contractor would provide the Project entity with copies of all transfer and final disposal documentation.

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5.0 NOTIFICATIONS & REPORTING

5.1 IMMEDIATE NOTIFICATIONS UPON DISCOVERY

The Contractor's Construction Superintendent or SPCC Coordinator must notify the Project entity's Representative and the Environmental Inspector as immediately as possible upon discovery of any spill or release, regardless of volume.

5.2 AGENCY NOTIFICATION

The Project entity's Environmental Manager is responsible for notifying applicable regulatory agencies of all reportable spills. In the event of an uncontrolled spill, the EI or Contractor Superintendent would call the Project Emergency Response Center.

5.3 SPILL REPORT FORMS

The EI, with support from the SPCC Coordinator, would jointly complete a Spill Report Form (Appendix B) for each release of a regulated substance, regardless of volume. The Spill Report Form would be submitted to the Project Representative within 24 hours of the occurrence of a spill. To complete the Spill Report Form, the SPCC Coordinator and EI, at a minimum, would compile the following information:

- A legal description of the spill location, pipeline milepost, and specific directions from the nearest community or Project facility;
- The time and date of the spill, and the time and date the spill was discovered;
- The type and estimated volume of spilled material, and the manufacturer's name;
- The media in which the spill exists (e.g., soil, water, etc.);
- The topography and surface conditions of the spill site;
- Proximity of surface waters;
- Weather conditions;
- Name, company, address and telephone number of the Contractor's Construction Superintendent, SPCC Coordinator, representative, and the person who reported the spill;
- The cause of the spill;
- Immediate containment and/or cleanup actions taken;
- Current status of cleanup actions; and
- Photographs of the event.

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6.0 TRAINING

Project entity and Contractor personnel with job responsibilities critical to implementation of the *SPCC Plan* would be trained in accordance with applicable laws. The Project entity would be responsible for training of Project personnel. The Contractor(s) would be responsible for training of Contractor and subcontractor personnel. All individuals would be trained prior to start of work tasks.

Personnel responsible for handling fuel, lubricants, chemicals, hydraulic fluid or other hazardous materials would receive special training on their work tasks. Pre-job meetings would provide employees with information on their role in the overall scope of the work, review guidelines, and stress the importance of avoiding spills. Training topics are provided in Appendix E.

Spill response drills would be conducted periodically to familiarize Project personnel with the location of and use of spill response equipment. The SPCC Coordinator would be responsible for scheduling and implementing the drills with appropriate personnel and local emergency response agencies, as appropriate.

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APPENDIX A: Emergency Response Contractors and Disposal/Treatment Facilities

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EMERGENCY RESPONSE CONTRACTORS/DISPOSAL AND TREATMENT FACILITIES

The Contractor(s) would dispose of all wastes according to the applicable Alaska state and local requirements. A list of potential Emergency Spill Response Contractors and waste disposal facilities is provided below. This list was developed from state-wide databases and represents firms operating at the time the database was produced. The Contractor is responsible for verifying if a subcontractor or facility is operating under appropriate permits or licenses. The Contractor is responsible for ensuring wastes are disposed of properly and in accordance with the requirements of the *Project Waste Management Plan*.

Spill Response Contractors	Disposal and Treatment Facilities
Ahtna Construction. Anchorage, AK 99503 Phone: (907) 929-5612 Fax: (907) 929 5713	Currently, there are no licensed hazardous waste treatment or disposal facilities in the State of Alaska. Nearest approved disposal sites may be located in the Lower 48 states.
Alaska Clean Seas. Prudhoe Bay AK, 99734 Phone: (907) 659-3249 Fax (907) 659 2616	Facilities in Alaska approved for the disposal of hydrocarbon contaminated soils, water and ice to be determined by the Contractor.
Alaska Chadux Corporation Anchorage, AK 99057 Phone: (907) 348-2365 Fax: (907) 348-2330	
Chugach Alaska Corporation Anchorage, AK 99503 Phone: (907) 563-8866 Fax: (907) 563-8402	
Cook Inlet Spill Prevention and Response Inc. (CIPSPRI) Nikiski, AK 99635 Phone: (907) 776-5129 Fax: (907) 776-2190	
ECC, Inc. Anchorage, AK 99501 Phone: (907) 644-0428 or 1 (888) 644-0428 Fax: (907) 677-9328	
Inland Petro Service Inc. Fairbanks, AK 99701 Phone: (907) 451-1905 Fax: (907) 451-1906	
National Response Corporation Anchorage, AK 99501 Phone: (907) 258-1558 or 1 (877) 375-5040 Fax: (907) 746-3651	
The Response Group Inc. Anchorage, AK 99501 Phone: (907) 240-2234	
Pacific Environmental Corp (PENCO) Anchorage, AK 99518 Phone: (907) 562-5420 Fax: (907) 562-5426	

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Spill Response Contractors	Disposal and Treatment Facilities
Peak Oilfield Service Co. Anchorage, AK 99503 Phone: (907) 263-7000 Fax: (907) 263-7041	

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APPENDIX B: Example Construction Spill/Release Report Form

To Be Developed Prior to Construction

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ALASKA LNG CONSTRUCTION SPILL REPORT FORM (FINAL FORMAT TO BE DEVELOPED PRE-CONSTRUCTION)

Date of Spill: _____ Date of Spill Discovery: _____

Time of Spill: _____ Time of Spill Discovery: _____

Name and Title of Discoverer: _____

Type of material spilled and manufacturer's name: _____

Legal Description of spill location: _____

Directions from nearest community: _____

Estimated volume of spill: _____

Weather conditions: _____

Topography and surface conditions of spill site: _____

Spill medium (pavement, sandy soil, water, etc.): _____

Proximity of spill to surface waters: _____

Did the spill reach a waterbody? _____ Yes _____ No

If so, was a sheen present? _____ Yes _____ No

Describe the causes and circumstances resulting in the spill:

Describe the extent of observed contamination, both horizontal and vertical (i.e., spill-stained soil in a 5-foot radius to a depth of 1 inch):

Describe immediate spill control and/or cleanup methods used and implementation schedule:

Current status of cleanup actions: _____

Name/Company/Address/Phone Number for the following:

Construction Superintendent: _____

SPCC Coordinator: _____

Representative: _____

Person Who Reported the Spill: _____

Environmental Inspector: _____

Form completed by: _____ Date: _____

SPCC Coordinator must complete this for any spill, regardless of size, and submit the form to the Project Representative within 24 hours of the occurrence.

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IT'S THE LAW!

AS 46.03.755 and 18 AAC 75.300

REPORT OIL AND HAZARDOUS SUBSTANCE SPILLS

During Normal Business Hours

call the nearest response team office:

Central Alaska: (907) 269-3063
Anchorage Fax: (907) 269-7648

Northern Alaska: (907) 451-2121
Fairbanks Fax: (907) 451-2362

Southeast Alaska: (907) 465-5340
Juneau Fax: (907) 465-5245

Alaska Pipeline: (907) 451-2121
Fairbanks Fax: (907) 451-2362

Outside Normal Business Hours

Toll Free 1-800-478-9300

International 1-907-269-0667



Hazardous Substance

Any hazardous substance spill, other than oil, must be reported immediately.

Oil – Petroleum Products

To Water

- ◆ Any amount spilled to water must be reported immediately.

To Land

- ◆ Spills in **excess of 55 gallons** must be reported immediately.
- ◆ Spills in **excess of 10 gallons, but 55 gallons or less**, must be reported within 48 hours after the person has knowledge of the spill.
- ◆ Spills of **1 to 10 gallons** must be recorded in a spill reporting log submitted to ADEC each month.

To Impermeable Secondary Containment Areas

- ◆ Any spills in **excess of 55 gallons** must be reported within 48 hours.

Additional Requirements for Regulated Underground Storage Tank Facilities

Regulated Underground Storage Tank (UST) facilities are defined at 18 AAC 78.005 and do not include heating oil tanks.

If your release detection system indicates a possible discharge, or if you notice unusual operating conditions that might indicate a release, you must notify the ADEC UST Program within 7 days.

UST Program: (907) 269-3055 or 269-7679

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APPENDIX C: Example SPCC Inspection Checklist

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SPCC INSPECTION CHECKLIST (complete weekly) (FINAL FORMAT TO BE DEVELOPED PRE-CONSTRUCTION)

Date: _____

Inspector Name and Title:

- S - Satisfactory
- N/A - Not Applicable
- 0 - Repair or Attention Required
- C - Comment under Remarks/Recommendation

Dikes/Berms	
	Any noticeable oil sheen on runoff
N/A	Containment area drain valves closed and locked
	No visible oil sheen in containment area
	No standing water in containment area
	Dike structurally sound
Tanks/Totes	
	Tanks/totes in good condition (i.e. rust, corrosion)
	Bolts, rivets, or seams not damaged
	Tank/tote foundation intact
	Level gauges working properly
	Vents not obstructed
	Tank/tote and ground surface checked for signs of leakage
Mobil Re-fueler	
	Warning signs posted
	No leaks in hose
	Drip pans not overflowing

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	Containment curbing intact
Security	
	Contractor yard gates locked after hours
	Tanks/totes locked when not in use
	Starter controls for pumps locked when not in use
	Adequate lighting
	Fence and gate intact
Training	
	Training records for all contractors accounted for (monthly check)
	Spill prevention briefing held (monthly check)
Spill Kits	
	Spill kit inventory replenishment

Remarks/Recommendations:

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APPENDIX D: Typical Fuels, Lubricants and Hazardous Materials on Project Sites

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Table 1: Typical Petroleum Product Storage and Handling Volumes on a Construction Spread

	Fluids	Typical Amounts	Storage	Potential Failure and Estimated Volume	Spill Direction
Fuels	Diesel	620,000 gals	37 x 400 Bbl Tanks		See Alignment Sheet and Topographical Maps for spill direction
	Kerosene/Aviation Fuel	16,500 gals	1 x 400 Bbl Tank		
	Gasoline	33,500 gals	2 x 400 Bbl Tanks		
Lubricants and others Hazardous Fluids	Engine Oil		55 gallon drums		See Alignment Sheet and Topographical Maps for spill direction
	Transmission/ Drive Train Oil		55 gallon drums		
	Hydraulic Oil		55 gallon drums		
	Gear Oil				
	Lubricating Grease		Boxes		
	Ethanol/Methanol	2,500,000 gals	148 x 400 Bbl Tanks		

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Table 2: Typical Petroleum Product Storage and Handling Volumes on a Compressor Station (Facilities Construction).

	Fluids	Typical Amounts	Storage	Potential Failure and Estimated Volume	Spill Direction
Fuels	Diesel	84,000 gals	5 x 400 Bbl Tanks		See Plot Plans and Topographical Maps for spill direction
	Kerosene/Aviation Fuel	16,500 gals	1 x 400 Bbl Tank		
	Gasoline	16,500 gals	1 x 400 Bbl Tank		
Lubricants and others Hazardous Fluids	Engine Oil		55 gallon drums		See Plot Plans and Topographical Maps for spill direction
	Transmission/ Drive Train Oil		55 gallon drums		
	Hydraulic Oil		55 gallon drums		
	Gear Oil				
	Lubricating Grease		Boxes		

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Table 3: Typical Petroleum Product Storage and Handling Volumes at Labor Camp

	Fluids	Typical Amounts	Storage	Potential Failure and Estimated Volume	Spill Direction
Fuels	Diesel	33,000 gals	2 x 400 Bbl Tanks		See Alignment Sheet and Topographical Maps for spill direction
	Kerosene/Aviation Fuel				
	Gasoline	16,500 gals	1 x 400Bbl Tank		
Lubricants and others Hazardous Fluids	Engine Oil		55 gallon drums		See Alignment Sheet and Topographical Maps for spill direction
	Transmission/ Drive Train Oil		55 gallon drums		
	Hydraulic Oil		55 gallon drums		
	Gear Oil				
	Lubricating Grease		Boxes		

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APPENDIX E: Contractor Training Requirements

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CONTRACTOR SPILL PREVENTION AND RESPONSE TRAINING

Each Contractor SPCC Plan would include a training program for all individuals involved with fuel handling and transfer.

The training program for personnel involved with fuel handling and transfer would include but not be limited to the following topics:

- Project spill prevention policies
- Responsibilities of personnel and Designated Person Accountable for Spill Prevention;
- Spill prevention regulations and requirements;
- Procedures for routine handling of products (e.g., loading, unloading, transfers);
- Spill prevention procedures;
- Spill reporting;
- Spill response and cleanup procedures;
- Recovery, disposal, and treatment of spilled material;
- History/cause of known spill events associated with Project construction;
- Equipment failures and operational issues;
- SPCC inspections;
- Recently developed measures/procedures;
- Proper equipment operation and maintenance; and,
- Procedures for draining rainwater from containment berms.

An abbreviated training program would be developed for all other construction personnel. Each Contractor would be responsible for maintaining the following training records:

- Log of all staff receiving training appropriate to their job function, including names and dates of training; and
- Log of all staff participating in regular spill prevention briefings and refresher training.

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APPENDIX F: North Slope Operations Spill Prevention and Response Procedures

North Slope **Environmental** FIELD HANDBOOK

December 2015





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North Slope Environmental Field Handbook

The North Slope Environmental Field Handbook provides a basic overview of environmental issues in Alaska's North Slope oil and gas fields.

This edition of the Handbook has been compiled by the following North Slope operating companies:



BP Exploration (Alaska), Inc. (BPXA)



Caelus Energy Alaska, LLC



ConocoPhillips Alaska, Inc. (CPAI)



Eni Petroleum Co. Inc. (Eni)



ExxonMobil Alaska Production Inc. (EMAP)



Hilcorp Alaska, LLC



Savant Alaska, LLC

Please contact the Environmental staff in your operating area (see pages 60-61) for detailed information that is relevant to your location or project. The general guidance presented in this booklet is not a substitute for individual company policies, site-specific procedures, or actual regulations.

North Slope Environmental Field Handbook

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SECTION 1

Introduction

North Slope oil producers make every effort to minimize the effect of our operations on the environment. We are unified in a commitment to environmental excellence and continuous improvement. We constantly assess our impact on the environment, and we apply what we have learned over the past decades to each new project.

Environmental management is not just the job of a few specialists — it is a crucial and integral part of our day-to-day business on the Slope. Everyone can make a difference by following a few simple practices:

- Plan ahead. Before starting a project, identify any permit requirements, spill prevention practices, or other environmental restrictions that might apply. It can take a year or more to get all the permits needed for a project.
- Order supplies and materials carefully to avoid hazardous materials and minimize waste.
- Make sure you know well in advance what to do with any waste that is generated on your project. Remember that many materials can be reused or recycled.
- Keep all vehicles and equipment in good working condition, and get them repaired immediately if service is required.
- Use portable liners under all fluid transfer points.
- Report spills immediately, according to the procedures in your operating area.

INTRODUCTION

- Keep your job site clean. Manage food and trash carefully to avoid attracting wildlife.
- Be aware of the general condition of the areas where you work. If you see something that doesn't look right, report it!

Who to Call for Help

The North Slope is divided into several operating units. The legal boundaries between fields are distinct, and procedures vary from place to place. If you need assistance, contact the Environmental staff in your operating area. If they don't have the answer right away, they will find out for you, or direct you to the people who can help you.

Contact information is provided on pages 60-61 of this handbook.



SECTION 2

Regulated Activities

Many activities require a permit, authorization, or notification before initiating work. It can take months or even years to permit large projects, and multiple agencies may be involved. Most permit applications are open to public review and comment.

PLAN AHEAD!

Please inform the Environmental staff about new projects as far in advance as possible.

Examples of regulated activities include, but are not limited to, the following examples:

Extracting Natural Resources

- Taking gravel or other raw materials from mine sites, river channels, or beaches
- Withdrawing water or ice chips from any natural source, gravel mine site, or impoundment

Off-Pad Activities

- Any work or travel on the tundra
- Any activity in rivers, streams, lakes, beaches, or coastal waters (dredging, diverting, installing bridges or culverts, etc.)
- Working in a pipeline right-of-way
- Building and maintaining ice roads and pads
- Stockpiling or storing gravel or other materials on the tundra

REGULATORY FRAMEWORK

Construction and Maintenance Projects

- Placing gravel for new roads and pads
- Modifying existing roads and pads (expanding, trenching, etc.)
- Adding modules or other structures (well conductors, utilities, bollards, pipeline supports, etc.) to existing pads

Air Quality

- Operating or modifying regulated air emission sources (turbines, generators, incinerators, etc.)
- Open burning
- Flaring

Water Treatment

- Installing, operating, or modifying a treatment system for drinking water or wastewater

Waste Disposal

- Drilling and operating a disposal well
- Discharging waste or wastewater to land or water surfaces
- Storing waste in surface pits or containment structures

Wildlife

- Deterring (hazing) wildlife
- Handling migratory birds (alive or dead)
- Activities that could affect wildlife habitat

Other

- Operating oil storage containers and pipelines

Always check with your supervisor and Environmental staff before beginning your work to make sure you have all the necessary authorizations. Some activities only require a verbal notification. Others may take weeks or even years to approve.

SECTION 2

Regulatory Agencies

Many regulatory agencies have jurisdiction over our activities on the North Slope. They include:

Federal Agencies

BLM: U.S. Bureau of Land Management (tundra travel and right-of-way approvals in National Petroleum Reserve - Alaska)

BOEM: U.S. Bureau of Ocean Energy Management (offshore environmental analysis and air quality)

BSEE: U.S. Bureau of Safety and Environmental Enforcement (offshore spill response and environmental compliance)

COE: U.S. Army Corps of Engineers (dredging and filling in wetlands and water bodies)

EPA: U.S. Environmental Protection Agency (air, industrial wastewater discharges, hazardous waste management, underground injection, oil storage containers)

NMFS: National Marine Fisheries Service (marine resources, marine mammals, endangered marine species), a branch of NOAA

NOAA: National Oceanic and Atmospheric Administration (coastal and marine ecosystems and resources)

USFWS: U.S. Fish and Wildlife Service (fisheries and habitat, migratory birds, threatened and endangered species, national wildlife refuge management)

REGULATORY FRAMEWORK

State Agencies

ADEC: Alaska Department of Environmental Conservation (air quality, drinking water, spill prevention and response, oil storage containers, waste and wastewater treatment and disposal, industrial wastewater discharges, stormwater management, soil remediation, solid waste)

ADFG: Alaska Department of Fish and Game (wildlife management, water withdrawal, activities in streams)

ADNR: Alaska Department of Natural Resources (land use, tundra travel, water and gravel use, habitat protection and restoration, identification and preservation of historic properties, pipelines)

AOGCC: Alaska Oil and Gas Conservation Commission (reservoir management, flaring, oil and gas resource protection, underground injection)

Local Agencies

NSB: North Slope Borough (land use and pipeline surveillance, subsistence resources, village coordination)
Noncompliance

SECTION 2



Noncompliance

Failure to comply with applicable regulations and permit conditions can result in substantial civil or criminal penalties. A poor compliance record can delay new permits, damage future prospects for oil and gas development, and lead to even stricter regulations in the future.

Each North Slope worker must understand the responsibilities for compliance related to his or her job.

- Follow approved job procedures. These should be consistent with environmental regulations applicable to your work.
- Be aware of the environmental concerns in your work area.
- Know the permits and the conditions that apply to your operation, and ensure that new workers or contractors are familiar with the permit stipulations. If you are unsure, contact the Environmental staff.
- If required, make sure copies of permits are on site or readily available (electronic copies may be acceptable).
- Look for ways to reduce environmental liabilities on the job, such as minimizing the generation of hazardous waste and preventing spills.
- Contact your supervisor immediately if you see or suspect something out of compliance.
- Cooperate fully with agency personnel during compliance inspections. Your supervisor and, if possible, someone from the Environmental staff should be present. Agency personnel have the right to conduct unannounced inspections at any time, unless doing so would be unsafe.

SECTION 3

Air Quality Goals

North Slope operating companies are committed to reducing emissions of air pollutants from our facilities. We have been monitoring air quality



on the Slope for several years and using the data to assess current and future impacts. On a global level, we are actively addressing greenhouse gas emissions and developing greenhouse gas targets for our operations.

Air Quality Control Permits

Air Quality Control permits regulate the emission of carbon, sulfur, and nitrogen compounds, as well as particulate matter and other parameters. Permits often include limits on operating hours, fuel usage, and visible emissions. They contain many requirements for maintenance, monitoring, recordkeeping, and reporting.

Regulated equipment at North Slope facilities may include turbines, engines, generators, heaters, incinerators, flares, boilers, and storage tank vapor collection systems.

Please consult with Environmental before making changes to regulated equipment. Modifications can lead to permit violations.

Noncompliance could result from:

- Bringing unpermitted fuel-burning equipment to the site, such as a generator or heater
- Replacing a motor or pump in process equipment
- Changing the horsepower output of regulated equipment
- Relocating certain permitted fuel-burning equipment
- Exceeding the allowable operating hours or fuel use limits
- Changing the fuel type or fuel specifications
- Placing a new storage tank in service
- Failing to conduct required monitoring or maintenance
- Failing to keep required records

If you operate or maintain emission sources, you must be aware of all applicable restrictions and permit conditions.

Black Smoke

Incomplete combustion may produce visible smoke from flares or other emission sources. Black smoke events lasting more than a few moments may indicate a process upset or equipment malfunction.

If you observe black smoke from a flare or other emission source, please report it according to the procedures in your operating area.

