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Oil Spill Prevention and Response in Prince William Sound

Abstract: This paper provides an overview of Alyeska Pipeline Service Company's oil spill prevention and response capabilities in Alaska's Prince William Sound. The following topics are addressed:

- Alyeska Pipeline Service Company overview
- Rationale for PWS oil spill prevention and response
- Organization structure and operations
- Exercises and drills
- Summary

Alyeska Pipeline Service Company overview

In 1968, oil was discovered at Prudhoe Bay on the North Slope, a region in northern Alaska located between the Brooks Range and the Beaufort Sea. A consortium of oil companies planning to produce the oil determined that a pipeline offered the best means to transport crude oil from the North Slope to a navigable port in southern Alaska. The oil could then be shipped by tanker to west coast refineries in the United States. The pipeline route would cover 800 miles from Prudhoe Bay to the port of Valdez, the northernmost ice-free port in the United States.

Alyeska Pipeline Service Company (APSC or Alyeska), named after the Aleut word *Alyeska* meaning *mainland*, was established in 1970 and charged with designing, constructing, operating, and maintaining the Trans Alaska Pipeline System, commonly referred to as TAPS. At the time, construction of the pipeline was the largest privately financed construction project ever attempted. It eventually cost more than
$8 billion when completed.

Pipeline construction began in March 1975 and finished in June 1977. Crude oil began flowing through the pipeline on June 20, 1977. The first tanker, *ARCO M/V Juneau*, was filled with North Slope crude oil and departed from Alyeska's Valdez Marine Terminal (VMT) on August 1, 1977.

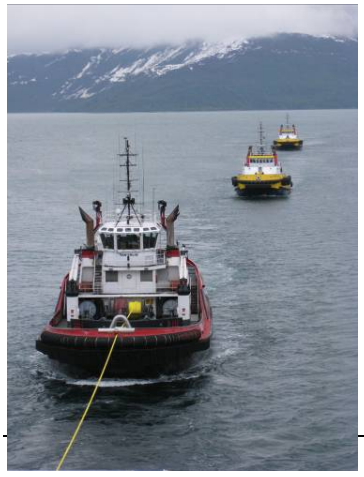
The 48-inch diameter steel pipeline runs 800 miles and crosses three mountain ranges and more than 800 rivers and streams. Moving hot oil across the permafrost-rich soil of Alaska presented a unique challenge to pipeline designers. Typical pipeline construction at the time involved burying most pipelines, but because of the permafrost present in most of Alaska, large segments of the trans-Alaska pipeline were elevated above ground to prevent damage to the permafrost. About half of the 800-mile pipeline is buried in a conventional manner.

Since 1977, Alaska has supplied nearly 17 percent of the United States' domestic crude oil production. Revenues from oil production provide approximately 85 to 90 percent of funding for the state government of Alaska. In addition, a specially dedicated account funded by oil revenues, the Alaska Permanent Fund, has a balance of more than $34 billion and provides each resident of Alaska with an annual dividend.

The consortium of companies that currently own TAPS are:

- BP Pipelines (Alaska) Inc. 46.93%
- ConocoPhillips Transportation Alaska, Inc. 28.29%
- ExxonMobil Pipeline Company, 20.34%
- Unocal Pipeline Company, 1.36%
- Koch Alaska Pipeline Company, L.L.C., 3.08%

Headquartered in Anchorage, Alyeska also maintains operations in Fairbanks and Valdez. Alyeska employs almost 800 people statewide, with 1000 more employed by independent contractors.



More than 20,000 oil tankers have loaded with North Slope crude oil in Valdez since the pipeline began operation. The VMT cost $1.4 billion to build, covers 1,000 acres, and includes 18 oil storage tanks with a total storage capacity of more than nine million barrels. The Terminal has four tanker loading berths, two of which have special vapor control systems.

Alyeska spends more than $92 million annually on oil spill prevention and response in Prince William Sound

(PWS), and has dedicated more than 300 highly trained personnel to this effort through its Ship Escort/Response Vessel System (SERVS). Created in July 1989, SERVS is considered one of the best oil spill prevention and response organizations in the world. Every laden tanker is escorted through PWS to the Gulf of Alaska by two SERVS vessels capable of assisting a distressed tanker. Oil spill response equipment is also pre-positioned throughout the Sound to increase response time.

More than 16 billion barrels of oil have moved through TAPS since start up in 1977. The volume of oil flowing through the pipeline has, however, decreased from a peak of 2.1 million barrels per day (bpd) in 1988 down to less than 700,000 bpd in 2009.