SECTION 3

Gas and Vapor Leaks

Gas leaks from wells, pipelines, valves, or other sources are potentially serious safety hazards. Any evidence of leaking gas should be reported as soon as possible. Stay out of the area until re-entry has been approved.

Substantial releases of natural gas are considered a loss of state resources, and must be reported to the AOGCC. In the long term, sustained leaks may contribute to local air pollution. Any release should be reported to the Environmental staff to determine the appropriate notification/reporting action.

Ultra Low Sulfur Diesel

Ultra-low sulfur diesel (ULSD) has a maximum of 15 parts per million sulfur. To comply with federal and state rules, ULSD must be used in rural Alaska (including the North Slope) in the following equipment:

- All diesel-powered on-road vehicles (such as automobiles and trucks)
- Diesel powered off-road equipment (such as graders, backhoes, and bulldozers)
- Marine engines

If you operate vehicles or equipment that are subject to the ULSD rule, be sure to fill up only from clearly marked ULSD bulk tanks and dispensers.

Specific air permits may have ULSD requirements for stationary sources as well. Contact the Environmental staff to determine ULSD requirements for your site.

Idling Vehicles

Prolonged idling wastes fuel, fouls engines, and releases air pollutants. In general, the practice of leaving vehicles running is discouraged, even during cold weather. Policies and enforcement may vary from one location to another.

Plug-ins for engine block heaters are available at most facilities. Use them to avoid cold starts and reduce warm-up time. If a vehicle must be left idling, avoid parking it near air intake vents. Be alert for gas-venting or other conditions that may produce combustible atmospheres.



See Section 7 for guidelines on drip pan use under parked or idling vehicles.

Open Burning

Wood or other materials may not be burned in open fires without a permit. Contact the Environmental staff to find out if, where, and when open burning is allowed in your area.

SECTION 4

Land Ownership

The oil and gas industry owns very little land on the North Slope. Most of our operations are located on state, federal, and Native corporation lands. As mentioned in Section 2, we must comply with many regulations and permits when operating in these areas. We must also obtain approvals to work on private lands, easements, and rights-of-way.

Many additional restrictions apply to wetlands and other water bodies.



Tundra Travel

Most of the tundra that surrounds our oil fields is classified as “wetland” (see Section 5), and it is protected by state and federal regulations. Even though annual precipitation is relatively low, the ground surface typically remains saturated because of poor drainage. During the brief summer, a thin “active layer” at the surface thaws to a depth of about two feet. This layer is extremely sensitive to disturbance. Below the active layer, permanently frozen ground (“permafrost”) extends as deep as 1500 feet.

For all tundra travel and off-pad work, we must obtain permission from the land-management agencies. For state lands, the ADNR publishes tundra travel opening and closure dates that apply to broad geographic areas. When an area is “open”, we must still ask for case-by-case approval, and we may be limited to specific vehicles and routes. Depending on the location of the travel, the North Slope Borough and/or Native Corporations may also need to be notified. Other agencies may have additional stipulations; for example, river and stream crossings require special approval from ADFG in order to protect fish habitat.

There are three basic seasons for tundra travel:

Summer tundra travel opens annually around July 15. Travel is limited to a few approved vehicles with smooth tracks, like Rolligons, Argos, Hagglunds, and Tucker Snowcats.

Winter tundra travel opens when the regulating agency determines that there is adequate snow cover and frost depth to protect the tundra. Historically, the winter tundra travel season has opened as early as November and as late as January. The closing has occurred as early as April and as late as June. In a few years, no winter tundra travel was allowed at all, due to lack of snow cover.

No tundra travel of any kind is allowed during spring breakup, when the tundra is particularly vulnerable. The closed period runs from the end of the winter tundra travel season until the opening of the summer travel season.

SECTION 4



Tundra Travel (continued)

If you are planning a project or activity that requires tundra travel, please contact the Environmental staff as far in advance as possible. Provide the following information:

- A map showing your proposed route of travel and/or project location
- A description of the activity, including all equipment and vehicles that will be used off-pad
- The timing of your project, including proposed start date, duration, and end date.

Ice depth should be checked by a trained individual prior to performing tundra travel over frozen waterbodies.

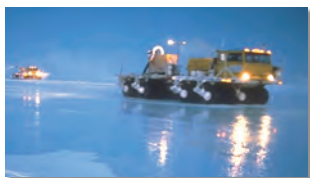
Please notify Environmental when your tundra travel has been completed. If the actual travel route varied from the proposed route, provide the actual route to the Environmental staff.

**Damage to the tundra is never authorized.
Report any tundra disturbance to Environmental
as soon as possible.**

Ice Roads

Seasonal ice roads provide critical links to sites that do not have gravel road access. They extend from a few feet to more than 40 miles across tundra, rivers, lakes, and the frozen sea surface. Ice is also used to build seasonal pads for exploratory drilling and other projects.

It can take months of advance planning and permitting to establish an ice road route. In addition to the terrain, we must consider land ownership, cultural and archeological sites, wildlife habitat, and available water sources. Ice road construction and maintenance require tons of ice chips and millions of gallons of fresh water.



When traveling on ice roads:

- Stay on the road, and stay in your vehicle.
 - Stop at all security checkpoints.
 - Comply with speed limits and communication protocols.
- Pay attention to delineators and other markers indicating the ice road boundaries.
 - Report all spills, accidents, and wildlife sightings as instructed.
 - If you see a polar bear anywhere in the vicinity of an ice road, STOP and contact Security immediately. Do not proceed until you are instructed to do so.

During ice road construction or maintenance:

- Do not deviate from the approved route without explicit approval from Security and Environmental.
- Use only approved sources for water and ice chips.
- Track and report water use as instructed, and be aware of how much water you are allowed to take from each source.

SECTION 4



Snow Removal

To minimize the risk of environmental impact and property damage, snow removal crews must follow certain basic guidelines.

- Do not push dirty, gravelly, or contaminated snow off roads or pads. Be aware of areas where contamination is most likely to be present, like parking areas, fuel pumps, and known spill sites.
- Place dirty or contaminated snow in designated stockpile or storage areas.
- Maintain a minimum distance from flowlines, valves, and well houses to avoid contact. Never blow snow onto or into well houses, flow lines, high voltage equipment, or manifold buildings.
- Stained snow or concealed objects might not be visible to the equipment operator, so use a spotter, if possible.



It is a violation of regulations and permit conditions to push excess gravel or pollutants off the pad.

Good housekeeping at the site is also important.



- Inspect sites frequently for spills, loose debris, and materials that could get mixed with snow.
 - Report and clean up all spills promptly.
 - Do not store materials near the edge of the pad.
- Use poles or delineators to mark the location of equipment or materials that might become buried by snow.

Use of Treated Wood

In most North Slope operating areas, the use of pressure-treated wood for construction projects is discouraged. Creosote-treated wood is prohibited by state and federal permits. "Green" wood may contain chemical compounds such as arsenic, chromium, and copper.

Please consult with the Health, Safety, and Environmental staff before purchasing, using, or disposing of pressure-treated wood.

SECTION 5

Water Use

Fresh water and ice chips may not be withdrawn from rivers, streams, lakes, or ponds without a permit. Your Environmental staff can tell you which sources are already approved. If your project needs additional water sources, be aware that the permitting process can take several months.



You must comply with all stipulations of the water use permit, including:

- Limits on the total volume of water that can be withdrawn
- Seasonal restrictions
- Specifications for screens and intake structures
- Weekly or monthly water chemistry analysis
- Reporting requirements

Many water sources have multiple permits, so coordinate closely with other operators to ensure allowed volume is not exceeded.

Water use from each source must be tracked and reported.

Project supervisors must ensure that water withdrawals are logged and reported on a regular basis, and that total allowable volumes are not exceeded.

Drinking Water

On the North Slope, drinking water is obtained from lakes, impoundments, and desalinated seawater. All drinking water systems that serve North Slope workers are approved by ADEC and operated in accordance with state drinking water regulations. Information about the quality of your drinking water is available upon request.

Any changes to drinking water systems must be reviewed in advance by Environmental. In some cases, ADEC approval will be required.

Untreated lake water should never be consumed. Naturally-occurring microorganisms can cause serious illness.

Protected Waters and Wetlands

Most surface waters on the North Slope, including tundra wetlands, are protected by federal and state laws. Activities affecting protected waters and wetlands are strictly regulated (see Section 2), and should be discussed well in advance with the Environmental staff. Tundra travel requirements are outlined in Section 4.

Several artificial water bodies, such as old gravel pits and reservoirs, also have protected status. Unauthorized activities around these sites may disrupt rehabilitation processes and violate permit stipulations.

SECTION 5

Wastewater Discharges

Wastewater may not be discharged to tundra or other surface waters without a permit issued by state and/or federal agencies. Discharge permits often include numerical pollutant limits, as well as requirements for monitoring, sampling, reporting, and Best Management Practices such as erosion control at the discharge point.

Examples of regulated wastewater discharges include:

- Treated graywater and sewage from camps
- Fluid used to pressure-test (hydrotest) pipelines or vessels
- Gravel pit dewatering
- Pad, excavating, and containment dewatering
- Discharge of any chemicals or process wastes
- Discharges that change the temperature of the receiving waters

Stormwater

Discharge of contaminated runoff or snowmelt ("stormwater") is prohibited by state and federal regulations. Runoff may not cause a sheen or other evidence of pollution on the tundra or receiving waters.

Some facilities have storm water permits that require inspections and monitoring of runoff. Many facilities have Storm Water Pollution Prevention Plans (SWPPPs) that describe site-specific procedures and best management practices that prevent contaminated runoff, such as:

- Keeping work sites and equipment clean (good housekeeping)
- Frequent pad inspections to detect potential pollutant sources
- Prompt spill reporting and cleanup
- Careful storage of chemicals and other potential pollutants to minimize contact with snow and rain
- Proper management and disposal of contaminated snow (see Section 4)

Accumulated water from impoundments, excavation areas and secondary containments may not be discharged without approval. If de-watering is necessary, consult the Environmental staff.

SECTION 6

Non-Interference Policy

On the North Slope, we are privileged to work in the midst of a healthy and unique wildlife community. All North Slope operating companies maintain a strict non-interference policy. Disciplinary action, including loss of job, may be imposed on any employee or contractor who violates this policy.

Never feed, approach or harass any wildlife.

Although the operating companies make every effort to protect both people and wildlife, individuals must also take personal responsibility.

- Follow rules and procedures, and encourage your co-workers to do the same.
- Report wildlife sightings as directed.
- Know your site's alarm and response procedures for bears and other potentially dangerous wildlife.
- Do not attempt to handle dead, injured, or trapped wildlife (including birds).
- Drive carefully and give wildlife the right-of-way.
- Never feed or allow food to be available to any wildlife. Store all food waste in wildlife-proof containers or in vehicle during shift.
- Remove food and food waste from vehicles (including pickup truck beds), watercraft, and aircraft after shift.
- Never litter or pour unfinished beverages (such as sodas or coffee) or tobacco on the ground. Discourage your co-workers from doing so.
- Do not harass wildlife, even from a protected or secured location.



Birds

In May, vast numbers of birds begin to return to the North Slope for the summer. Almost all birds are protected under the Migratory Bird Treaty Act, and some species, such as spectacled and Steller's eiders, are protected under the Endangered Species Act.

June and July are particularly critical months for nesting birds. Every effort should be made to check worksites for nests that could be disturbed, especially in heavy equipment and mobile structures. If disturbance cannot be avoided, contact the Environmental staff for instructions. Additionally, if you observe any nesting activities on pad, notify the Environmental staff.

**Do not touch injured, trapped, oiled, or dead birds.
Contact Environmental or Security for assistance.**

SECTION 6

Foxes

Both arctic and red foxes inhabit the North Slope. They normally prey on small mammals and birds, but may investigate almost any type of food waste or trash at our facilities.

Many foxes carry rabies and are capable of transmitting it at any time, although they may not show symptoms until close to death. We do not want foxes at our work sites.

- Assume that every fox is a rabies carrier. Be especially cautious around foxes that are aggressive, unusually curious, or overly friendly.
- Never feed foxes or leave food where it is accessible to them.
- During pad inspections, check for areas that could be used as den sites. (Foxes start to build dens in March and April.)
- If you come into contact with a fox, go to the medical clinic as soon as possible for evaluation.

Report all nuisance fox sightings to Security immediately.





Wolves and Wolverines



Wolves and wolverines naturally range across the North Slope and, like foxes, they can carry rabies. With this in mind, you should take precautionary measures to maintain a safe

distance from them and minimize attractants, such as by keeping food secured and food waste disposed of properly.

If you do come into contact with a wolf or wolverine, go to the medical clinic as soon as possible for evaluation.

Report all wolf and wolverine sightings to Security immediately.

SECTION 6

Caribou

Caribou are an important subsistence resource for local residents on the North Slope. Four main caribou herds - the Porcupine, Central Arctic, Teshekpuk, and Western Arctic - migrate onto the North Slope coastal plain in summer. They calve in May and June. After calving, caribou movements are influenced primarily by mosquitoes and oestrid flies. Harassment by mosquitoes can last from mid-to late June through July, when caribou seek relief by traveling to the coast. Harassment by oestrid flies typically lasts from mid-July into August, when caribou will seek relief in elevated areas such as drillsites or beneath facility modules or pipelines.

As caribou move through the field, they must be given right-of-way and should not be approached or harassed. Be extremely careful on the roads when caribou are present. Their movements are unpredictable, and sometimes sudden. Drive slowly. Be prepared to stop, and do not use your vehicle to interfere or influence caribou movements.





Special road restrictions may be in effect during calving season, since maternal caribou with calves are especially sensitive to disturbance from vehicles and pedestrian traffic.



SECTION 6

Grizzly Bears

The grizzly bear (also called brown bear) occurs throughout northern Alaska from the Brooks Range to the Arctic Ocean. Grizzly bears typically occupy dens between late September/early October to mid-May. Females enter dens earlier and emerge later with their cubs, compared to single females and males.



Bears can be curious but should always be considered dangerous. They have a keen sense of smell and are always on the lookout for food. Once they find a food source, they will keep coming back for more. If they learn

to associate humans with food, they will seek out places where humans live and work, increasing the chances of an encounter—allowing this to happen because of sloppy food-handling practices puts yourself, your colleagues, and the bears at risk. Follow proper waste management procedures to minimize the potential for bear interactions.

If a bear is sighted, keep your distance and alert other workers. Look around for other bears (for example, cubs accompanying their mothers) and move to a secure location. Do not try to scare the bear away. Do not approach a grizzly bear for any reason.

All grizzly bear sightings must be reported immediately to Security.

Polar Bears

Polar bears are listed as a threatened species under the Endangered Species Act, and they are protected from hunting or harassment under the Marine Mammal Protection Act.

Polar bears can be encountered any time of the year in our coastal and offshore operating areas. During the summer, polar bears normally stay far out on the pack ice, hunting seals. As ice bridges form in the fall, they may walk or swim ashore. They travel many miles along the coast during the subsistence whaling season (fall), attracted by the scent of whale carcasses. During the winter months, females occupy dens along river banks, coastal bluffs, and on the sea ice. They typically emerge with cubs in March or April, and move back offshore with the pack ice in the spring.



SECTION 6

Polar Bears (continued)

Any encounter with these large carnivores is potentially dangerous for people as well as the bears, so we must make every effort to avoid interactions. Polar bears can weigh over 1,500 pounds and measure 5 feet tall at the shoulder (12 feet when standing on their hind legs). They can run 25 miles per hour, and they are excellent swimmers. They have a curious nature, and a remarkably acute sense of smell.

If you see a polar bear, or signs of polar bears (tracks, scat, etc.), get to a safe location immediately and notify Security.

In order to operate safely and successfully in polar bear country, we must follow some basic guidelines.

- **Have a plan.** Be familiar with your site's bear alarm system, and know where to go for safety.
- **Keep your eyes open.** Even if your site has a full-time security staff or "bear monitor", scan the area before stepping outside. Be vigilant when walking between buildings, equipment, and stacked materials. Use a buddy system when working outdoors. At least one of your crew should be monitoring your surroundings at all times.
- **Design your worksite.** The chance of a surprise encounter can be reduced if your worksite is well lit, organized to minimize hiding places, and equipped with safety features such as protective cages at doorways and strategically staged refuge areas (vehicles, connexes, etc.).



- **Control food and wastes.** Bears can smell food many miles away. They may also be attracted to the scent of toxic materials, like antifreeze or oily waste. Food and food waste must be secured indoors, whenever possible, and other potential attractants must be minimized. Bears may visit work sites out of curiosity, but their visits will be transitory if they are not rewarded with food. Never feed bears or any other wildlife.
- **Avoid den sites.** We must identify and avoid den sites when planning ice road routes or conducting other winter activities. Den site awareness training may be required for ice road construction and travel. There is always the possibility that a bear might emerge unexpectedly from a den. If you see a polar bear anywhere in the vicinity of an ice road, STOP and contact Security immediately. Traffic might be halted for hours or even days. Do not proceed until you are instructed to do so.

DO NOT APPROACH A POLAR BEAR FOR ANY REASON.

Any action – including photography – that affects a bear's behavior may be considered a violation of regulations and company policies.

Only trained and certified personnel are authorized to interact deliberately with polar bears or other wildlife.

SECTION 7

Introduction

Any incident that releases a contaminant into the environment can be considered a spill and will be taken very seriously. The regulations that apply to spill prevention, reporting, and response are complex, and the penalties for noncompliance are severe. Under federal and state law, we must be able to respond quickly and effectively to any type of spill or emergency.

Most of our spills on the North Slope are small drips and leaks onto gravel pads from vehicles and equipment, but we are also prepared to respond to the most catastrophic event. Comprehensive spill prevention and contingency plans have been developed for the North Slope, and our highly trained response teams are on call 24 hours a day. If necessary, we can draw on resources throughout the world.

Spill Terminology

Each company has its own corporate terminology and definitions, which are not necessarily the same as the regulatory definitions. In general:

- Oil includes crude and refined hydrocarbons such as diesel, hydraulic fluid, and lube oil. It can also include oily sludge, oil refuse, or other petroleum-related products or by-products.
- Hazardous substances include glycols, methanol, drilling muds, seawater, corrosion inhibitors, produced water - essentially anything other than oil or potable water
- Spills to land include releases to gravel pads and roads, well houses, and unlined well cellars. During the winter,

spills to ice roads/pads may be considered spills to gravel if there is no penetration to tundra/water. Depending on the type of construction, some cellars are considered secondary containment.

- Spills to water include releases to streams, rivers, lakes, seawater, and wetlands. Almost all tundra in our operating areas is classified as wetland.
- Spills to secondary containment includes releases to built-in pits, lined dikes or berms, portable drip pans, liners, metal skids, impervious module floors, or other impermeable devices.

Spill Prevention

Every worker on the North Slope should know how to prevent spills and what to do if a spill occurs. Contact your Supervisor if you need more information about your specific duties. Prevention

- our first and most effective line of defense against spills - is everyone's responsibility.



Fluid Transfer Guidelines

Many spills occur during routine fueling, pumping, and other fluid transfer operations. Most of these spills can be avoided by paying attention and taking simple precautions.

- Review fluid transfer procedures as part of the pre-job safety meeting.

SECTION 7

Fluid Transfer Guidelines

- Use a checklist.
- Verify that adequate surface liners and sorbents are on hand. Surface liners are required under all connections and potential spill points.
- Be aware of special restrictions. Fueling and other fluid transfers may be prohibited on or near tundra, frozen water bodies, or ice roads. There may also be minimum distances from the tundra where fluid transfers cannot occur (for example, fluid transfers may be prohibited within 50 feet from the edge of a pad).
- Inspect hoses, connections, valves, etc., before starting any fluid transfers. Be sure that valves are in the proper on/off position and each connection is tightened properly.
- Before starting, check all tank and container levels, valves, and vents to prevent overfilling or accidental releases. Check overfill protection devices.
- Maintain a constant line-of-sight with critical components throughout the transfer procedure. Be prepared to stop the transfer immediately if you notice any leak. Do not attempt to fix a leak while fluid is being transferred.
- Use two people if necessary. Never leave fluid transfer operations unattended.
- After the transfer is complete, continue to take these precautions while breaking connections.
- When finished, check the area for spills. Report all spills immediately according to the procedures in your operating area.

Secondary Containment

Portable Liners and Drip Pans

Surface liners and drip pans (“duck ponds”) provide protection under vehicles and equipment. This is especially important when working off the pad, on tundra, ice roads, or frozen water bodies. Policies and enforcement may vary from place to place, but, in general:

- Whenever a vehicle or piece of equipment (loader, crane, etc.) is parked for more than a few minutes, a liner must be placed under the radiator/engine and any other area subject to leaks. Check procedures in your operating area.
- Utilize “wheels-in” secondary containment for mobile equipment that will be parked and running for extended periods, according to procedures in your operating area.
- Portable liners (“duck ponds”) should be inspected frequently to make sure they are intact and free from water/snow/ice. They should be tied off or otherwise secured to keep them from blowing out of position.
- Light plants, portable generators, and other fuel-burning support equipment should be placed in containment – especially if parked off the pad.
- Liners are not a substitute for maintenance. Any vehicle or piece of equipment that is known to leak must be taken out of service until it is repaired.
- Contact Environmental for proper handling of fluid or snow that collects in liners.

Secondary containment cannot do its job if it is damaged, collapsed, or full of water/snow/ice.

SECTION 7

Containment for Oil Storage Containers

Secondary containment is required by law for most above-ground oil storage containers. "Oil" includes fuels, lubricating oils, produced water, crude oil, and oil-based chemicals. In general, all regulated oil storage containers require secondary containment that can hold at least 110% of the largest tank (or 110% of the combined volume of manifolded tanks).

- ADEC regulates portable and stationary oil storage containers with capacities of 10,000 gallons and greater.
- EPA regulates oil storage containers with capacities of 55 gallons and greater.
- Containment must be sized and maintained to preserve the design volume and adequate freeboard in the event of precipitation.
- Other materials or objects should not be stored in containment areas, and any debris or collected water should be removed promptly.
- Fire protection codes and Fire Marshal permits add another layer of regulation for flammable and combustible liquid storage.

Make sure you understand and follow the containment requirements that apply to your location as many sites have containment guidelines and inspection programs. Any damage to secondary containment should be reported to your supervisor immediately, and repaired as soon as possible.

Before new oil storage containers are put into service, contact Environmental to make sure the tank and secondary containment are in compliance with applicable regulations.

Well Cellars and Well Houses

Most new wells are equipped with steel-or concrete-lined cellars that effectively contain fluid. However, many older wells have unlined cellars that are not considered secondary containment by ADEC. ADEC feels that releases into unlined cellars may eventually migrate through the pad and ultimately to the surrounding environment. Note that well houses are not considered secondary containment, either.



SECTION 7

Spill Reporting

ALL spills regardless of size or location must be reported immediately to the appropriate company representative (see back cover of handbook). This ensures proper response, cleanup, disposal, and timely agency reporting. Failure to report spills is a violation of regulations and company policies, and may result in more severe penalties than the release itself.

Not all spills are agency reportable. Some may not be considered recordable incidents within the company. Trained and authorized Environmental staff will ensure that agency and corporate notifications are made as required.

To report a spill, call the appropriate number for your operating area (see back cover). Each operating area has slightly different procedures, but you will be guided through the process when you make the call. Be prepared to provide the following information:

- Person and/or department responsible
- Contact phone number
- Substance spilled
- Location of spill
- Approximate amount spilled or surface area of the spill
- Possible cause of the spill
- Cleanup activities underway or whether assistance is necessary

Spill Response and Cleanup



All spills must be cleaned up to the satisfaction of the operating company and the appropriate regulatory agencies. In some cases, the person reporting the spill may be able to take care of the cleanup. Be prepared to clean up small spills by carrying a spill kit in your vehicle consisting of absorbent pads, gloves, and waste bags – these can typically be obtained at most materials issue

counters. However, the Environmental staff or designated spill technician should always be consulted. Cleanup workers must have the appropriate level of training and personal protective equipment for the circumstances. Applicable safety protocols must be followed.

Contaminated snow, gravel, and other materials from spill cleanups must be stored in approved locations pending proper disposal. Storage containers may require ADEC approval and secondary containment. Options may include lined outdoor pits, lined containers, hoppers, and temporary stockpiles. For small hydrocarbon spills that can be cleaned up with a spill kit, oily waste receptacles may be available for drop-off. For small hydrocarbon spills that can be cleaned up with a spill kit, oily waste receptacles may be available for drop-off of absorbs and specific sumps/pits available for drop-off of gravel – see Section 8 for details on segregation.

SECTION 8

Introduction

Handling the by-products of our operations, from drilling muds and chemical wastes to food and other camp wastes, is one of our greatest challenges. We operate in a very sensitive and highly regulated environment. Our access to “public” facilities is limited. The costs and liability of shipping wastes off the Slope are extremely high.

North Slope operating companies are constantly working to reduce waste generation and improve waste management practices. Our goal is to minimize our impact on the environment, improve efficiency, and control costs.

Waste Minimization

We can minimize waste in several ways.

- **Source reduction.** Order only what is needed for the job, and avoid having to discard unwanted or outdated products.
- **Product substitution.** Replace products with alternatives that are less hazardous. However, some products are not as environmentally friendly as their manufacturers claim. Be sure to review the Safety Data Sheet (SDS) and other available information.
- **Source control.** Good housekeeping, proper waste segregation, and spill prevention help minimize waste generation. Store products per manufacturer recommendations to avoid products from being rendered “off spec.”
- **Reuse and recycling.** Material that can be legitimately reused or recycled is not classified as a waste. Contact the Environmental staff for information about recycling programs in your area. Be sure to segregate materials, use the right containers, and follow instructions.

WASTE MANAGEMENT

Many North Slope operating companies and service companies have joined Green Star® chapters to demonstrate their commitment to waste reduction, recycling, and energy conservation. The benefits include substantial cost savings, better competitiveness, efficiency, and community approval.

Waste Management Resources

Waste management regulations are very complex, and the consequences of mismanagement are serious; but tools are available to help workers make the right decisions.

- **Alaska Waste Disposal & Reuse Guide** – the “Red Book”. The “Red Book” provides practical guidance on wastes generated in the North Slope oil fields. The document is compiled and updated on a regular basis by BP and ConocoPhillips, and it is widely used as a reference by other operating companies and service companies. In order to get the most out of the Red Book, users should attend a special training program (see below).
- **Waste Management Certification Training** (“Red Book” Training). BP and ConocoPhillips developed this training program in conjunction with the Red Book. Training focuses on waste classification, disposal, transport and reuse options on the North Slope, and use of the North Slope Manifest (see below). Upon successful completion of the training, attendees are eligible for “certification”, which means that they are authorized to sign North Slope Manifests and use certain in-field disposal and recycling facilities operated by BP, ConocoPhillips, and potentially other participating operating companies. A database of certified waste handlers is maintained by ConocoPhillips. For more information about Red Book training, please contact your Environmental staff.

SECTION 8

Waste Management Resources (continued)

- **North Slope Manifest.** The North Slope Manifest is a tracking form for wastes and some recyclables that are managed exclusively on the North Slope. It is mandatory for BP and ConocoPhillips disposal wells and is gradually being adopted by other facilities. The manifest must be completed and signed by a generator, transporter, and receiver, all of whom have completed the Waste Management Certification Training.
- **Other Resources.** Your Environmental staff will gladly help you with any waste management questions and can direct you to other resources and training opportunities.

Waste Classification

Disposal and reuse options depend on the way wastes are legally classified. In this section, we will discuss the major waste categories, and provide a brief overview of the disposal and reuse facilities on the Slope.

Do not attempt to classify wastes without proper training. Direct any waste management questions to the Environmental staff.

Hazardous Waste

The EPA regulates hazardous waste under authority of the Resource Conservation and Recovery Act (RCRA). RCRA's "cradle-to-grave" rules apply to the generation, transportation, treatment, storage, and disposal of hazardous waste. There are no hazardous waste disposal facilities in Alaska.

WASTE MANAGEMENT

A waste may be considered hazardous if it exhibits certain physical properties (“characteristics”) or it is included on specific list of wastes (“listed”) that pose substantial hazards to human health or the environment. The Environmental staff uses laboratory testing, SDSs, and prior experience to determine if a waste meets the legal definition of hazardous.

- Characteristic hazardous waste has one or more of the following properties:

Ignitability: Liquids with a flash point less than 140°F. Examples: waste gasoline, thinner.

Corrosivity: Liquids with a pH less than or equal to 2.0, or greater than or equal to 12.5. Examples: strong acids or bases.

Toxicity: Material that exceeds regulatory limits for specific metals and compounds. Examples: benzene, lead, cadmium.

Reactivity: Material that is unstable, reacts violently with water, explodes, or produces toxic vapors under certain conditions. Examples: pressurized aerosol cans.

- Listed hazardous waste includes certain chemical products, and by-products of specific manufacturing processes. Examples: methanol, spent chlorinated solvents, some refinery wastes.



No hazardous waste is disposed of on the North Slope. All hazardous waste generated on the North Slope must be shipped by licensed transporters to authorized facilities in the Lower 48. Between shipments, hazardous waste can be collected onsite in Satellite Accumulation Areas (SAAs, described below) and controlled areas under the supervision of the Environmental staff.

No hazardous waste may be transported from one North Slope operating area to another!

SECTION 8

Universal Waste

Universal waste is a subcategory of hazardous waste with less stringent management requirements that encourage recycling. The most common universal wastes on the North Slope are light bulbs ("lamps") and batteries (NiCad, mercury, and lithium), which contain recyclable components. Lead acid batteries may also be managed as universal waste or recyclable, depending on the field. Note that alkaline batteries are not considered universal wastes - they may be discarded with ordinary trash in waste baskets and landfill dumpsters. Facilities with incinerators may require that all batteries be placed in Universal Waste Accumulation Areas (UAAs, see next paragraph).

Universal wastes are collected onsite in UAAs, described in the Accumulation Areas section, which are often near SAAs. Universal wastes are usually shipped to the Lower 48 along with hazardous wastes. They can generally only be stored for one year prior to shipping off the North Slope to an approved facility.

Exempt Waste

Certain types of wastes are exempt from regulation as hazardous waste under RCRA. These wastes must still be managed carefully, but they are not subject to the full spectrum of storage, transportation, and disposal rules. Exemptions are very important, but they must be interpreted carefully.

- **Household exemption.** Hazardous waste generated in private households and camp bunkhouses is RCRA-exempt. Many communities have set up collection programs to keep this waste out of landfills and sewage treatment systems.

WASTE MANAGEMENT

- **Empty container exemption.** The contents in a container are not regulated as a hazardous waste if the container has been emptied as much as possible by normal means *AND* there is no more than one inch of residue, or no more than 3% by weight of the total capacity in containers that hold 119 gallons or less, or no more than 0.3% by weight if the container is larger than 119 gallons.
- **Exploration and production (E&P) exemption.** Wastes that are uniquely associated with oil and gas exploration and production are not regulated as hazardous waste. The exemption applies to crude oil, produced water, formation cuttings, and fluids that have been used downhole, such as returned muds, workover and stimulation fluids, and freeze-protection fluids. The exemption does NOT apply to new or unused products, or the non-exempt wastes described below.

The E&P exemption is based on the way the waste was generated, not on its composition.

Non-Exempt Waste

Many North Slope waste streams are not RCRA-exempt. Non-exempt wastes include:

- Snowmelt and ponded water from pad surfaces and secondary containments
- Unused seawater
- Unused chemical products
- Vehicle fluids (diesel, gasoline), lubricants, and antifreeze
- Gravel or absorbents contaminated with glycol, hydraulic fluid, or motor oil
- Most maintenance and construction wastes

Non-exempt wastes must be classified as hazardous or nonhazardous by trained and qualified personnel and, in many cases, require laboratory analysis.

SECTION 8

Waste Mixtures

Waste management becomes very complicated if different “classes” of waste are mixed together. A small amount of hazardous waste, mixed with a non-hazardous waste or recyclable material, can make the whole mixture a hazardous waste. Disposal costs and liabilities for hazardous waste are very high, so it is extremely important to identify your wastes and keep them segregated. Never mix wastes without approval from the Environmental staff.

Labeling

All containers, whether they contain wastes or new products, must be labeled properly and clearly. In general, labels must include the owner’s name, contents, and date – regardless of size. This is important to workers and to emergency response teams, who need to know what they are dealing with. In some cases, improper labeling is a violation of the law. If drums or containers are found without labels, the contents must be handled as hazardous until otherwise identified. The expense of identifying unknown substances can raise the handling cost significantly.

The site supervisor is responsible for ensuring that labels are readable and intact. Missing or unreadable labels must be replaced.



Dumpsters

Several types of dumpsters are available for solid waste and recyclable materials on the Slope. Dumpsters should only be used for their designated purpose. Be sure to read the placards, and check with Environmental if your material is not listed below, or if you are not sure which dumpster to use. Attachment F of the Redbook contains additional information on dumpster guidelines.

Think about recycling first!

Before discarding something in a dumpster, find out if recycling options are available in your area.

Landfill Dumpsters – also known as C&D (Construction & Debris) or MSW (Municipal Solid Waste) Dumpsters – are for non-oily solid waste that cannot be recycled or burned on-site. Loose trash should be bagged before it is thrown into a dumpster so that it is not blown away by the wind or easily picked up by birds and other wildlife.

Landfill dumpsters can generally be used for:

- | | |
|--|--|
| <ul style="list-style-type: none">• Alkaline batteries• Concrete (solid, small amounts)• Electrical cable, wire• Empty containers (bottles, buckets)<ul style="list-style-type: none">- free of oil or liquid; no aerosol cans• Glass• Hoses (no oil, chemicals, or free liquids)<ul style="list-style-type: none">- in some areas, must be cut into segments• Insulation (no asbestos)• Metal scraps (if not recycled; non-oily) | <ul style="list-style-type: none">• Paper products (if not recycled)• Plastic• Rubber• Styrofoam• Wood scraps (if not recycled)• Visqueen, pit liner (non oily) |
|--|--|

SECTION 8

Dumpsters (continued)

For very large, bulky items, special open-top dumpsters may be available.

Do not dispose of chemicals, hazardous wastes, liquids, pressurized aerosol cans, snow, or gravel in dumpsters.

Food Waste Dumpsters have animal-proof lids or cages. Never discard food waste in an open-top dumpster. Food waste should be discarded in indoor receptacles whenever possible to avoid attracting birds, foxes, and bears.

Never store food or food waste where it is accessible to wildlife.

Incinerator Dumpsters are provided in some locations for trash that is burned on site. Always verify site-specific procedures.

Oily Waste Dumpsters are lined to prevent leakage. They are for non-hazardous oily wastes with no free liquids. In many operating areas, oily waste must be packed in clear oily waste bags with yellow stripes before it is placed into the dumpster. Several locations require double-bagging, and there may be weight limits on each bag. Identification tags may be required. Be sure to comply with the procedures at your location.

WASTE MANAGEMENT

Oily waste dumpsters may generally be used for:

- Grease or pipe dope cans, empty and wiped clean (no liquids)
- Oil filters (must be punctured and hot-drained)
- Oily pit liner material (no free liquids, snow, dirt or gravel) cut, rolled, and tied
- Sorbents, rags, wipes, floor sweepings, or other oily debris (no hazardous wastes or free liquids)

Secondary containment requirements (*SEE Section 7*) may apply to oily waste storage containers.

Scrap Metal (Recyclable) Dumpsters are usually marked with the words “Recyclable Metal.”

Acceptable materials include:

- Banding (cut up and boxed or drummed)
- Cable (spooled or rolled)
- Conduit and fittings
- Pipe (oil-free; can have small amounts of insulation)
- Plate steel
- Stainless steel, copper, aluminum
- Valves
- Wire

Do not place asbestos, batteries, light bulbs, hazardous or oily wastes, liquids, pressurized aerosol cans, gravel, or food waste in scrap metal dumpsters.

Recyclable Wood Containers. As part of an effort to keep usable wood out of the NSB landfill, many areas collect pallets, plywood, wood scraps, and wood packaging in designated locations.

Tires may be recycled at designated locations in certain operating areas. Check with your environmental representative.

SECTION 8

Accumulation Areas

Satellite Accumulation Areas (SAAs) are temporary collection sites for small quantities of hazardous waste, such as spent aerosol cans, contaminated rags, paints, thinners, and solvents. Wastes are periodically moved to centralized locations by trained personnel in each operating area where they are prepared for shipment to Lower 48 disposal facilities. SAAs are often established at drill rigs, paint shops, laboratories, and production facilities. Contact your Environmental staff if you would like to set up an SAA in your area.

Although procedures may vary slightly from place to place, the following guidelines apply to all SAAs on the North Slope.

- The SAA must be located at or near the point of waste generation, and under the control of a designated person or operator-in-charge.
- Each container must be labeled with the words “HAZARDOUS WASTE” or with other words that identify the contents of the container. Containers must be compatible with the contents and in good condition. Do not mix different types of waste in the same container.
- Except when filling, containers must be closed at all times. Lids and bungs must be secure; funnels should be removed (unless they have their own secure valves or lids).
- An SAA may have several containers for different types of waste, but each SAA is limited to a total of 55 gallons. Smaller containers can be used to help stay below the limits. The limit for acutely hazardous waste (found mainly in medical clinics) is 1 quart.
- Once an SAA has reached its capacity, the contents must be moved to a designated collection point within 3 days.

WASTE MANAGEMENT

Universal Waste Accumulation Areas (UAAs) are used primarily to collect used batteries and light bulbs (lamps). They are often located near SAAs.

- Containers used to store universal waste must be structurally sound, closed, compatible with the contents of the container, and in good condition.
- Label the containers to identify the type of universal waste (e.g. “Universal waste – used lamp”).
- A generator may accumulate universal waste for no longer than one year from the date the universal waste is generated.
- A generator must be able to demonstrate the length of time a waste has been in storage by labeling containers with the earliest date that universal waste in the container became a waste

Recyclable Accumulation Areas (RAAs) are used to collect used oil and other recyclable materials. Please contact your Environmental staff to verify site-specific procedures at your location.

- Used oil from vehicles and equipment can be blended into the crude oil stream at several production facilities and sent to refineries downstream. There may be sampling and screening requirements; check with Environmental.
- Do not add solvents or any other hazardous waste to used oil or other recyclable fluids.

Used oil containers must be clearly labeled with the words “Used Oil”. See Section 7 for secondary containment requirements.

- Be careful not to mix different types of fluid until you are sure that the mixture is acceptable.

SECTION 8

Injection Wells

On the North Slope, stable geological conditions make it possible to safely and permanently inject fluids thousands of feet below the surface. This has tremendous environmental benefits, because it eliminates the need for large surface disposal facilities on or off the Slope.

Permits are required to drill and operate Underground Injection Control (UIC) wells, and there are restrictions on the type of material that can be injected. Each of the North Slope injection facilities has its own operating restrictions, training requirements, and manifesting procedures.

- Class I disposal wells may inject non-hazardous and exempt wastes. Some facilities have ball mills that can process solids for injection as a slurry; others are limited to fluids.
- Class II disposal wells are restricted to waste that has physically come out of an oil and gas well. This includes all produced fluids; muds and additives that have circulated in the well; and solids that originate downhole, such as formation cuttings.
- Class II Enhanced Oil Recovery (EOR) wells are used to inject produced water and other approved fluids directly into the oil-producing formation, to increase oil production. EOR, also known as “waterflood,” is considered a beneficial use of fluid rather than disposal.

Drum / Barrel Management

All North Slope companies have made progress in reducing the use of 55-gallon drums. By switching to bulk storage, there is much less product wasted, and fewer empty drums require handling and disposal.

BP operates the North Slope Barrel Crushing Facility at the A3W2 Warehouse on Santa Fe Pad, in the Greater Prudhoe Bay operating area. Empty steel and plastic drums are cleaned at a high-pressure washing station and then crushed. Residual liquids rinsed from the drums are collected and evaluated for proper disposal. Crushed drums are recovered as scrap metal if possible; otherwise they are landfilled.

Each operating area on the Slope has its own procedures for collecting and transferring drums to the barrel crushing facility. Please check with your Environmental staff or, in some areas, the Materials department for instructions. In general:

- Drums may not contain more than 1 inch of product.
- All drums must be accompanied by proper paperwork, including billing information and a description of the last known material in the drum.
- No empty drums may be left at the barrel crushing facility without prior approval.

Environmental Staff Contacts

- **Alyeska Pipeline Service Company**

Pump Station 1 (907) 659-1085

- **BP Exploration (Alaska), Inc.**

Prudhoe Bay (East) (907) 659-5999

Prudhoe Bay (West) (907) 659-4789

Prudhoe Bay (Central) (907) 659-5893

Prudhoe Bay (Functions) (907) 659-4145

- **Caelus Energy Alaska, LLC**

Oooguruk (907) 670-6625

- **ConocoPhillips Alaska, Inc.**

Alpine (907) 670-4200

Kuparuk (907) 659-7212

(907) 659-7242

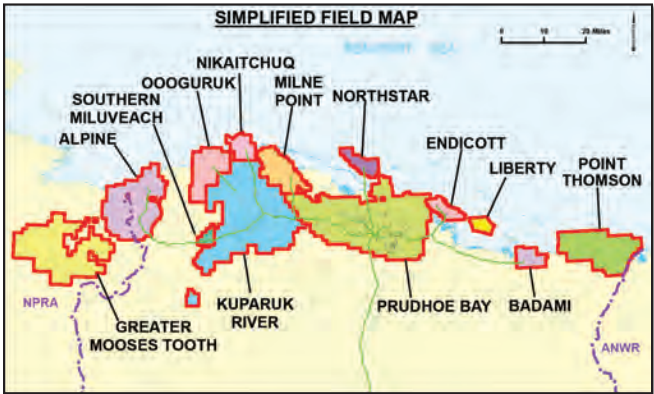
- **Eni US Operating Co. Inc.**

Nikaichuq (907) 685-1457

- **ExxonMobil Alaska Production Inc.**

Point Thomson Ch 1 or (907) 685-3676

CONTACTS



- **Hilcorp Alaska, LLC**

Endicott	(907) 659-6810 (907) 670-3382
Milne Point	(907) 659-6810 (907) 670-3382
Northstar	(907) 659-6810 (907) 670-3382

- **Savant Alaska, LLC**

Badami	(907) 433-7808
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Spills or Emergencies

• Alyeska Pipeline	Spills	Emergency
Pump Station 1	(907) 659-1000	(907) 659-1000
<hr/>		
• BP		911 or
Prudhoe Bay (East)	(907) 659-5700	(907) 659-5631
Prudhoe Bay (West)	(907) 659-5700	(907) 659-5631
Prudhoe Bay (Central)	(907) 659-5700	(907) 659-5631
Prudhoe Bay (Functions)	(907) 659-5700	(907) 659-5631
<hr/>		
• Caelus		
Oooguruk	(907) 670-6625	(907) 670-6500
<hr/>		
• ConocoPhillips		911 or
Alpine	(907) 670-4002	(907) 670-4900
Kuparuk	(907) 659-7997	(907) 659-7300
<hr/>		
• ENI		
NOC/OPP	(907) 670-8631	
SID	(907) 685-0743	

SPILLS OR EMERGENCIES

- **ExxonMobil**

Pt Thomson
Central Pad

Spills

Ch 16 or
(907) 685-3500

Emergency

Ch 16 or
(907) 685-3500

Pt Thomson
Deadhorse

(907) 685-3500

(907) 685-3500

- **Hilcorp**

Endicott
Milne Point
Northstar

(907) 659-6900
(907) 670-3300
(907) 670-3515

(907) 659-6900
(907) 670-3399
(907) 670-3500

- **Savant**

Badami

(907) 659-1300

(907) 659-1300



ALASKA LNG PROJECT	APPENDIX M – SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN	USAI-P2-SPZZZ-00-000013-000 14-APRIL-17 REVISION: 0
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APPENDIX G: Alaska Department of Environmental Conservation – Aboveground Storage Tank Operation Handbook

Aboveground Storage Tank Operator Handbook

Second Edition



January 2003



*Alaska Department of
Environmental Conservation*

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Oil spills are ugly, costly and can damage our health and the environment. In Alaska, thousands of gallons of oil and oil products are spilled every year at Aboveground Storage Tank (AST) facilities. Most of these spills are caused by operator error, poor operation practices and inadequate maintenance. In order to reduce the number and size of spills at these facilities, operators should be trained in facility operations and maintenance, safety, spill preparedness, spill response, reporting, clean-up and government requirements.