This steady decline — 5.5% to 6% each year — poses significant challenges to Alyeska. At peak production, oil arrived in Valdez at a temperature of more than 38 C. At today's current throughput rates, oil arrives at 10 C. This temperature will continue to decline with lower throughput, posing the most significant challenge to operating TAPS. Alyeska is currently conducting low throughput and cold flow studies to address this issue.

When TAPS was constructed in the '70s, the original workers lived by the motto, "We didn't know it couldn't be done." This enthusiasm is still an integral part of Alyeska's culture, and we are confident that we will continue to develop the most economic means to deliver North Slope crude oil to market well into the future.

Rationale for PWS oil spill prevention and response

Oil spill prevention and response in the waters of Alaska were completely transformed by the grounding of the *Exxon Valdez* that released approximately 261,000 barrels of oil into PWS. In the wake of the *Exxon* oil spill, two pieces of legislation immediately passed that strengthened regulations that govern oil transportation in PWS: the Oil Pollution Act of 1990 (OPA 90) and the state of Alaska's House Bill 567 (HB567).

Oil Pollution Act of 1990: On August 18, 1990, the United States Congress passed OPA 90, which strengthened provisions concerning oil spill prevention, response planning, and financial responsibility for offshore facilities, crude oil tank vessels, and pipelines that could have an impact on the waterways in and around the United States.

State of Alaska House Bill 567: On June 27, 1990, the Alaska legislature enacted HB567, dramatically strengthening the State's oil pollution control laws and mandating new response planning standards and discharge prevention requirements for offshore facilities, crude oil tank vessels, and pipelines.

The combination of this state and federal legislation requires the five marine shipping companies who operate in PWS to develop a response planning standard and an adequate means to recovery 300,000 barrels of oil in the first 72 hours of an incident involving a discharge of oil into PWS.

Each of the five shipping companies contract with Alyeska to utilize SERVS to meet the 300,000 barrel/72 hour standard. Under five separate Oil Spill Response Agreements (OSRA), Alyeska/SERVS acts as the Primary Response Action Contractor (PRAC) to serve as the Oil Spill Response Organization (OSRO) on behalf of the five shipping companies.

The five shipping companies that contract with Alyeska are:

- BP Oil Shipping
- SeaRiver Maritime, Inc.
- Chevron Shipping Company, LLC
- Tesoro Alaska Company
- ConocoPhillips Marine / Polar Tankers, Inc.

Alyeska and the five marine companies work primarily with the following agencies to ensure that all state and federal guidelines are being met:

Alaska Department of Environmental Conservation (ADEC): ADEC is an organization set up to enforce Alaska state law and "to conserve, improve, and protect Alaska's natural resources and environment and control water, land, and air pollution, in order to enhance the health, safety, and welfare of the people of the state and their overall economic and social well being."

United States Coast Guard (USCG): The USCG ensures that Alyeska meets all federal requirements. In addition, the responsibilities of the USCG's Valdez station include homeland defense, search and rescue, law enforcement, and waterborne security for assets such as the VMT.

Prince William Sound Regional Citizen's Advisory Council (PWSRCAC): The PWSRCAC is an independent non-profit

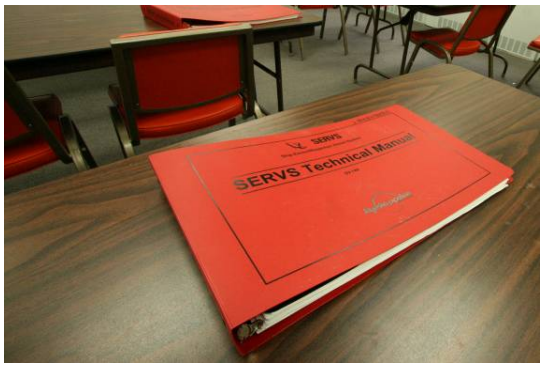
corporation funded by Alyeska and guided by its mission: "Citizens promoting environmentally safe operation of the Alyeska Pipeline marine terminal in Valdez and the oil tankers that use it."

Alyeska and the five marine shipping companies have developed the following documents and plans to formalize safe and environmentally responsible transport oil in PWS. Each document is designed to address how Alyeska and the shipping companies will meet the requirements set forth in OPA 90 and HB567, and each document is routinely submitted to the USCG and ADEC for review and comment:

CP-35-2 Valdez Terminal Oil Discharge Prevention and Contingency Plan: Alaska Administrative Code (18 AAC 75) requires that an oil terminal facility have an oil discharge prevention and contingency plan approved by ADEC and that the plan be renewed every five years. CP-35-2 Valdez Marine Terminal Oil Discharge Prevention and Contingency Plan (terminal plan) covers oil discharges that originate on the VMT. The initial response to a discharge on the VMT is the responsibility of terminal personnel and SERVS. SERVS is positioned to respond to terminal spills and maintains a 24-hour presence on the terminal. This plan also meets the requirements of the Environmental Protection Agency (EPA), the USCG, Bureau of Land Management, Joint Pipeline Office, and the Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations for spill contingency plans.

Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan: The Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (tanker plan) describes oil spill prevention and response activities, and procedures common to PWS tank vessel operators and their Primary Response Action Contractor (PRAC), SERVS. The PWS tank vessel operators own the plan and SERVS, as their PRAC and OSRO, implements the plan. Individual company Vessel Response Plans (VRP) provide spill response-related information that is specific to each plan holder's tank vessel operations. The tanker plan is meant to be used in conjunction with these individual VRPs.

SERVS Technical Manual: The SERVS Technical Manual provides information on operational response details and response tactics that may be used in the event of an oil spill. The terminal plan and the tanker plan are meant to be used in conjunction with the SERVS Technical Manual. More details pertaining to the SERVS Technical Manual are provided in a later section of



this paper (see Organization Structure and Operations> Response> SERVS Technical Manual).

Vessel Escort and Response Plan (VERP): The VERP governs all of SERVS' escort guidelines and procedures in PWS. The VERP is a plan formulated in conjunction with SERVS and the marine shipping companies and complies with the guidelines set forth in OPA 90. More details pertaining to the VERP are provided in a later section of this paper (see Organization Structure and Operations> Prevention> Vessel Escort and Response Plan).

Alyeska and the five marine shipping companies place the highest degree of importance on oil spill prevention and response. As environmental stewards and companies that view prevention and response as the foundation for PWS operations, Alyeska and the five shipping companies constantly search improvements to prevention and response capabilities in PWS. In addition, Alyeska and its marine shipping companies seek to constantly improve the partnership with all of the agencies that work toward the common purpose of environmental protection and safe oil transportation. To this end, Alyeska and the shipping companies constantly revise and update these plans, and regularly involve the regulators in this process. In addition, the regulators are involved in the final approval for these revisions and updates.

Organization Structure and Operations

Alyeska's primary mission in PWS is "To maintain a constant state of readiness to assist tankers in the safe navigation through PWS and to provide oil spill response services to the TAPS Marine Oil Shippers, VMT and Pipeline in accordance with oil spill response agreements and plans." Alyeska achieves this mission through its Ship Escort/Response Vessel System or SERVS.

SERVS has an annual budget of more than $92 million and has more than 300 highly trained personnel dedicated to oil spill prevention and response in PWS. Created in July 1989, SERVS is considered one of the best oil spill prevention and response organizations in the world. The SERVS mission is three fold: prevention, preparation, and response.

Prevention

SERVS places prevention at the forefront of all oil spill tactics and strategies in PWS. SERVS has a fleet of 11 tugboats that provide an umbrella of protection and safeguard the tankers that transit the waters of PWS.

Five of these tugs employ state-of-the-art tugboat technology and comprise the backbone of SERVS' oil spill prevention in PWS. These tugboats were specifically designed for the demands and rigor of PWS. Two of these high-tech vessels escort every laden tanker that sails through PWS. A laden tanker is identified as any tanker carrying crude oil or un-segregated ballast water.[1] These tugboats maintain a minimum distance of a quarter-mile when performing their escort duties, ensuring that every tanker remains within visual

[1] Escorts are not provided to tankers that are carrying a volume of cargo or un-segregated ballast water that constitutes no more than 0.5% of a vessel's maximum cargo capacity or 3,000 barrels, whichever figure is less.

sight and easy range for response. These five escort tugs are divided into two classes:

Prevention and Response Tug (PRT): SERVS has a total of three PRTs. Deployed in 2000, these 140-foot general purpose tugs are designed for ship assist, escort, and spill response. They feature twin controllable-pitch, 360 degree thruster Z-Drive propulsion units. PRT specifications are:

Crew: Seven trained response personnel.
Propulsion: Z drives, 10,200 horsepower.
Firefighting: American Bureau of Shipping (ABS) Class 1 firefighting rating that includes pumps, monitors, foam and vessel spray systems.