This handbook is designed for AST operators and should be used as a guidebook as well as a reference manual.

In this handbook you will find:

- Facilities = Tank Farms
- Step by step procedures for maintaining and inspecting AST facilities, preventing oil spills, taking safety precautions, preparing for and responding to oil spills.
- Checklists for easy reference to inspect AST facilities, transfer fuel, prepare for and respond to spills.
- An explanation of government requirements relating to AST facilities.
- References and contacts for further information on AST facilities

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FACILITY OPERATIONS & MAINTENANCE

SECTION ONE - FACILITY OPERATIONS & MAINTENANCE

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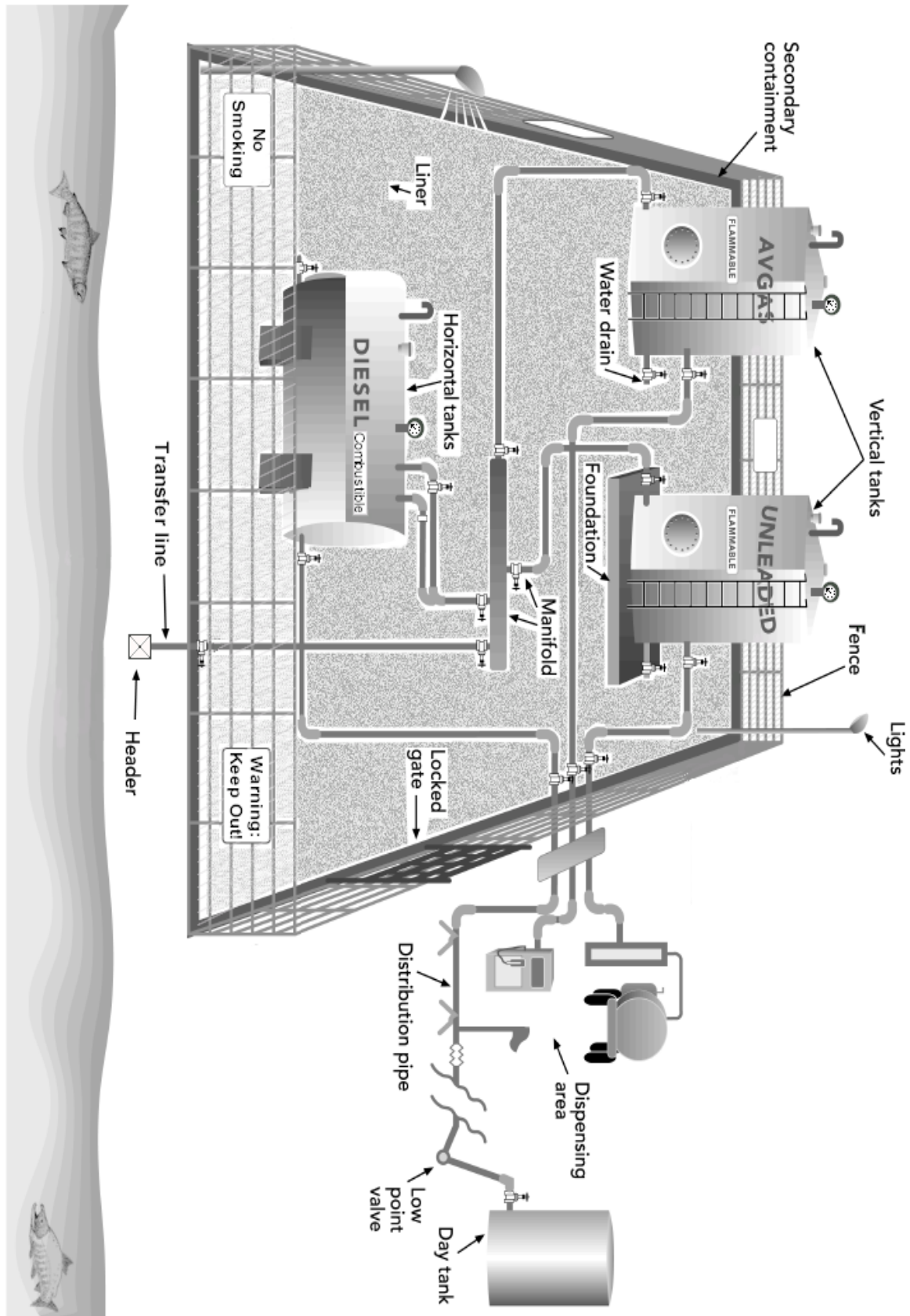
SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

ABOVEGROUND STORAGE TANK FACILITIES

An Aboveground Storage Tank (AST) Facility or tank farm consists of tanks (including day tanks), piping, secondary containment and ancillary equipment. These facilities are used to store fuel that will be dispensed at the site, delivered elsewhere, or transferred to other locations such as day tanks. This manual is directed toward AST facilities that are regulated by the Environmental Protection Agency (EPA) but not necessarily by the Alaska Department of Environmental Conservation (ADEC). EPA regulates facilities that have a storage capacity of 1,320 gallons or more and ADEC regulates facilities with a storage capacity of 420,000 gallons or more.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

ABOVEGROUND STORAGE TANK FACILITIES

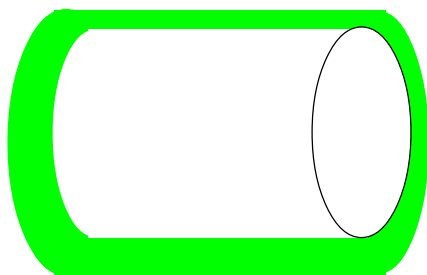


SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

ABOVEGROUND STORAGE TANKS

Aboveground Storage Tanks

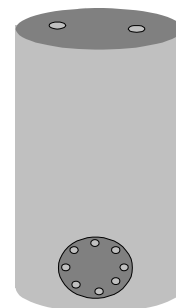
- Aboveground Storage Tanks (ASTs) come in many different sizes.
- Most ASTs have cylindrical sides or shells and flat tops and bottoms. They are set vertically (on end) or horizontally (on sides).
- Most ASTs are constructed out of steel. Older tanks have riveted or bolted seams and newer tanks are welded.
- Fuel storage tanks must be vented so fumes can escape, reducing the potential for ruptures and collapses.
- ASTs should have cathodic protection, such as sacrificial anodes, to reduce corrosion.
- To reduce the chances for corrosion, tanks should be placed on a pad, foundation or supports rather than directly on the ground.
- Tanks should be painted with a light color and rust free.
- Tanks should be labeled as to contents, size, last internal inspection, safe gauge height and year built.
- Tanks must be have overfill protection, this would be direct vision gauges, high liquid level alarms , flow restrictions or high liquid level shut-off devices.
- See Appendix A for additional technical information.



Double-walled AST



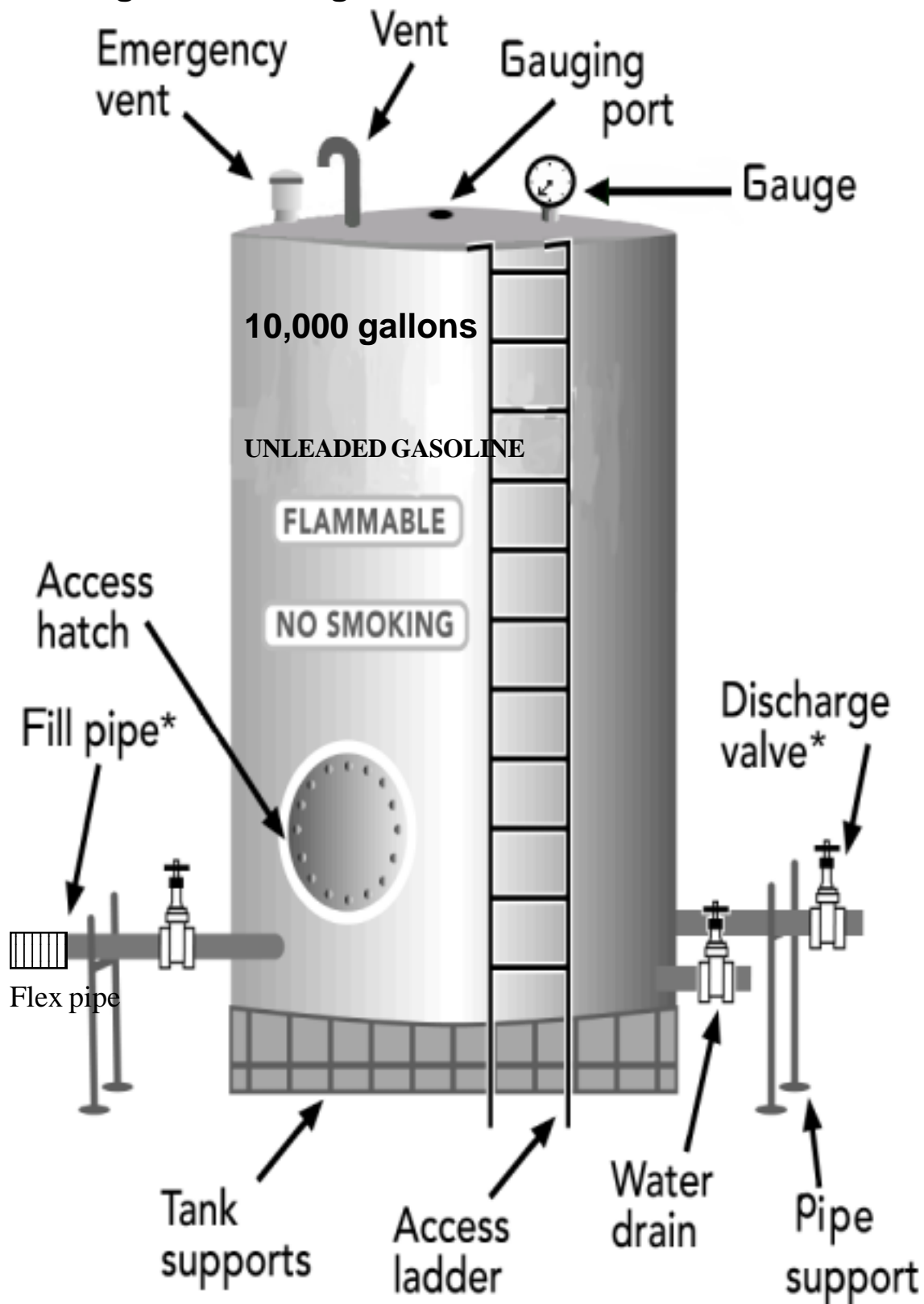
Horizontal AST



Vertical AST

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Aboveground Storage Tanks - common features



ABOVEGROUND STORAGE TANKS

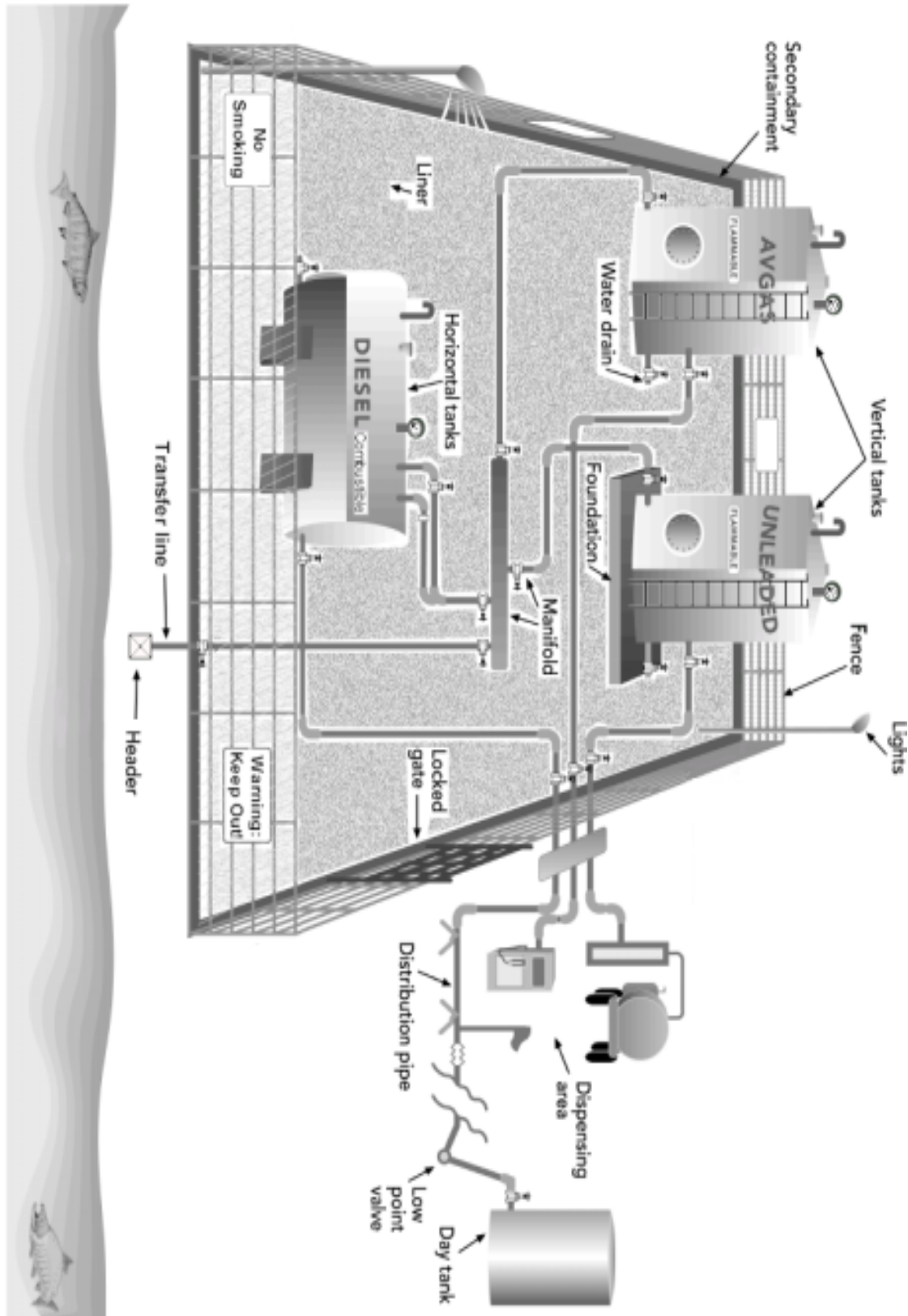
SECTION 1 - FACILITY OPERATIONS & MAINTENANCE**AST FACILITY PIPING****AST Facility Piping**

Piping is used to transfer fuel from the delivery source, such as barges or trucks to the ASTs at the facility (*transfer or fill piping*), between tanks and dispensing pump (*manifold piping*), and from facility tanks to other associated tanks and other sources (*distribution piping*). Following is some basic information regarding facility piping:

- Pipes should be constructed out of steel and joints welded.
- Pipes are buried or aboveground. Aboveground piping should be supported up off the ground and protected from moving vehicles such as trucks and snowmobiles as well as falling snow and ice. Buried pipes must be wrapped or coated for corrosion protection.
- Valves control the flow of oil between tanks and other tanks, delivery barges and other sources. The most common type of valves are ball valves and gate valves.
- Using a single common transfer pipeline for different products is a common practice.
- The U.S. Coast Guard requires that transfer piping must be hydrostatically tested annually. Water should be used for this test at 1.5 times the allowable pressure. Since this is not always practical, product or air is often used. If product or air is used, the owner/operator must request (in writing) permission from the Captain of the Port.
- Appendix A contains additional technical information.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Piping



AST FACILITY PIPING

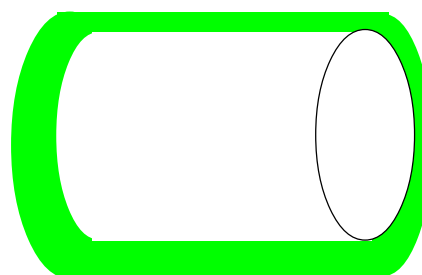
SECTION 1 - FACILITY OPERATIONS & MAINTENANCE**SECONDARY CONTAINMENT****Secondary Containment**

The purpose of secondary containment is to prevent petroleum products from flowing onto the land or into the water should there be a spill at an AST facility. Spill containment measures, including secondary containment are required by the Environmental Protection Agency (EPA) at AST facilities as well as in areas of fuel transfer from tank trucks. Secondary containment:

- Must be large, high and strong enough to hold the contents of the largest tank plus 10% for local precipitation.
- Must be constructed or lined with material that will hold petroleum products and prevent them from seeping into the ground.
- The liner should be covered with sand or gravel to prevent ripping and to provide protection from the weather.
- Double walled aboveground storage tanks are not required to be located within a secondary containment area provided they have a high liquid level alarm, and a flow restrictor or automatic shut off device
- References for additional technical information can be found in Appendix A.



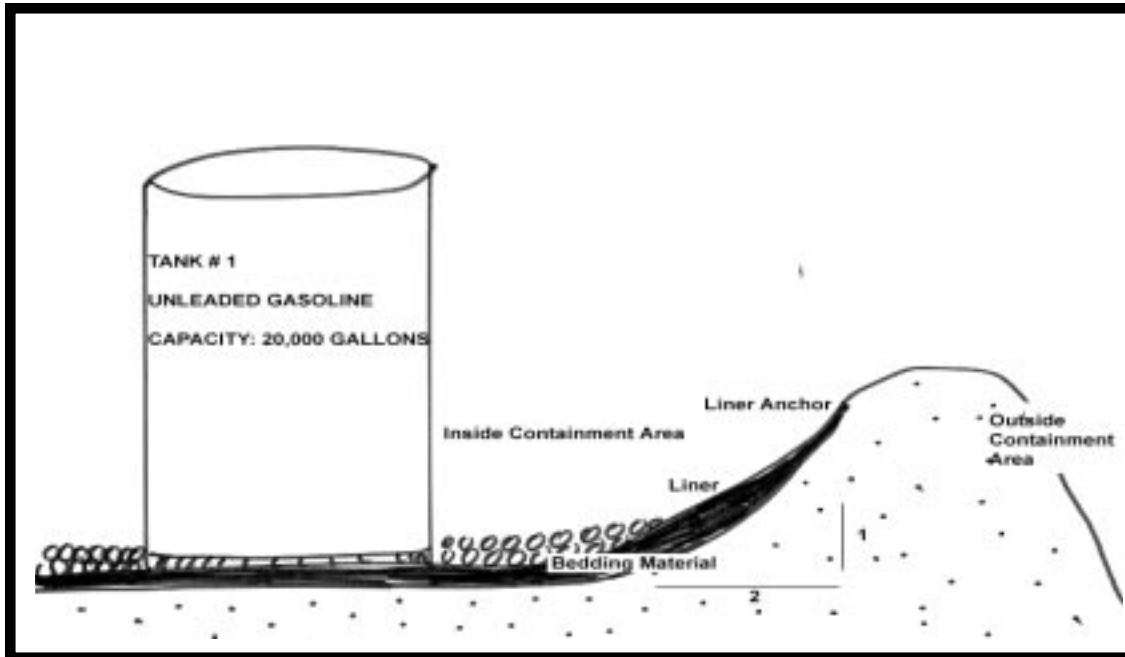
Self-diked tank



Double-walled tank

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Secondary Containment



SECONDARY CONTAINMENT

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

ANCILLARY EQUIPMENT

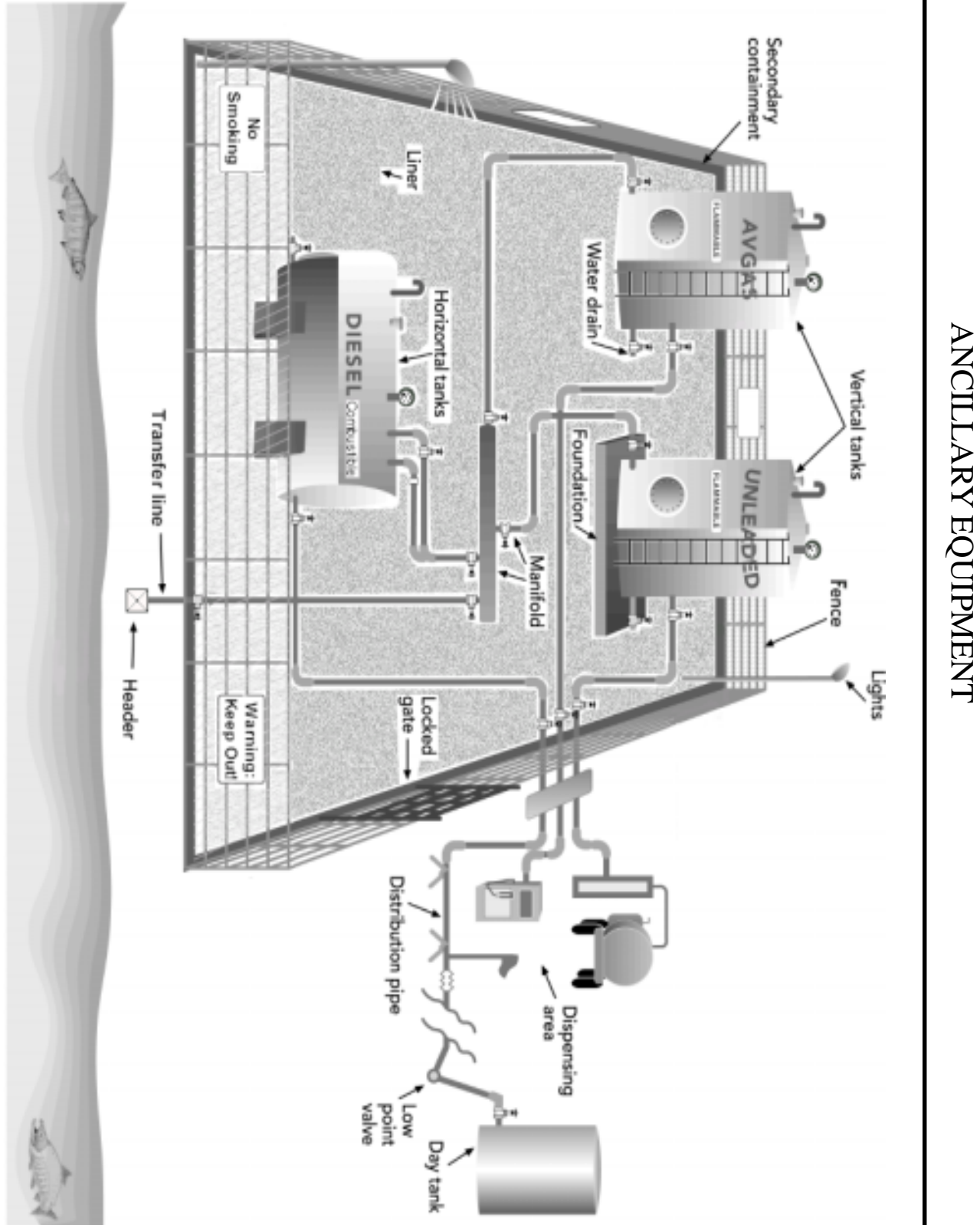
ANCILLARY EQUIPMENT

Aside from the major components of an Aboveground Storage Tank Facility, additional items and equipment are required. Following is a list of ancillary equipment:

- **Fencing:** AST facilities must have fences and gates that can be locked. The purpose of the fence is to keep unauthorized people, vandals and animals out.
- **Lighting:** AST facilities must have sufficient lighting to prevent vandalism and help detect spills at night.
- **Signs:** “No-smoking” signs must be posted around the facility so they can be seen from every side of the tank farm. Also “Danger”, “Warning” or “Authorized Personnel Only” signs must be posted to warn unauthorized individuals from entering the facility.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

ANCILLARY EQUIPMENT



SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

SPIII PREVENTION

Spill Prevention

There are many reasons for preventing oil from spilling or leaking onto the ground and into the waters of the state. Some basic reasons for preventing oil spills are:

- Reduces potential for health problems
- Reduces risks to the environment
- Saves money from lost product, fines and clean-up costs
- Saves reputations

Every drop of oil spilled has an impact on the environment and costs money. This is clearly demonstrated in the following table.

OIL LOSS BY DRIPS AND DROPS

RATE	GAL./YEAR	Cost @ \$2.00/gal	CONTAMINATED SOIL (tons)	CONTAMINATED SOIL (Cubic yards)
1 drop/10 second	40	\$80.00	150 tons	270 yd ³
1 drop/5 seconds	80	\$160.00	300 tons	540 yd ³
1 drop/second	410	\$820.00	1,500 tons	2,700 yd ³
3 drops/second	1,200	\$2,400.00	4,500 tons	8,100 yd ³
Stream - breaks into drips	8,600	\$17,200.00	32,000 tons	57,600 yd ³

1 drop = 11/64 inch diameter 1.8
tons per cubic yard

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Causes of Oil Spills at AST Facilities

Spills and leaks happen at Aboveground Storage Tank (AST) facilities for several reasons. Some causes are:

Operator error

- Tanks overfilled
- Valves left open
- Poor transfer procedures
- Lack of product monitoring
- Potential problems not recognized
- Poor maintenance practices

Poorly designed or improperly installed facilities

- Inadequate security – vehicular traffic, children or vandals restricted area
- Facility located in flood zone or avalanche zone or any other area where natural disasters are likely to happen
- Falling snow and ice from tanks onto piping

Storage Tank Problems

- Tank design and construction
- Inadequate foundation or tanks setting directly on the ground
- Tank bottom and seams rusted, shell pitted, weeping or leaking
- Improper venting

CAUSES OF OIL SPILLS AT AST FACILITIES

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

CAUSES OF OIL SPILLS AT AST FACILITIES

Causes of Oil Spills at AST Facilities (continued)

Facility Piping Problems

- Piping installed without considering traffic area
- Threaded joints rather than welded
- Inadequate pipe support – sagging pipe is prone to cracking (threaded joints are particularly vulnerable)
- Valves not in good working order or corroded
- Pipe lying directly on ground – easily damaged
- Piping leaking or rusted from acidic soil
- No flex piping
- Pipes not hydrostatically tested annually

Secondary Containment Problems

- No dikes or secondary containment around tank farm
- Inadequate secondary containment – should be able to hold contents of largest tank plus 10% for local precipitation
- Containment unable to hold spilled product
- Holes or low areas in dikes
- Water pooled in secondary containment area
- Holes and rips in liners

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Prevention Measures

Spill Prevention Measures - Oil spills at AST facilities can be prevented. Following are some basic prevention measures:

- *Note: “There is no such thing as a leak too small to fix”*
- *Train employees in correct operating procedures and spill prevention, preparedness and response*
- *Absolutely no alcohol or drugs at the facility*
- Adopt a product inventory program and reconcile product and inventory data on a regular basis
- Establish and adhere to regular maintenance schedules
- Conduct routine standardized inspections, record findings and take follow-up corrective actions
- Plan and design facility to industry standards (Appendix A)
- Take pride and responsibility in your AST facility

PREVENTION MEASURES

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

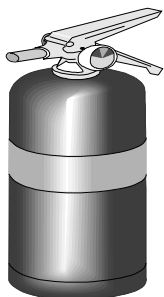
AST FACILITY MAINTENANCE

AST Facility Maintenance

Routine inspections and maintenance are the two most important factors in preventing oil spills and leaks at AST facilities. Inspections are covered on pages 17-25.

General AST Facility maintenance should include the following:

1. **Good house keeping:** It is essential that the entire AST facility be kept clean and free of unnecessary items. An AST facility is designed to store petroleum products so only items that are directly related to the operation of the facility should be stored there.
2. **Safety:** Fire extinguishers must be kept pressurized and should be shaken every month. All other safety equipment must be in good working order.
3. **Security:** Any holes in fence, locks on gates and burned out light bulbs should be repaired or replaced as soon as the deficiency is noted.
4. **Aboveground Storage Tanks:** Keep ASTs in sound condition.
 - a. **Follow manufacturer instructions or industry standards** for maintaining vents, overfill devices, gauges, corrosion protection, water drains and other items associated with tanks.
 - b. **Keep tanks painted in a light color** to minimize fuel expansion and to reduce corrosion and tank disintegration.
 - c. **Repair tanks** as soon as problems are noted.
 - d. Make sure **signs** on tanks are visible and legible.
5. **Facility piping:** Piping must be maintained in sound condition.
 - a. Follow manufacturer instructions or industry standards for maintaining valves and corrosion protection devices.



SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Maintenance (continued)

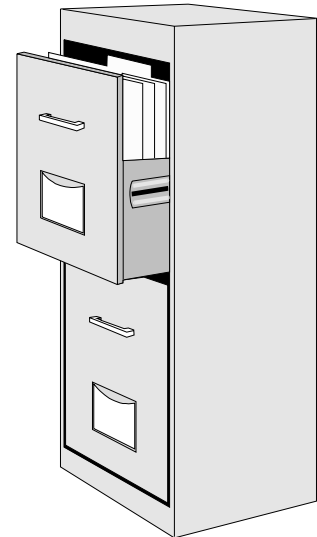
- b. **Change filters** on a regular basis using set procedures.
- c. **Hydrostatically test transfer piping** yearly. Use water and hold it at 1.5 times the normal operating pressure. If using water is not feasible, approval from the U.S. Coast Guard to use product or air is required.
- d. **Rewrap or repaint pipes** when coating, wrapping or paint is wearing through or chipping .
- e. **Repair or replace valves and/or pipes** as soon as possible after problems are noted.
- f. **Replace threaded pipe** with welded pipe whenever possible.
- g. **Protect piping** from traffic as much as possible
- 6. **Secondary Containment:** Keep the secondary containment area clear of debris, unnecessary items, snow, ice and standing water.
 - a. **Remove snow**, taking care not to tear the liner. If shoveling the entire area isn't feasible, keep area around piping clean.
 - b. **Remove water**, if a sheen is visible, put water through a fuel-water separator, not directly into the environment.
 - c. **Remove vegetation**, keep weeds, willows and trees out of secondary containment area.
 - d. **If tears in liner are noticed, repair** them as soon as possible.
- 7. **Spill Preparedness and Response:** Keep response equipment accessible and in good working condition.
 - a. If **emergency pumps and/or skimmers** are kept at the site, start them up at least once a month.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST FACILITY MAINTENANCE

AST Facility Maintenance (continued)

- b. **Response equipment and material** must be kept readily available, easy to get at and in good condition.
- 8. **Record Keeping** - Records of all activities pertaining to the facility should be kept on location, these include but are not limited to:
 - Copies of Inspections
 - ☐ Operator inspections
 - ☐ Government Inspections
 - Maintenance Records
 - ☐ Any major work done at the facility
 - ☐ Hydrostatic test results
 - ☐ As-built facility plans
 - Operator training reports
 - Reports of Oil Spills at the Facility
 - ☐ Where the spill occurred
 - ☐ When the spill occurred
 - ☐ Amount spilled
 - ☐ Clean up procedures used
 - Fuel Inventory Records
 - Government required documents, including:
 - ☐ Spill Prevention Control and Countermeasure (SPCC) Plans (EPA)
 - ☐ Facility Response Plans (EPA, USCG)
 - ☐ Letter of Intent to Operate (USCG)
 - ☐ Operation Manual (USCG)
 - ☐ Declaration of Inspection (USCG)
 - ☐ Spill Notification Placard (ADEC)



SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Inspections

An aboveground storage tank (AST) facility inspection is one of the best means of preventing oil spills from occurring and minimizing the size of a spill should one occur. Inspections should be conducted on a regular basis in a standardized fashion. At manned facilities, informal inspections should be done on a daily basis (noting overall facility condition) when the operator walks through to open and close the facility. A more formal and thorough inspection should be completed monthly.



Inspectors: Must be knowledgeable of facility components, operations, spill prevention, preparedness and response and government requirements.

How to Conduct Inspections: When conducting the more formal and thorough inspection, the inspector should use the following protocol:

- Use a checklist to make sure all important areas are covered. *An AST Facility Inspection Form, which may be copied for your use,* is included on pages 26-27. This form may be revised to meet the needs of individual AST facilities.
- Complete the inspection form, writing down findings and conditions and be sure to initial, date and sign the form where indicated.
- Follow up on findings
 - ☐ Fix deficiencies
 - ☐ Report significant problems to management

The inspection: Following is a detailed description of what to look for in routine, monthly AST facility inspections:

1. **Housekeeping:** Is the AST facility clean and clear of unnecessary items? It is important to keep facilities clean and free of unnecessary items because clutter would hinder clean-up in the event of a leak or spill; large items such as drums, lumber and other objects can break pipes, dent tanks and provide homes for unwanted animals. Poor

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

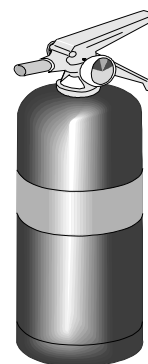
AST FACILITY INSPECTIONS

AST Facility Inspections (continued)

housekeeping is a sign of negligence and shows a lack of concern for the facility.

2. **Safety:** Is all safety equipment in place and all safety precautions followed? Safety at AST facilities is of utmost importance and can save lives, prevent injury and protect property and the environment.

- a. **Fire extinguishers:** There should be an adequate number of fire extinguishers in logical, appropriate locations. Fire extinguishers must be the proper type for the product stored. Extinguishers should be maintained in top notch condition, meaning they should be pressure charged and workable. OSHA requires them to be inspected monthly for charge. (Note: OSHA requires all facility operators to be trained on using them). It is a good idea to shake the extinguishers when conducting the monthly inspection. Prominent signs showing location of fire extinguishers should be posted.



- b. **No Smoking Signs:** “No Smoking Permitted” signs should be posted in strategic locations at facilities.

- c. **Danger and Warning Signs:** Individuals entering tank farms should be warned of potential dangers. Signs advertising this should be posted in visible locations.



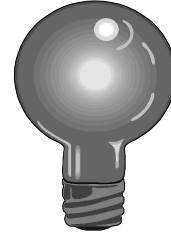
3. **Security:** AST facility owners and operators should employ sound security measures to prevent vandals, unwanted individuals and animals from entering the tank farm. Aside from damage unwanted individuals can cause, there are liability issues to think about.

- a. **Fencing:** Is there a fence around the facility? The fence must be intact and the gates must be locked when unattended.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Inspections (continued)

- b. Lighting:* Does the facility have a lighting system? Lighting is important so workers can see their way around the facility and to keep intruders out. Lights should provide adequate illumination and be in good working order.



- 4. Storage Tanks:** Aboveground storage tanks are the most important component of an AST facility. They should be maintained in good condition. This applies to all tanks, including “day tanks” as well as major storage tanks.

- a. Soundness:* Are there any visible leaks or drips from the tanks? Are there stains on the ground around the tank base? Check seams and welds and around bottom and shell seams. All leaks must be stopped and repairs made.
- b. Corrosion Protection:* Are there any signs of rust? Again, look around tank welds, shell seams, and bottom to side seams. If using sacrificial metals, make sure there is sufficient metal left. If using impressed current, make sure the proper amount of electricity is flowing.

GASOLINE
10,000 gal.
FLAMMABLE

- c. Tank Signs:* Each tanks should be labeled with the name or product stored (diesel or gasoline, etc.) and storage capacity (in gal lons). Also whether it is a flammable or combustible product.
- d. Vents:* Check to make sure vents are clear and that there is no debris or snow plugging them.
- e. Paint:* Paint protects the tank from exposure to the elements and reduces corrosion. Check for peeling, blistering or chipping.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Inspections (continued)

- f. Foundation:* Is the foundation in good condition? If beams are used, are they cracked or rotten? If other materials are used to support the tanks, check for corrosion where the tank meets its foundation.
 - g. Gauges and overfill devices:* Check to make sure gauges are working and test overfill alarms and shut-off devices.
- 5. Piping and Hoses:** Many leaks in tank farms come from piping; therefore it is important to maintain piping in good working condition.
- a. Soundness:* Are there any drips, leaks or visible stains around the pipes or hoses? Look around valves, filters and connections.
 - b. Corrosion Protection:* Are there signs of rust on the piping? Look around valves, connections and fittings. If using sacrificial metals make sure there is sufficient metal and if using impressed current, make sure the proper amount of current is flowing.
 - c. Support:* Are pipe supports adequate and in good condition? Check for sagging and cracking pipes due to insufficient support and rusting or rotting pipe supports.
 - d. Nozzles:* Are there any signs of rust or leaks from the nozzles? Can they be turned on and off to completely stop product flow?
 - e. Valves:* Are there any signs of leaks from the valves? Can the valves be turned on and off completely to stop product flow? Are the valves protected from tampering, locked and secure?
 - f. Protection:* Are pipes protected from falling ice and snow, vehicles and foot traffic?
 - g. Coating, wrapping and paint:* If the pipes are coated, wrapped or painted, check for wear and tear and chipping.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Inspections (continued)

AST FACILITY INSPECTIONS

6. **Secondary Containment:** The purpose of secondary containment is to hold any product should there be a spill. It is important that this area be of sufficient size and have the ability to hold spilled oil.
 - a. **Size:** Is the secondary containment area large enough to hold the capacity of the largest tank plus 10% for local precipitation?
 - b. **Clear of water, snow, ice and vegetation:** Is the secondary containment clear of standing water, snow and ice? If water or ice is in the containment area, there could be runover if a tank failed. Snow could hide leaked or spilled product and vegetation could hamper clean-up.
 - c. **Liner Soundness:** Is the secondary containment area lined with a synthetic liner? Is the liner in good condition or are there any rips, tears or nonessential holes in it? If the liner is not sound, it will not hold spilled product. (Note: If the liner is holding rainwater, it is probably in good condition and needs to be drained.)
7. **Spill Prevention and Response:** It is important to be prepared should a spill occur. Quick response can reduce the amount of oil spilled, thus reducing health and environmental damage and saving money.
 - a. **Response Plan:** Does the facility have a response plan and is it located at the facility? Each facility must have plans to deal with emergencies and all the facility operators and workers should be familiar with them.
 - b. **Response Equipment:** Is response equipment located at the site and is it in good working order? Do operators know how to use it? A minimum amount of oil spill response equipment should be located in specified areas of the facility and operators should know where it is and how to use it.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST FACILITY INSPECTIONS

AST Facility Inspections (continued)

8. **Government Requirements:** Various state and federal agencies have requirements pertaining to AST facilities. Owners and operators should be familiar with regulations that apply to their facilities.



- a. ***The Alaska Department of Environmental Conservation:*** (ADEC) requires that a discharge notification placard provided by or approved by the department be displayed in conspicuous locations. These placards include ADEC phone numbers and where to report spills. When inspecting the facility make sure signs are posted.

- b. ***The United State Environmental Protection Agency:*** (EPA) requires AST facilities to have Spill Prevention Control and Countermeasure (SPCC) plans and Facility Response Plans (FRP.) The plans contain specific information, certified by a registered Professional Engineer (SPCC) and must be signed by facility management, indicating acceptance and implementation. When inspecting the facility, check to see if a current copy of the plan is located there.



- c. ***United States Coast Guard:*** The (USCG) requires facilities that receive oil from barges submit a Letter of Intent to Operate”, an “Operations Manual” and a “Facility Response Plan”. When conducting the facility inspection, check for copies of these documents. Also the USCG requires safety equipment, such as fire extinguishers “Smoking Prohibited Signs” and response equipment and material, be located at the facility.

9. **Other:** During the inspection, list any other abnormalities or deficiencies noticed. Save inspection reports and correct problems as soon as possible.



SECTION 1 - FACILITY OPERATIONS & MAINTENANCE**AST Facility Inspections (continued)****Internal Tank Inspections:**

Aside from the routine facility inspections, it is a good practice to inspect the inside of ASTs on a regular basis. The American Petroleum Institute has a standard (API 653) which is designed for certified inspectors to follow for comprehensive AST inspections. Facility operators are not expected to conduct such rigorous inspections. However, with training and certification for **“HAZWOPER”** and **“Entering Confined Spaces”**, operators can conduct cursory internal inspections. For these inspections, tanks should be emptied and cleaned and the inside examined for holes and corrosion. For practical purposes these inspections should be conducted every ten years unless there is evidence of leaks or other reasons why the operator believes an internal inspection is necessary. *Only trained and experienced persons should conduct internal inspections. Under no circumstances should anyone else enter the tanks.*

AST FACILITY INSPECTIONS

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Inspection Form

Facility Name:						
Inspector:					Date:	
No.	Item	Good	Fair	Poor	Comments	Initials
1	Housekeeping (facility clean, free of unnecessary items)					
2	Safety					
2a	Fire extinguishers: adequate, accessible and charged					
2b	No Smoking Signs: posted and visible					
2c	Danger & Warning Signs: posted & visible					
3	Security					
3a	Fencing: fencing intact, gates locked					
3b	Lighting: adequate, lights functioning properly					
4	Aboveground Tanks - bulk fuel & day tanks					
4a	Soundness: no visible leaks, weeping or drips along seams or tank bottoms					
4b	Corrosion Protection: sacrificial metals sufficient, impressed currents functioning, signs of rust or corrosion					
4c	Tank Signs: product stored, storage capacity and fire hazard rating					
4d	Vents: clear,					
4e	Paint: no peeling, cracking or bleeding					
4f	Foundation: solid, no cracks or rotting					
4g	Gauges & Overfill devices: gauges working & test overfill alarms and automatic shutoff					
5	Piping & Hoses					
5a	Soundness: no visible leaks, drips or cracks especially at supports, joints, elbows and fittings.					

AST FACILITY INSPECTIONS

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

AST Facility Inspection Form

Facility Name:						
Inspector:				Date:		
No.	Item	Good	Fair	Poor	Comments	Initials
5b	Corrosion Protection: rust or corrosion, sacrificial anodes, impressed current					
5c	Support: adequate					
5d	Nozzles: no visible leaks and in good working condition					
5e	Valves: no visible leaks and in good working condition					
5f	Protection: from falling snow and ice & traffic					
5g	Coating, Wrapping and Paint: wear, tear, chipping					
6	Secondary Containment					
6a	Size: sufficient to hold contents of largest tank + 10%					
6b	Clear: no standing water, snow, ice buildup or vegetation					
6c	Liner Soundness: free of rips, tears and non-essential penetrations					
7	Spill Prevention & Response:					
7a	Response Plan: located at facility					
7b	Response equipment: Adequate, located at site and in good working order					
8	Government Requirements					
8a	(ADEC): spill notification placard mounted conspicuously					
8b	USEPA: Current, SPCC Plan onsite					
8c	USCG: Letter of intent to operate, Operations Manual and Response Plan					
9	Other					

AST FACILITY INSPECTIONS

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

TRANSFER PROCEDURES

Transfer Procedures

Transfer procedures are to be used when transferring fuel from a barge to a (AST) facility, from one tank to another or from a tank to a vehicle or something else. Spills often occur during transfers, especially if procedures aren't clear and followed. Although some transfer procedures are unique to each facility, there are some general procedures that should be followed.

1. Before beginning a transfer:

- a. **Check the fuel level** of the receiving tank to determine how much product it can take. It is important to determine a **SAFE GAUGE HEIGHT (SGH)**, that is, how much fuel the tank can safely hold, allowing for expansion due to temperature variations. (Rule of thumb, in summer months, the SGH is not over 90% and in winter the SGH is not more than 95% of the tank's total capacity.) In order to determine the SGH one must know the tank's storage capacity and how to properly gauge a tank. These topics are discussed in the inventory control part of this section.
- b. **Walk the pipeline or hose line** to check for visible leaks, cracks or damage in the line. Put drip pans under hose connections and under any drips or leaks along the transfer system.
- c. **Check valve position** at the manifold and at the tank. Make sure valves that should be closed are closed and valves that should be open are open. It is important to make sure valves are in the proper position so that product will only go to the targeted tank.



- d. **Have a pre-transfer meeting** with the barge operators and facility operators. The USCG requires this meeting and for the parties to go over and sign a **DECLARATION OF INSPECTION (DOI)**. Procedures that will

be used during the transfer are included in the DOI. An example DOI is included in this section.

TRANSFER PROCEDURES

- e. ***Determine how much fuel is above the receiving pipe inside the tank.*** If there is less than one foot of fuel above the receiving pipe, transfer fuel at a reduced rate until at least a foot of product is covering the pipe. This will reduce the potential for explosions caused by static electricity when fuel is pumped into the tank at a high rate.
2. **During the transfer:**
- a. ***Begin the transfer at a reduced rate*** until you are sure that the product is being pumped into the correct tank and there are no major problems.
 - b. ***DO NOT WALK AWAY DURING A TRANSFER.*** Make sure an operator is at the site during the entire transfer. Several spills have occurred at AST facilities because the operator did not follow this rule. Since transfers occur at various rates, depending on equipment, operators must be patient.
 - c. ***At all times, keep communications open*** between the barge operators and facility operators. Use intrinsically safe hand held radios for communication.
 - d. ***Check tank levels*** at regular intervals.
 - e. ***Reduce transfer rates*** when nearing the SGH to avoid overfilling the tanks.
 - f. ***Notify the barge tankerman when the transfer procedure is almost complete.*** That way, the barge pumps can be shut down before shore facilities are. If tank valves are closed first, high pressure in the lines may cause a “hydraulic hammer” to occur, which could cause a spill to happen.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Transfer Procedures (continued)

3. When transfer is complete:

- a. *Close the correct valves* at the manifold and tank.
- b. *Conduct a post-transfer meeting* between the barge and facility operators and sign off on the DOI.



- c. *Dip tanks:* Wait 6 - 24 hours then dip the tanks and check for water level at bottom of tanks. The reason for waiting to dip the tanks is so the fuel will have a chance to settle down. The reading will be more accurate.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Transfer Procedure Checklist

BEFORE THE TRANSFER BEGINS

- Determine the Safe Gauge Height (SGH) and check product level in receiving tanks
- Walk pipeline, checking for damage or drips
- Put drip pans under hose connections and drips
- Check valve positions
- Meet with barge operator and go over DOI

DURING TRANSFER

- Begin transfer at reduced rate
- Remain at side during entire transfer and walk the transfer line
- Keep communications between operators on the barge and at the facility; use a hand-held radio or similar device
- Let barge operator know when transfer is almost complete
- Reduce transfer rate before completing transfer
- Turn off barge pumps before closing tank valves

AFTER TRANSFER

- Make sure valves are closed
- Meet with barge operator and sign off on the DOI
- Wait 6 -24 hours then dip tanks and check for water at bottom of tanks

TRANSFER PROCEDURE CHECKLIST

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

DECLARATION OF INSPECTION FORM

DECLARATION OF INSPECTION FORM

DATE	TIME	LOCATION	
RECEIVING UNIT			
DELIVERING UNIT			
Federal regulations require the following inspections and activities to be executed by the person in charge (PIC) of a fuel transfer.			
	Deliverer		Receiver
1. RED WARNING SIGNS AND SIGNALS must be displayed and visible from all points around the vessel. At night, when transferring at anchor the red light will not be displayed.			
2. FIRES, FLAMES, SMOKING, AND MATCHES , if permitted, must be managed so vapors do not reach cargo. Smoking areas must be designated, inspected and safe.			
3. Repair Work - in the way of any cargo spaces must be approved by the PIC.			
4. VESSELS COMING AND/OR REMAINING ALONGSIDE must have the approval of the PICs during transfers.			
5. THE MOORING must ensure safety of the vessel and transfer device through all conditions of tide and weather.			
6. THE TRANSFER DEVICE must, when connected, be under no strain with the vessel the limits of its moor, be properly supported, be blanked when not used, and be connected to fixed piping or equipped with an automatic back pressure shutoff nozzle.			
7. THE TRANSFER SYSTEMS must be aligned to permit the flow of fuel and closed or blanked off when not in use.			
8. THE OVERBOARD DISCHARGES/SEA SUCTIONS must be closed, lashed, and sealed during the transfer.			
9. SCUPPERS AND DRAINS must be mechanically closed			
10. THE CONNECTIONS must be leak free, except packing glands providing the leakage does not exceed containment.			
11. DISCHARGE CONTAINMENT must be available or deployed, if applicable and drip pans or drain nubs will be placed appropriately.			
12. MONITORING DEVICES must be in place and operable.			
13. COMMUNICATIONS must be maintained throughout the transfer.			
14. THE EMERGENCY SHUTDOWN must be tested and operable prior to starting the transfer.			
15. THE PICS of both units must be at the transfer site, immediately available to oil transfer personnel, have readily available operations or procedures manuals and conduct the operations in a manner consistent with the documents.			

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

DECLARATION OF INSPECTION FORM

				Deliverer		Receiver	
16. SUFFICIENT PERSONNEL must be on duty and conduct the operation as instructed in the operations manual or transfer procedures.							
17. LANGUAGE USED must be common to both PICs or an interpret, who is fluent in both languages, available at the transfer site.							
18. AGREEMENT TO BEGIN TRANSFER must be reached by the PICs and both of them must sign both DOIs prior to beginning the transfer.							
19. LIGHTING must be available between sunset and sunrise.							
20. PRE-TRANSFER CONFERENCE must take place prior to the transfer and include discussion of:							
a.	The products to be transferred						
b.	Sequence of transfer operations						
c.	Name, title, location of persons taking part in the transfer						
d.	Critical details of each system						
e.	Critical stages of transfer operation						
f.	Federal, state and local regulations that apply to transfer						
g.	Emergency procedures for each system						
h.	Discharge containment procedures						
i.	Discharge reporting procedures						
j.	Watch and shift change arrangements						
k.	Transfer shutdown procedures						
PRODUCT TRANSFER SEQUENCE							
	PRODUCT			QUANTITY		PSI	
First							
Second							
Third							
SIGNATURE							
Delivering PIC				TITLE		TIME/DATE	
Receiving PIC's							
SIGNATURES UPON COMPLETION OF TRANSFER OPERATION							
Delivering PIC							
Receiving PIC							

DECLARATION OF INSPECTION FORM

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

TRANSFER PROCEDURES

Transfer Procedures (continued)

When transferring fuel from an aircraft to a tank, from a tank to a truck or from one tank to another the same basic procedures used to transfer fuel from a barge to a tank farm are followed. That includes,

- Dip the receiving tank or tanker truck before beginning the transfer.
- Check all fittings and hose connections, putting drip pans or absorbent pads at hose connections.
- Use grounding cable when appropriate.
- Begin the transfer at a reduced rate.
- Stay at the site during the entire transfer.
- Measure the receiving tank when the transfer is complete.

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Inventory Control

Safe Gauge Height - (SGH) Once the tank's storage capacity has been determined, the SGH should be determined and stenciled on the tank, usually near the gauging port.

- In summer the SGH is usually 90% of the tanks total storage capacity. This allows room for expansion due to heat and space for fuel that is blown through the lines when clearing them.
- In winter the SGH is usually 95% of the tanks total storage capacity to allow for fuel that is blown through the lines when clearing them as well as some room for expansion.
- Tanks should not be filled over the SGH

Tank Gauging -Gauging product levels in the tank is critical for keeping accurate material inventory.

- Each tank should be equipped with a roof mounted gauge hatch which should be vapor tight
- Manual gauge readings are taken using a tape and plumb bob.
 - ☐ Use dark tapes to measure clear liquids such diesel and light colored tapes to measure heavy fuels and crude oil.
 - ☐ Before taking measurements, check the tape for cracks and make sure printing is legible
 - ☐ Be sure to ground the tape before dropping the plumb bob into the tank and drop the plumb bob in slowly.
 - ☐ Always dip the tank until you get the same reading twice.
 - ☐ When dipping the tank, check the water level at the bottom of the tank.

INVENTORY CONTROL

SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

INVENTORY CONTROL

Inventory Control

Inventory control is important to make sure you are not losing any fuel from leaks in the system, to make sure you are getting the fuel you are purchasing and to make sure your customers are getting the fuel they purchase. Inventory figures that do not reconcile indicate a problem somewhere in the system. In large facilities inventory data is recorded daily and reconciled monthly. In smaller facilities this isn't practical but inventory data should be recorded and reconciled on a very regular basis. Always check tank levels before filling a tank to prevent overfill.

In order to monitor product inventory, you must know the storage capacity of your tanks and how many gallons per inch the tank can hold. When a tank is purchased from a manufacturer, you will be told the storage capacity. However, often the storage capacity of older tanks is not known so must be calculated. Following are the formulas for determining the storage capacity of storage tanks and an example of determining the capacity, using the formulas shown.

Calculating volume and storage capacities

r = radius (ft)

D = Diameter

H = Height (ft)

C = Circumference (ft)

A = Area or Base (ft²)

V = Volume (ft³)

ft = feet

ft² = square feet

ft³ = cubic

pi (π) = 3.14

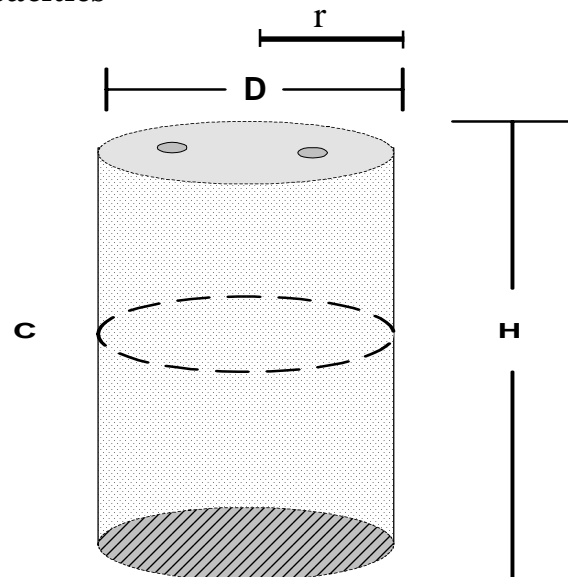
$$r = \frac{C}{2\pi}$$

$$A = \pi r^2$$

$$V = H \times A$$

$$\text{Tank Capacity} = \text{Tank Volume} \times \text{gallons/per ft}^3$$

Conversion factor: There are 7.48 gal /ft³



SECTION 1 - FACILITY OPERATIONS & MAINTENANCE

Inventory Control

Example: You have an AST and want to determine the **storage capacity** as well as how many gallons of **fuel per inch** the tank can hold.

First you measure the circumference (C) and the height (H) and find that;
 $C = 42 \text{ ft}$ and $H = 12 \text{ ft}$

Next determine the radius (r): $\frac{C}{2\pi}$ or $\frac{42 \text{ ft}}{2 \times 3.14} = 6.68 \text{ ft}$

Next find the base area (A): $A = \pi r^2$ or $3.14 \times (6.68 \text{ ft})^2 = 140.4 \text{ ft}^2$

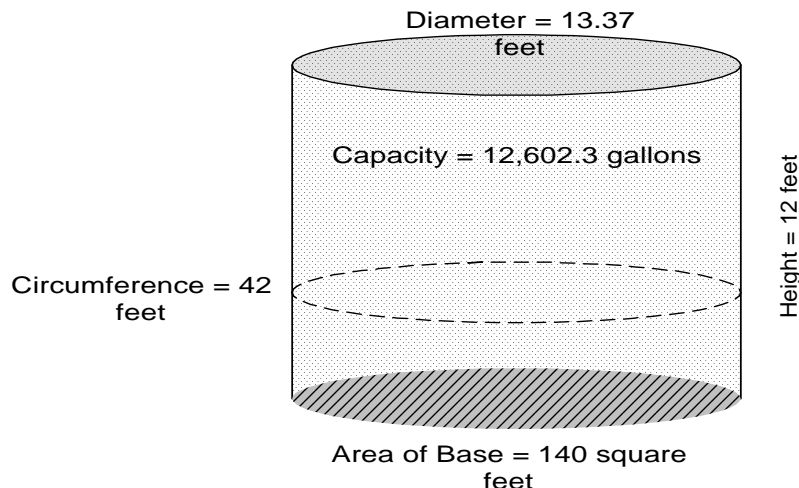
Next find the tank volume (V): $V = A \times H$ or $140.4 \text{ ft}^2 \times 12 \text{ ft} = 1684.8 \text{ ft}^3$

Now convert cubic feet to gallons:

$V \times \frac{\text{gal}}{\text{ft}^3}$ or $1684.8 \text{ ft}^3 \times \frac{7.48 \text{ gal}}{\text{ft}^3} = 12,602.3 \text{ gal.}$

Next find the gallons per foot = $\frac{\text{Capacity}}{H}$ or $\frac{12602.3 \text{ gal}}{12 \text{ ft}} = 1,050 \text{ gal/ft}$

Finally find the gallons per inch: $\frac{\text{Gallons/ft}}{12 \text{ in/ft}}$ or $\frac{1050 \text{ gal/ft}}{12 \text{ in/ft}} = 87.5 \text{ gal/in}$



INVENTORY CONTROL

SECTION TWO

SAFETY

SECTION TWO - SAFETY

SECTION 2 - SAFETY

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SECTION 2 - SAFETY

SAFETY

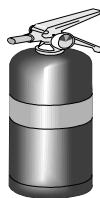
AST facilities have several potential hazards. Operators should know what safety measures to take to prevent accidents and injuries from these hazards. Examples of hazards and safety measures follow.

1. **Fire and Explosions** – petroleum products are flammable and some are explosive.



- a. **Fire protection**

- **Design and build facilities** with safety in mind and in compliance with applicable fire and building codes. Facility plans should be reviewed and approved by the State Fire Marshal.
- Make sure **fire extinguishers** are the proper type and located in strategic places. Keep them in good working order and pressurized. Operators must be trained with their proper use.
- **No Smoking at AST facilities.** Post signs stating this rule.
- **No open flames** at AST facilities.
- **Do not store nonessential items and material** such as empty gas cans, jerry jugs, rags and other items that are can start or spread fires at the facility.



- b. **Material Safety Data Sheets (MSDS)** for each product stored at the facility should be kept at the site. Examples of MSDSs are in Appendix B.

2. **General Facility Safety**

- a. Clearly spell out **operating and safety procedures.**
 - b. **Maintain open communication** within facility and with local

SECTION 2 - SAFETY

emergency services.

b. **Maintain safety equipment in good working order.**

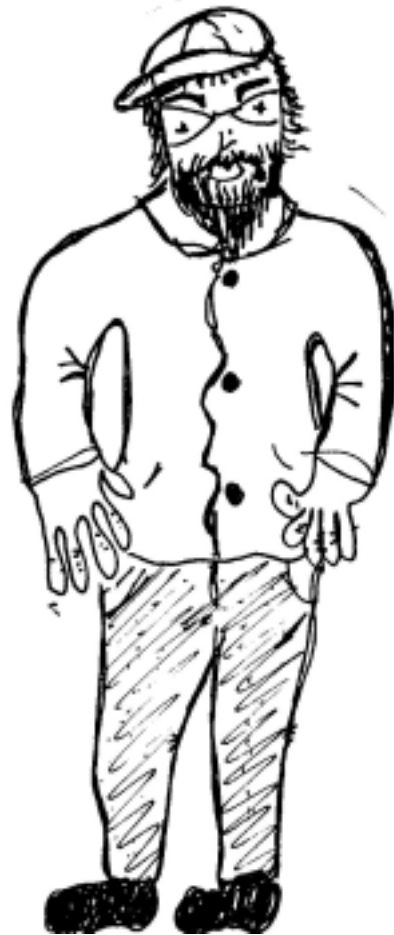
- Tank overfill protection and warning devices
- Emergency shut off switches
- Shut off valves

c. **Label each tank** with contents and storage capacity.

d. Do not permit **unauthorized people** i

3. **Personal Safety**

- Wear **safety-toed boots**
- Wear **eye protection** when appropriate
- Wear **gloves** when working in cold temperatures.
- **Keep walkways and stairs** free of **ice and debris** to avoid trips and falls
- **Do not enter storage tanks** unless you have had proper training



SAFETY

SECTION 2 - SAFETY

SAFETY

4. **First Aid** - quick response to accidents can save lives and prevent serious injuries therefore it is a good idea for AST operators to have basic first aid training.

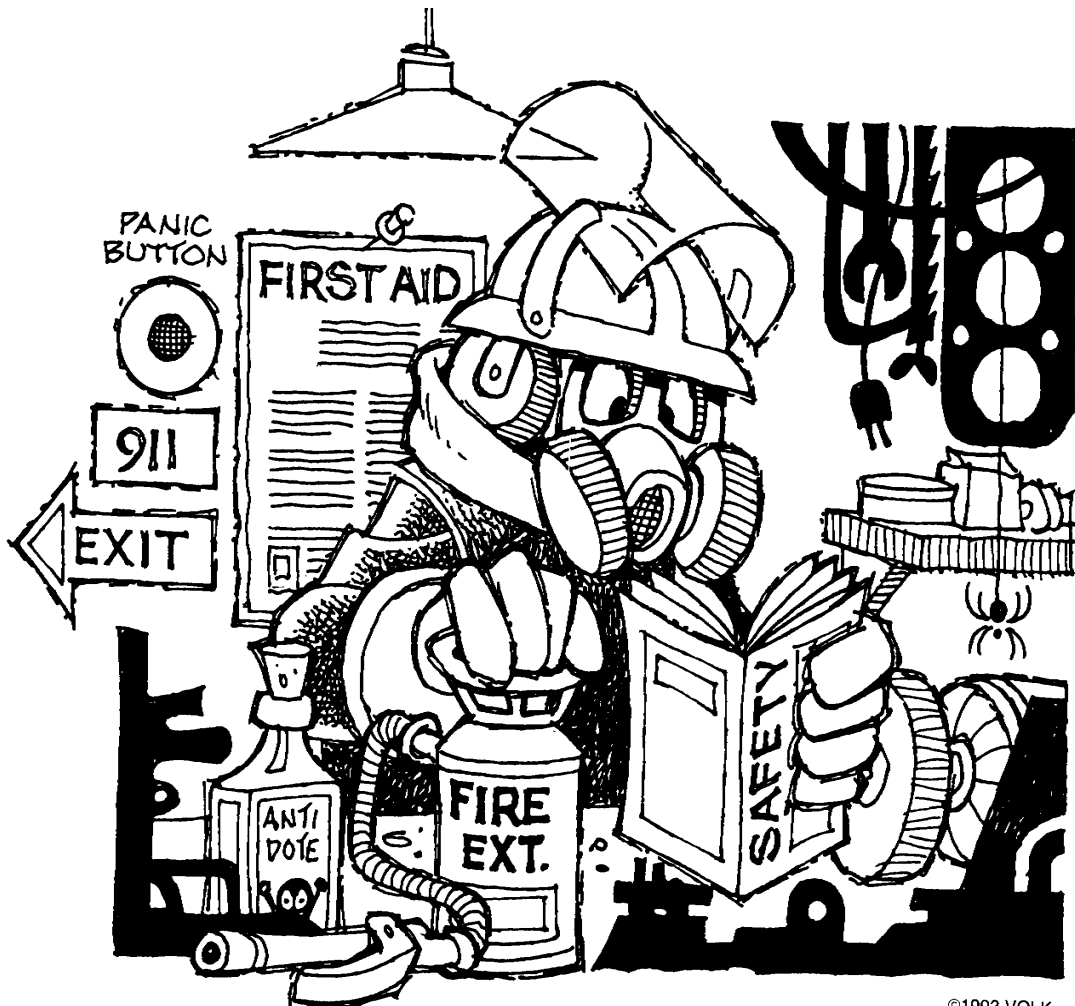


- a. First aid training should include basic emergency response and cardiopulmonary resuscitation (CPR).
- b. Some basic first aid response for fuel related incidents include:
 - Vapor inhalation - move to fresh air
 - Skin contact with fuel - remove affected clothing and wash skin
 - Eye contact with fuel - flush with water
 - Ingestion of fuel- do not induce vomiting
 - MSDSs for gasoline and diesel are in Appendix B.

SECTION 2 - SAFETY

SAFETY FIRST

KEEP THIS AREA SAFE AND CLEAN



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SAFETY

SECTION THREE

SPILL PREPAREDNESS

SECTION THREE - SPILL PREPAREDNESS

SECTION 3 - SPILL PREPAREDNESS

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SECTION 3 - SPILL PREPAREDNESS

Facility Analysis and Inspection

Review your facility to identify areas and activities most likely to have a spill. Specific aspects of your facility to note include:

- amount and type of product stored,
- normal patterns of fuel usage (distribution, transfer, etc.),
- direction spilled oil would flow and,
- sensitive areas to protect in case of spill.



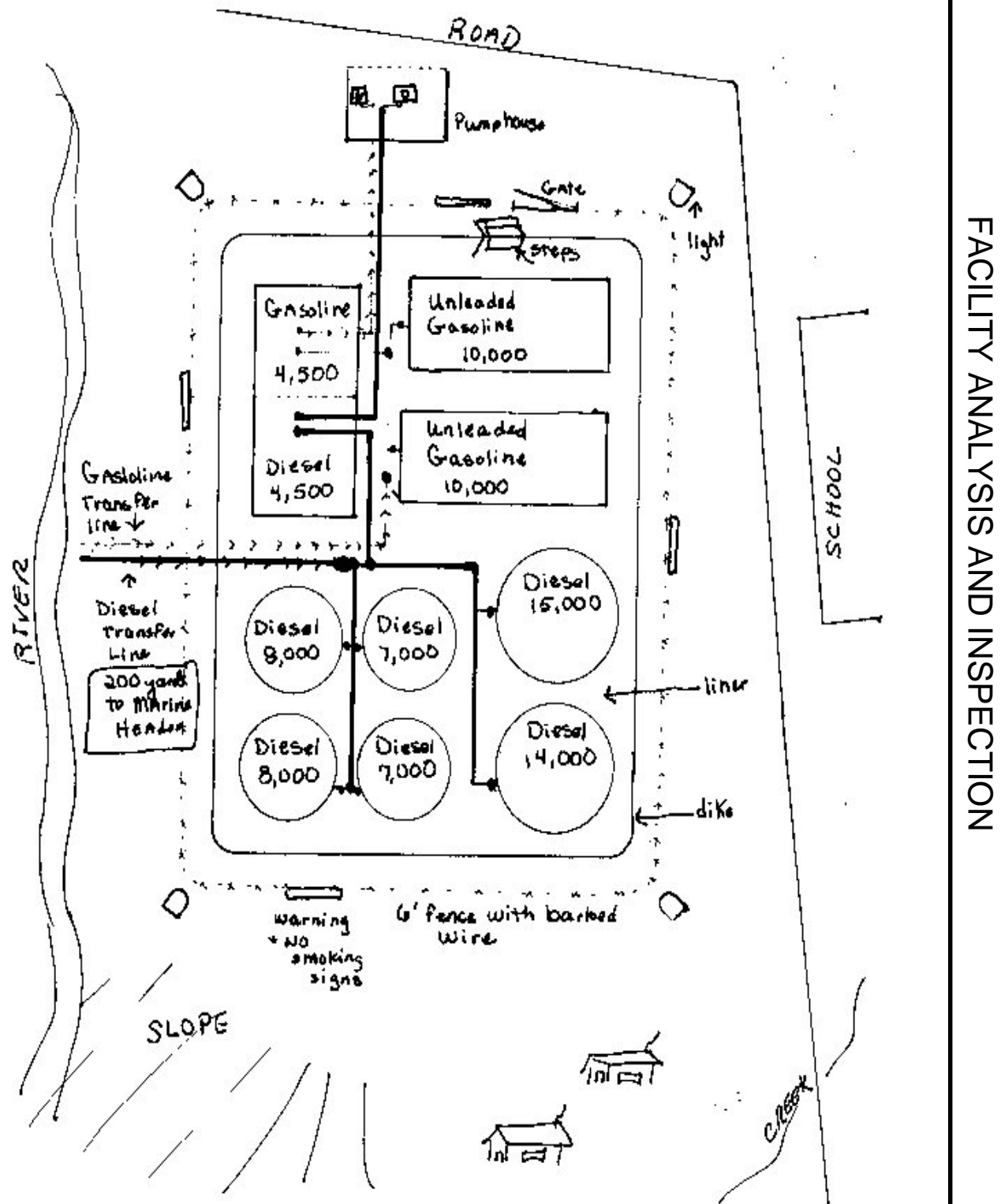
Make a labeled diagram identifying high-risk locations and areas where activities take place. The diagram should include but is not limited to (see diagram on next page):

- all tanks (bulk storage and day tanks)
- piping, including valves and headers,
- secondary containment,
- buildings, fences, lights
- dispensing
- environmentally sensitive areas

FACILITY ANALYSIS AND INSPECTION

SECTION 3 - SPILL PREPAREDNESS

Facility Analysis and Inspection



SECTION 3 - SPILL PREPAREDNESS

SPILL RESPONSE EQUIPMENT AND MATERIALS

Spill Response Equipment and Materials

Your facility review will help you to prepare for spills. The size, location and type of spill (i.e. to land or water) that could occur at your facility will determine response materials and equipment to have on hand as well as spill response training necessary to respond to a spill.

Following are examples of materials to have on hand and measures to take to reduce the impact in the event that a spill should occur. Spill response materials and equipment should be placed in secure, yet readily accessible locations near potential spill areas.

<u>Spill type</u>	<u>Preparedness materials & measures</u>
Spills to land	sorbent pads/boom, picks and shovels
Spills to water	(skirted boom), boats, anchors and ropes, skimmers
Spills during fuel handling	catchment basins, boom and sorbents
Spills from leaks in system	sorbent pad, containment basins, repair and patch material

Spill Response Equipment and Material Checklists

- Lists of basic equipment and materials that should be kept readily available to respond to spills is included in this section.
- These lists are basic and may be modified for individual facilities.

All employees should know the location and how to use spill response equipment and materials.

SECTION 3 - SPILL PREPAREDNESS

Spill Response Equipment Checklist

Item	No. needed	Have	Order	Comment
Hand crank Wringer				
Transfer Pump				
Hand Held Radio (spare batteries and charger)				
Shovels (Non-sparking, aluminum or brass)				
Picks				
First Aid Kit				
Brooms				
Safety Glasses or Face Shield				
Hard Hats				
Rope				
Plastic Buckets				
Boat/Motor				
Anchor, Chain, Rope				
Buoys				
Tools				
Portable Generator				
Smart-ash Burner				
Tank or bladder for holding recovered product				
Rubber Boots				
Rain Gear				
Other				
Other				
Other				

SPILL RESPONSE EQUIPMENT CHECKLIST

SECTION 3 - SPILL PREPAREDNESS

SPILL RESPONSE MATERIALS CHECKLIST

Spill Response Materials Checklist

Item	No. Needed	Have	Order	Comments
Sorbent Pads				
Sorbent Boom				
Skirted Boom				
Visqueen (6 mil.)				
Overpack Drums, 85 gallons				
Garbage Bags (6 mil.)				
Neoprene Gloves				
Warm Gloves				
Duct Tape				
Color-Kut Water Paste				
Disposable Suits (ie. Kaplar)				
Other				
Other				
Other				

Masks

plugs

pans for cleaning

scrub brushes

SECTION 3 - SPILL PREPAREDNESS

Operator Preparedness Training

The severity of spills can be minimized if operators are properly trained in spill response, including proper use of response equipment and materials. It is recommended that facilities develop written training plans for each of their operators.

Areas of spill preparedness training include:

- **Operations:** Operator must be qualified and competent for conducting normal routine operations.
- **Inspections:** Operators must be familiar with the facility and its operations. This will enable him/her to conduct regular inspections and be able to recognize problems.
- **Maintenance:** Operators must be qualified to perform regular preventative maintenance. When necessary, specialists need to be called in.
- **Spill preparedness:** Operators must be trained in procedures for storage, maintenance, inspection and periodic testing of oil spill response equipment and materials.
- **Spill response:** Operators must be trained in deployment of spill response equipment and materials, safety, first aid, spill reporting and response actions. They should participate in spill drills.
- **Hazardous Material Handling (HAZMAT):** Operators must be trained in safety, aware of potential hazards and proper fuel handling practices.
- **First Aid / Cardiopulmonary resuscitation (CPR):** Operators should have basic first aid training with emphasis on identifying and responding to health emergencies due to fuel exposure. It is also a good idea for operators to know CPR.

SECTION 3 - SPILL PREPAREDNESS

SPILL RESPONSE PLANS

Spill Response Plans

Facility spill response plans should be working documents. Operators and responders should be are familiar with them. These plans should:

- List who to notify of a spill or call for help.
- Describe the actions to take in the event of a spill.
- Deployment strategies for spill response materials and equipment.
- Discuss protection of critical and sensitive areas.
- Describe recovery of spilled product.
- Describe proper management of recovered product and contaminated soil.

See Appendix D for an example Spill Response Plan.

SECTION 3 - SPILL PREPAREDNESS

Local Response Agreements

The Alaska Department of Environmental Conservation (ADEC) provides immediate response capability in many villages and communities in Alaska. This service is available because of partnership agreements with local communities, spill response cooperatives and response action contractors. The intent of the agreements is to give local communities and villages the ability for immediate spill response, which is necessary to contain and control releases to reduce the impact on public health and the environment. These agreements include stationing response packages in specified areas and providing training to local responders in equipment use.

Each response package is under control of the State On-Scene-Coordinator for the area in which it is located. Packages include spill response material and equipment for the types of hazards that exist in an area. An example of a response container inventory is included at the end of this section. In the event of a spill, the response equipment will be accessed and managed by ADEC area staff or by personnel responsible under a “Local Response Agreement”.

For more information on “Local Response Agreements”, call:

(907) 465-5220

LOCAL RESPONSE AGREEMENTS WITH COMMUNITIES

SECTION 3 - SPILL PREPAREDNESS

Example Response Container Inventory

CONTAINER EQUIPMENT INVENTORY

Container Number: 66359 S 05

Location: Hyder

State Tag Number: 10066359

Container Serial/ID Number: 0-339010

EXAMPLE RESPONSE CONTAINER INVENTORY

Quantity	Item
1 ea.	Connex, Steel Shipping/Storage Van, (20' X 8' X 8')
6 ea.	Overpack Drums, (Steel), 85 gal., Open-head, Model 1A2 DOT 49 CFR 173.39(c) Spec.
2 boxes	Overpack Drum Liners, 4 Mil., a total of 150 bags
1000 ft.	Kepner, 8"x12" SeaCurtain Boom, (Model BHD 81208RF), labeled "ADEC"
2 ea.	Tow Bridles (for above boom), w/2 S.S. Snap Hooks
2 ea.	Boom Connector Adapters, Universal (Hinge, Pin & Plate) to ASTM, w/1 galvanized Snap Hook
12 ea.	Danforth Anchors, 22 lbs., w/ 10' - 3/8" galv. chain, connectors, and galv. Snap Hook
12 ea.	10' - 3/8" galv. chain (spare), w/connectors and 1 galv. Snap Hook
2 ea.	Tow Lines, 5/8" X 100', each w/ S.S. Thimble and 2 S.S. Snap Hooks
33 ea.	Anchor Ropes, 1/2" X 100', each w/ S.S. Thimble and 1 S.S. Snap Hook
12 ea.	15" Crab Buoys, w/1/2" SPA Shackle and 3/8" X 10' Nylon Line and 1 S.S. Snap Hook
1 spool	3/8" 3 strand Braided Nylon line, 600' spool
1 ea.	Sorbent Pad Hand Wringer

SECTION 3 - SPILL PREPAREDNESS

Example Response Container Inventory

40 bdl.	Sorbent Pads (100 per bundle), 18" X 18"
25 bdl.	Sorbent Boom (4 sections per bundle), 5" X 10' sections
15 bdl.	Sorbent Sweeps (bundles), 18" X 20'
2 ea.	Lift Bags, 35" X 35" X 35", (Model 2000), w/2 galv. Snap Hooks
10 ea.	Lift Bag Poly Liners, 4 Mil. (72" X 132")
5 ea.	Cargo Strap, Ratchet Assembly, (2" wide X 12' long)
4 ea.	Cargo Strap, Ratchet Assembly, (2" wide X 16' long)
1 ea.	American Padlock, long neck, heavy duty, w/2 keys marked " LRC 05 "
4 ea.	Concrete Pier Blocks
1 ea.	15" HIP Roof TUFF-E Tool Box, 15" L X 7" W X 6.5 " H, #20027006403
1 ea.	Craftsman, Socket Wrench Breaker Bar, Flex Head, 1/2" Drive, #44201
1 ea.	Craftsman, Ratchet Socket Wrench, 1/2" Drive, #44809
1 ea.	Craftsman, 15/16" - 12 point Deep Socket, 1/2" Drive, #47529
1 ea.	Craftsman Adjustable Pliers, #45381
1 ea.	Craftsman 10" Adjustable Crescent Wrench, #44604
1 ea.	16 oz. Ball Peen Hammer, Wood Handle, #2452-2013
1 ea.	8 lb. Sledge Hammer with 36" handle
Misc.	Spare bolts and pins for Kepner Boom, in tool box

EXAMPLE RESPONSE CONTAINER INVENTORY

SECTION FOUR SPILL RESPONSE & REPORTING

SECTION FOUR - SPILL RESPONSE & REPORTING

SECTION 4 - SPILL RESPONSE, REPORTING

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SECTION 4 - SPILL RESPONSE, REPORTING

DETECTING OIL SPILLS:

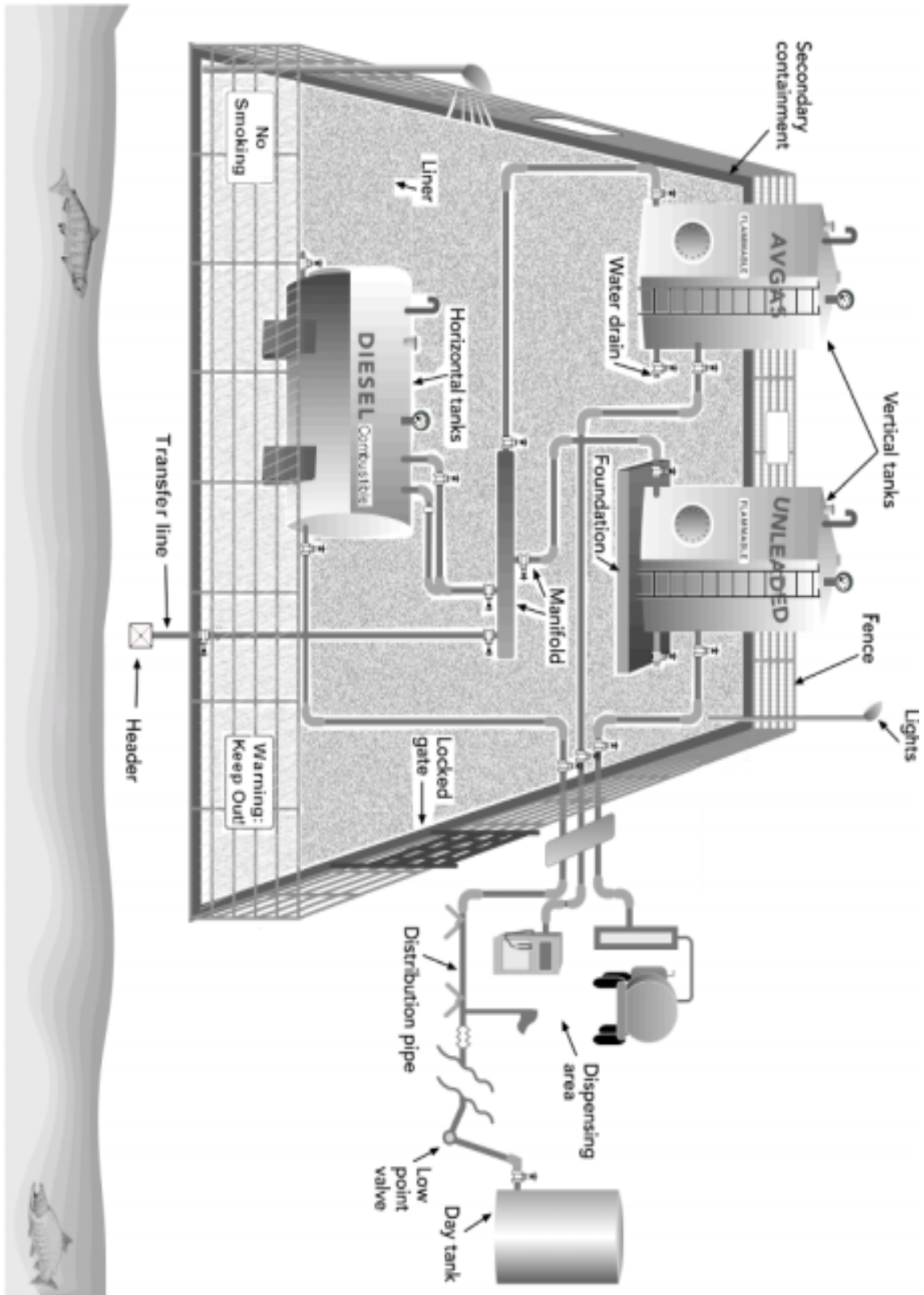
Detecting Oil Spills

Sometimes oil spills aren’t as easy to detect as one would think. Following are some tips to help determine if you have spills or leaks at your facility:

- Visible spilled product on the ground
- Sheen on the water
- Smell of fuel in the air
- Inventory does not reconcile
- Dead or oiled fish, birds or small mammals
- Dead vegetation around facility
- Smell or taste in drinking water
- Sounds, such as spraying liquids, high pitch release from pressure vessels, etc.

SECTION 4 - SPILL RESPONSE, REPORTING

WHERE SPILLS ARE LIKELY TO HAPPEN



SECTION 4 - SPILL RESPONSE, REPORTING

SPILL RESPONSE

Spill Response

When you determine that you have a spill at your facility, immediate action must be taken. This section is a description of recommended steps to take and whom to notify. At the end of this section there is a “*Spill Response Checklist*” which is an abbreviated version of this section. The checklist may be copied, adjusted to fit your facility and used as you see fit.

Note: The procedures outlined should only be considered recommendations. Every spill is different and your response should be guided by your capabilities and limitations.

INITIAL DEFENSE ACTIONS

1. **Survey Incident** - from a safe distance. Using senses of sight, sound and smell, take note of:
- Source of release (tank, pipe, valve, drum, etc.)

• Material spilled look at labels and markings (gasoline, diesel,)

• Occupied buildings that may be threatened

• Public areas and environmentally sensitive areas that may be threatened.
2. **Safety first** – human lives and safety are most important.
- Call for help. Letting others know where you are, what you are doing and what they can do to help can save your life as well as reduce the impact from the spill. Call:

☐ Facility Owner or Manager

☐ Local Fire Department

☐ Local Responders

SECTION 4 - SPILL RESPONSE, REPORTING

Spill Response (continued)

- ☐ Local Law Enforcement
- ☐ Local Medical Personnel

3. Analyze the Incident

- Collect hazard information on product spilled (refer to MSDS sheets)
- Predict the likely behavior of spilled material as well as the source container (flow direction, etc.)
- Estimate the extent of the spill and potential for harm

4. Protect the public

- Keep non-emergency and unauthorized personnel away from facility and spill area
- Evacuate areas downwind and stay upwind from spill– fumes can cause problems
- Control the scene and ribbon off spill area to keep the public away from the spill
- Know when to stay away (explosion hazard, etc.)

5. Plan a response - within the capabilities of available personnel, personal protection equipment and spill control equipment.

- Identify response objectives based on analysis.
- If needed, contact authorities for additional response equipment located in “Local Response Containers.”
- Conduct a safety briefing with responders.

SPILL RESPONSE

SECTION 4 - SPILL RESPONSE, REPORTING

SPILL RESPONSE

Spill Response (continued)

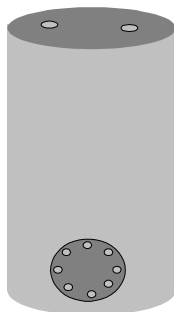
6. **Protect yourself** with appropriate personal protection gear:

- ☐ Hardhat
- ☐ Rubber or safety-toed boots
- ☐ Respirator
- ☐ Disposable suit or Rain Gear
- ☐ Eye Protection
- ☐ Neoprene Gloves
- Watch out for symptoms of heat and cold stress.
- Prepare for decontamination.



7. **Verify spill source** - determine where the spills coming from

- Tanks
 - ☐ Check vents for evidence of spilled product from overfill or heat expansion.
 - ☐ Look at tank shell seams for rupture, leaking welds, missing bolts or rivets, or any other damage or flaws.
 - ☐ Check the shell/bottom seam for corrosion, leaking welds or any other damage.



SECTION 4 - SPILL RESPONSE, REPORTING

Spill Response (continued)

- Piping
 - ☐ Check to see if any pipes are cracked or broken
 - ☐ See if valves are in the correct position - open or closed
 - ☐ Look for broken or leaky joints
- Other Sources - Look around to see if spilled oil could be coming from another source, such as a vehicle parked on the premises, or drums stored nearby facility.

PLANNED RESPONSE ACTIONS - USE THE “BUDDY SYSTEM”

8. CONTROL the spill:

- Stop transferring fuel immediately if spill occurs during transfer
- Know location of all emergency shut off equipment (electrical and mechanical)
- Close valves upstream of leak to stop the flow of product
- Place buckets or basins under leak from pipe or valve
- Apply temporary patch over leaky pipe or tank
- If spill is from a damaged tank, transfer remaining fuel to another tank

9.. CONTAIN the Spill as Soon as Possible – the quicker the spill is contained, the less the potential for human danger and impact to the environment

SPILL RESPONSE

SECTION 4 - SPILL RESPONSE, REPORTING

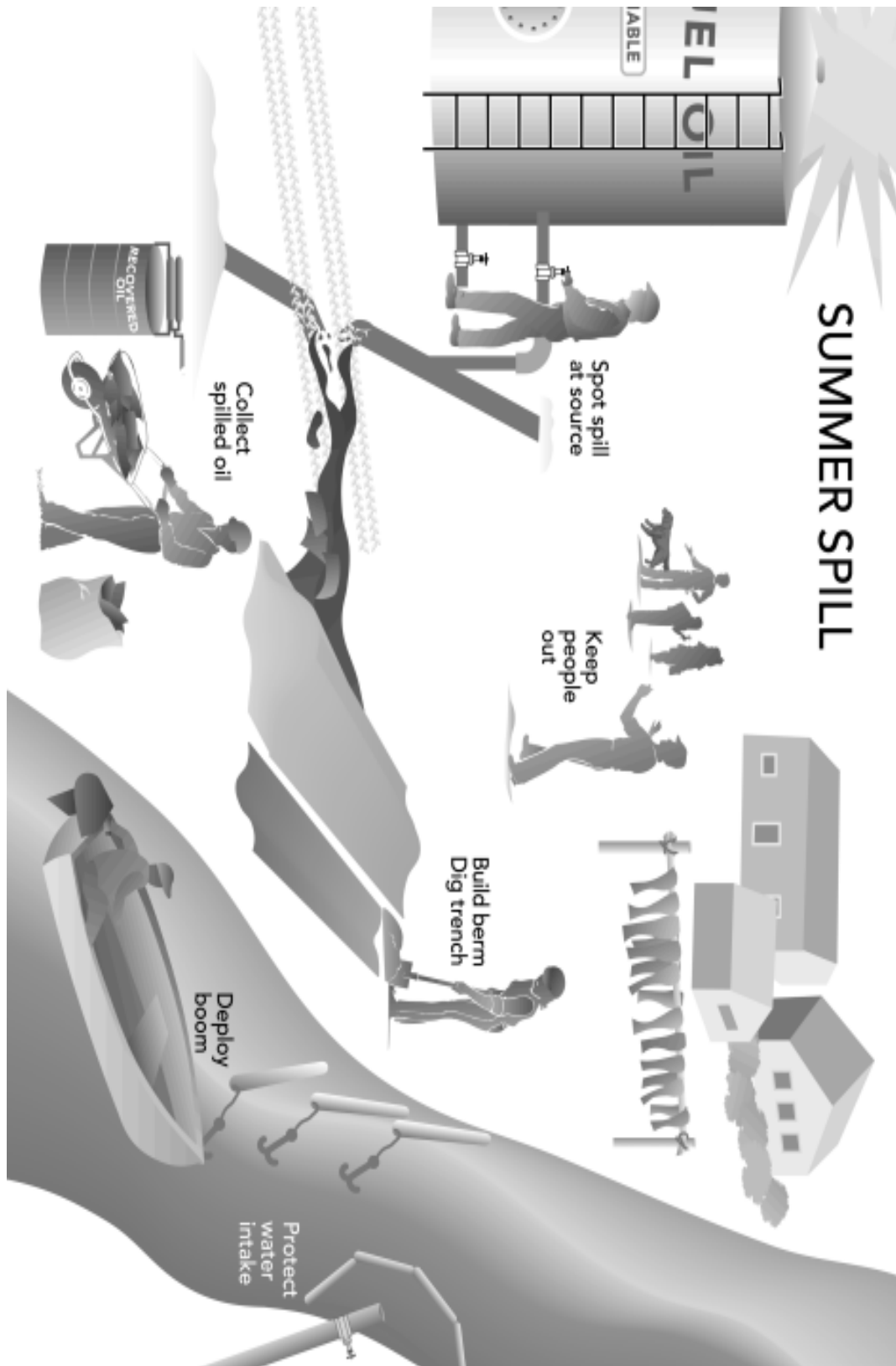
SPILL RESPONSE

Spill Response (continued)

- Use spill response tool kit – shovels, absorbent pads, etc.
 - Follow deployment strategies in Spill Response Plan
 - For winter spills – pile snow to form a dike around spilled product and dig ditches in ice to control the spill
 - For summer spills
 - ☐ Use dirt and mud to form an dike around spilled products
 - ☐ Dig a ditch to divert product from flowing into streams and other bodies of water
 - Pay particular attention to sensitive areas
 - ☐ Drinking water sources
 - ☐ Residential areas
 - ☐ Commercial areas
 - ☐ Fish and wildlife habitat
- 9. Recover and CLEAN up Spilled Product** - to reduce environmental damage, clean up as much product as possible.
- **Recover:** Recover captured product before it hits the water by pumping it or picking it up with skimmers or absorbent materials. Put the recovered product into tanks, drums or bladders.
 - **Report:** Report the spill to the nearest Alaska Department of Environmental Conservation office (during normal work hours) or call the 1-800-478-9300 after normal work hours.

SECTION 4 - SPILL RESPONSE, REPORTING

Spill Response (continued)



SPILL RESPONSE

SECTION 4 - SPILL RESPONSE, REPORTING

SPILL REPORTING

Spill Reporting

9. **Notify Owners and Authorities** - when a spill is noticed, call the following individuals and agencies immediately (fill in the correct numbers below):

- Facility Owner or Manager



- The Alaska Department of Environmental Conservation during normal business hours:



Outside normal business hours,

1-800-478-9300

- The National Response Center (EPA and USCG)

1-800-424-8802

Make sure signs with appropriate contact numbers are visibly posted in the facility. Also make sure notification signs are visible so others can see them in the event of a spill when the facility is closed.

SECTION 4 - SPILL RESPONSE, REPORTING

Spill Response Checklist

		FINDINGS
INITIAL RESPONSE ACTION	1. SURVEY INCIDENT <ul style="list-style-type: none"> Identify release source & Material spilled Threatened building/public and sensitive areas 	
	2. SAFETY FIRST – GET HELP <ul style="list-style-type: none"> Facility Owner or Manager Local Fire Department and Law Enforcement Local Responders Local Medical Personnel 	
	3. ANALYSE THE INCIDENT <ul style="list-style-type: none"> Review MSDS Sheet Predict spill behavior Estimate extent of spill 	
	4. PROTECT THE PUBLIC <ul style="list-style-type: none"> Authorized personnel only/Ribbon off area Evacuate areas downwind & Stay upwind Know when to stay away 	
	5. PLAN A RESPONSE <ul style="list-style-type: none"> Identify response objectives Get additional response material Conduct safety briefing 	
	6. PUT ON PERSONAL PROTECTION GEAR <ul style="list-style-type: none"> Disposable suit or rain gear Hardhat/Eye protection Neoprene Gloves/Rubber or safety-toed boots 	
	7. VERIFY SPILL SOURCE <ul style="list-style-type: none"> Tanks Pipes Other sources 	
PREVENTION	8. CONTROL THE SPILL <ul style="list-style-type: none"> Stop the transfer and close valves upstream Place catch bucket or basin under leak Apply temporary patch 	
	9. CONTAIN THE SPILL <ul style="list-style-type: none"> Use response tool kit following deployment strategies Pay attention to sensitive areas 	
	10. RECOVER, CLEAN AND REPORT <ul style="list-style-type: none"> Capture and recover product before it hits the water Clean-up product Call the nearest ADEC office and report spill 	

SPILL RESPONSE CHECKLIST

SECTION FIVE

GOVERNMENT

REQUIREMENTS

SECTION FIVE - GOVERNMENT REQUIREMENTS

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SECTION 5 - Government Requirements

STATE AND FEDERAL REGULATORY AGENCY OVERVIEW

State and Federal Regulatory Agency Overview

Federal Environmental Protection Agency (EPA) requirements



- A. Spill Prevention Control and Countermeasure (SPCC) and (RP) Response Plans
- B. Personnel training in the prevention, containment, removal and disposal of spilled oil
- C. Inspection and maintenance program
- D. Proper selection and construction of spill prevention systems which include dikes, liners, pumps, absorbent boom, etc.

United States Coast Guard (USCG) requirements



- A. Submission of a "Letter of Intent to Operate"
- B. Submission and approval of an "Operations Manual" and a "Facility Response Plan"
- C. Facility operations must include procedures and equipment for fuel delivery from vessel (barge), including:
 - ☐ Designated qualified person in charge of the fuel transfer operation
 - ☐ Personnel training and response drills
 - ☐ Safety requirements
 - ☐ Record keeping

SECTION 5 - Government Requirements

State and Federal Regulatory Agency Overview

Alaska Department of Public Safety (Fire Marshal) requirements



Facility plans are to be submitted for review and approval by the Fire Marshal prior to building a new facility, any repairs, alterations or changes that may affect fire safety of the storage tank facility.

Alaska Department of Environmental Conservation (ADEC) requirements

- Spill reporting
- Posting of spill notification information
- Cleanup and disposal of spill material



STATE AND FEDERAL REGULATORY AGENCY OVERVIEW

SECTION 5 - Government Requirements

ENVIRONMENTAL PROTECTION AGENCY

Environmental Protection Agency

Law: Clean Water Act

Regulation: 40 CFR 112: Oil Pollution Prevention

Applicability: Owners or operators of facilities engaged in drilling, producing, gathering, storing, processing, transferring or consuming oil or oil products, providing:

- The facility is non-transportation related.
- Aggregate Aboveground Storage capacity is 1,320 gallons and the minimum container size is 55 gallons.
- Facilities which, due to their location, could reasonably expect spilled oil to reach waters of the United States.

A. Spill Prevention, Control and Countermeasure (SPCC) Requirements: The SPCC regulation specifies several major spill control requirements:

- **Secondary Containment** (diking or other structural containment or their equivalent) must be provided. It must be large enough to hold the contents of the largest tank, plus allowance for precipitation (usually 10% of largest tank.) Diked areas must be sufficiently impermeable to contain spilled oil.
- **Tank Installations** must be fail-safe engineered to prevent spills. Tanks must have at least one of the following:
 - ☐ high liquid level alarms (audio or visual)
 - ☐ high level liquid cutoff device
 - ☐ direct audible or code signal communication between gauger and pump station
 - ☐ fast response system for determining fuel level, this would be a computerized system or direct vision gauges



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- **Tank Material and Construction** must be compatible with stored material and local conditions, such as temperature.
- **Fencing, Locks, and Lighting** - Oil storage facilities must be fenced and the gate locked or guarded when the facility is unattended. Facility type and location must be considered when selecting and installing lighting. It should prevent vandalism and help to detect spills at night.
- **Operation and Maintenance** - Aboveground tanks, foundations, and supports must have periodic integrity tests, using methods such as hydrostatic testing, visual inspection or non destructive shell thickness testing. Records of test results must be kept so they may be compared and any variances identified.
- **Piping Requirements** - Buried piping must have a protective coating and wrapping and must be cathodically protected. All aboveground valves and piping must be examined regularly and assessments made. Underground piping that becomes exposed must be inspected.
- **Training Requirements** - AST facility owners are responsible oil-handling personnel in operations and maintenance of equipment to prevent discharges and discharge procedures, protocol and Spill Prevention Control and Countermeasure Plans.
- Facility owners and operators are **liable for civil penalties** for SPCC violations.



ENVIRONMENTAL PROTECTION AGENCY

B. SPCC Plans Requirements: AST facilities are required to

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prepare SPCC Plans. These are procedural and contingency plans that play an important safety role for facility owners and operators. In case of a spill, it is necessary to have a well-thought out and systematic clean-up plan that can be implemented immediately.



- SPCC plans must be written and implemented before beginning operations.
- Plans must be kept at the facility if it is in operation at least four hours a day and must be available for EPA.
- Plans must be prepared in accordance with good engineering and certified by a registered professional engineer.
- Plans must be reviewed and updated every five years.
- Plans must discuss spill prevention, staff training, inspections, security, spill reporting, equipment and operations.
- SPCC Plans must describe training, equipment testing and periodic unannounced drills. Also they must describe facility personnel response actions to be carried out under the plan to ensure facility safety and to mitigate or prevent a discharge or the substantial threat of discharge.
- Plans must provide for appropriate containment, drainage control structures or equipment at the facility to prevent discharged oil from reaching navigable waterways.

A copy of a checklist that EPA uses when reviewing SPCC Plans is included in Appendix C of this handbook.

C. Facility Response Plan: In addition to a SPCC Plan, certain facilities need to prepare a Facility Response Plan (FRP).

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Applicability: Facility response plans must be prepared by owners or operators of non-transportation related facilities that, because of their location, could reasonably be expected to cause “substantial” harm to the environment by discharging oil into or on navigable waters or adjoining shore lines. EPA considers a facility to pose the potential for causing substantial harm if it *transfers oil over water to or from vessels and has a total storage capacity of greater than or equal to 42,000 gallons.*



EPA has the authority to require a facility to prepare or revise a Facility Response Plan at their discretion. Factors that EPA considers when evaluating a facility include:

- Oil storage capacity
- Type of transfer operation
- Secondary containment
- Proximity of fish and wildlife and sensitive environments
- Proximity of drinking water intakes
- Spill history
- Age of oil storage tanks
- Other site-specific considerations determined relevant by EPA.
- Petitions from any person, including the general public, who believes your facility has the potential to cause substantial harm to the environment according to the above listed considerations.

ENVIRONMENTAL PROTECTION AGENCY

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Plan Requirements: A Facility Response Plan (FRP) describes preparations, procedures, training and actions for responding to oil discharges at a facility. FRP's must:



- Be submitted to EPA for review and approval
- Include an emergency action plan that describes personnel and procedures in place to respond to spills.
- Describe external response resources and arrangements for responding to a worst case discharge.
- Evaluate potential hazards to the environment posed by a discharge from the facility.
- Plan for worst case scenario.
- Provide details of plan implementation.
- Provide training, drill exercises and self-inspections to support Facility Response Plan Implementation.

D. Training: The facility owner or operator must develop and implement a training program. This must include evaluation procedures and drills and exercises for those personnel involved with oil spill response and clean-up activities.

SECTION 5 - Government Requirements

United States Coast Guard

Law: Clean Water Act and Oil Pollution Act

Regulation: 33 CFR 154 Facilities Transferring Oil or
Hazardous Material in Bulk
33 CFR 156 Oil and Hazardous Material
Transfer Operations



General Applicability: This law requires fixed or mobile marine transportation related (MTR) facilities that are capable of transferring oil to or from vessels with a capacity of 10,500 gallons (250 barrels) or more.

These United States Coast Guard (USCG) regulations apply to Marine transportation related (MTR) facilities that:

- Are fixed facilities capable of transferring oil or hazardous material, in bulk, to or from a vessel with a capacity of 250 barrels or more.
- Are mobile facilities and are used, or intended to be used to transfer oil or hazardous material, in bulk, to or from a vessel with a capacity of 250 barrels or more.
- Have been notified, in writing, by the Captain of the Port that all or portions of 33 CFR 154.735 (Safety requirements) may apply to each facility that is capable of transferring oil or hazardous material, in bulk, only to or from a vessel with a capacity of less than 250 barrels.

Requirements: These bulk fuel transfer regulations require certain facilities to notify the USCG of their fuel-related activities and to prepare Operations Manuals and Facility Response Plans. Following is a summary of the USCG requirements:

- **Submit a “Letter of Intent to Operate”** to the Captain of the Port. The letter must include the name, address and telephone number of the operator as well as the name, address and

UNITED STATES COAST GUARD

SECTION 5 - Government Requirements

United States Coast Guard



geographic location of the facility.

- **Submit for review an “Operations Manual@.** The manual must describe how operating rules and equipment requirements will be met as well as responsibilities of personnel who conduct transfers.
- **Submit for review a “Facility Response Plan”** which imposes standards for response to discharges of various sizes. A copy of the check list the USCG uses to review Response Plans is included in Appendix D of this handbook.
- **Test and maintain transfer hoses and piping.** Transfer pipes and hoses must be hydrostatically tested at least once a year. Test records are to be kept at the facility.

Owners or operators are liable for oil spill removal costs as well as civil and potentially criminal penalties.

Inspections: Coast Guard personnel conduct periodic inspections of MTR’s. During these inspections they will look for:

- **Required documents**, including “Letter of Intent to Operate”, “Facility Operations Manual”, “Facility Response Plans”, copies of the Declaration of Inspection and results from hydrostatic tests done on transfer pipes.
- **Safety equipment** such as fire extinguishers, lighting, fencing and “No Smoking Signs.”
- **Spill response material and equipment**, making sure there is an adequate amount and noting where it is located.

UNITED STATES COAST GUARD

SECTION 5 - Government Requirements

Alaska Department of Public Safety (Fire Marshal)

Law: AS18.70.080

Regulation: 13 AAC 50 Fire Prevention Codes and Standards from the International Fire Code (IFC) and International Building Code (IBC)



Applicability: The IFC and IBC apply to all persons without restriction, unless they are specifically excluded, that store, use, dispense, mix and handle flammable and combustible liquids.

Requirements: The state has adopted the National Fire Protection Agency standards to regulate all building types according to their use and occupancy. The UFC has been adopted to safeguard life and property from the hazards of fire and explosion arising from storing, handling and using hazardous substances, materials and devices and from other conditions hazardous to life and property.

Before beginning construction, alterations or repairs to a facility, specifications and plans must be submitted to the state fire marshal for review and approval.

ALASKA DEPARTMENT OF PUBLIC SAFETY (FIRE MARSHAL)

SECTION 5 - Government Requirements

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Alaska Department of Environmental Conservation

Law: AS 46 Water, Air, Energy and Environmental Conservation

Regulation: 18 AAC 75 Article 3 Oil and Hazardous Substances Pollution Control, Discharge Reporting, Cleanup and Disposal



Applicability: The Alaska Department of Conservation (ADEC) regulations apply to all persons, without restriction, in charge of a facility or operation that has a discharge of a hazardous substance.

- A. Posting of Information** - A facility that has a total storage capacity of more than 1,000 gallons, either aboveground or underground, must post an ADEC approved discharge notification placard.
- B. Reporting Requirements** - Persons in charge of a facility or operation that has a release of a hazardous substance (including petroleum products) must report it to ADEC (notification information is on the required placard) according to the following criteria:
 - If it is a discharge of a hazardous substance other than oil, a discharge of oil to water, or a discharge of oil to land in excess of 55 gallons (outside of any impermeable secondary containment), it must be reported as soon as the person has knowledge.
 - If the discharge is less than 55 but more than 10 gallons, or it is more than 55 gallons but into an impermeable secondary containment, it must be reported within 48 hours of the time the person has knowledge.


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Alaska Department of Environmental Conservation

- C. **Clean-up:** Immediately upon becoming aware of a hazardous substance discharge to the lands or waters of the state, any person responsible for that discharge shall contain, clean-up, and dispose of the material collected using methods that have been approved by ADEC.



ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION



Alaska Department of Environmental Conservation
Division of Spill Prevention and Response


MY 2008

REPORT ALL

**OIL AND HAZARDOUS
SUBSTANCES SPILLS**

During normal business hours
contact the nearest DEC Area Response Team office:

Central Alaska Response Team: ANCHORAGE	269-7500 FAX 269-7648
Northern Alaska Response Team: FAIRBANKS	451-2121 FAX 451-2362
Southeast Alaska Response Team: JUNEAU	465-5340 FAX 465-2237



Outside normal business hours, call: 1-800-478-9300

ALASKA LAW REQUIRES REPORTING OF ALL SPILLS