Spill Response Equipment:

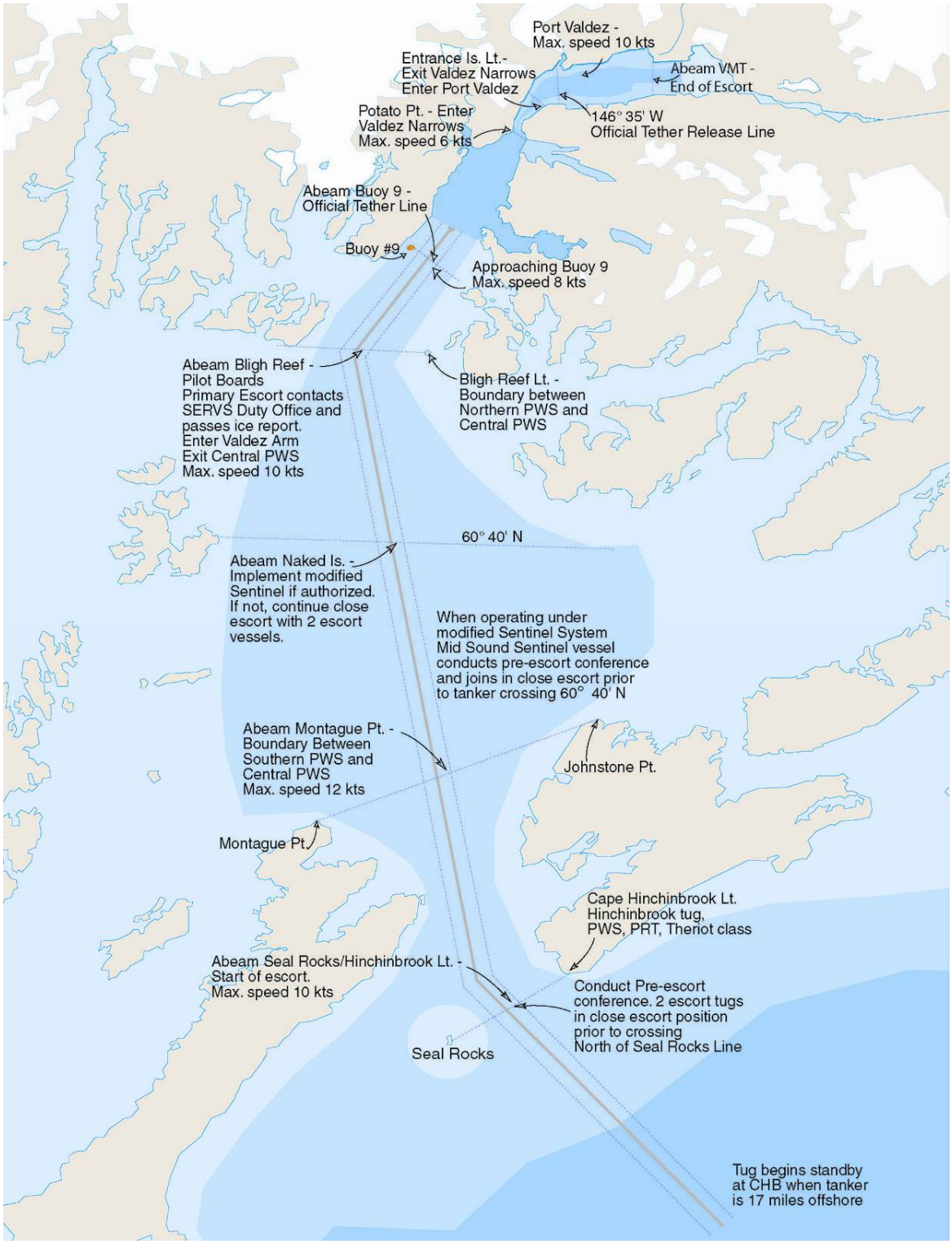
- 2,000 feet Kepner Sea Curtain oil containment boom.
- 2 DESMI skimmers.
- 2 workboats.
- 43,000 gallons of recovered oil storage capacity.
- Dispersant spray arm systems.

Enhanced Tractor Tug (ETT): SERVS has two ETTs. Deployed in 1999, the 153-foot ETTs are designed for tanker escort, docking, and oil spill response operations. The tugs feature two 5,096-hp turbocharged four-stroke diesel engines and a Voith Schneider propulsion system designed for maximum maneuverability and directional stability. In addition to tanker escorts, these tugs are designed for ship handling, fire fighting, emergency response, and oil spill response. ETT specifications are:

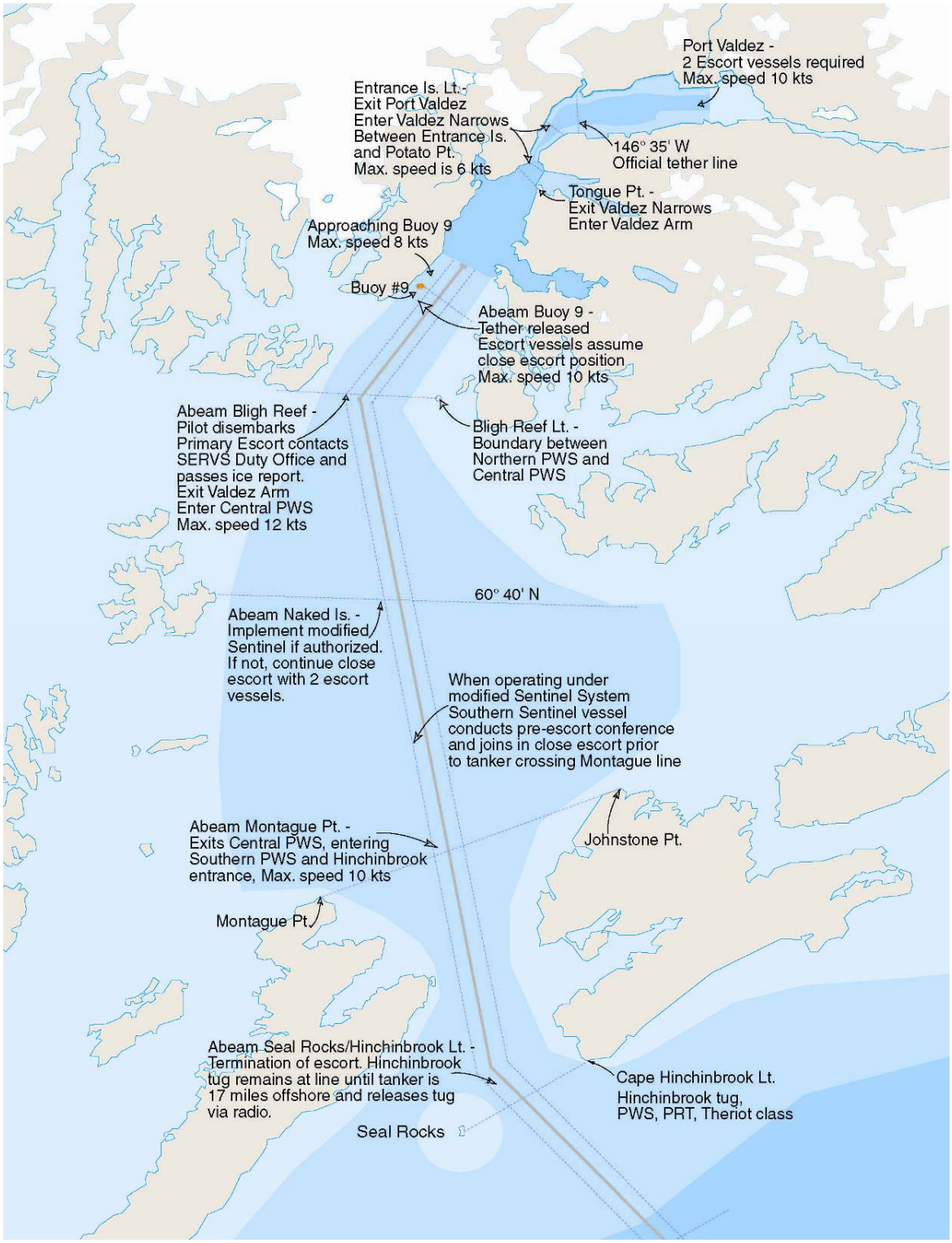
Crew: Seven trained response personnel.
Firefighting: ABS Class 1 firefighting rating that includes pumps, monitors, foam and vessel spray system.
Propulsion: Voith Schneider system, 10,200 hp.
Spill response equipment:

- 3,300 feet of oil containment boom.
- 2 DESMI skimmers.
- 70,000 gallons of recovered oil storage capacity.
- Dispersant spray arm systems.

Inbound Tanker Escorts:



Out Bound Escorts:



Vessel Escort and Response Plan (VERP): The VERP governs all of SERVS' escort guidelines and procedures in PWS. The VERP is a plan formulated in conjunction with SERVS and the marine shipping companies and complies with all of the guidelines set forth in the Oil Pollution Act of 1990 (OPA 90), specifically the provisions that direct single hull tankers over 5,000 gross tons to be attended by two escort vessels.

The VERP is routinely submitted to the USCG for review and comment to ensure the VERP complies with OPA 90. After a review and comment period, the USCG Captain of the Port for PWS then endorses and approves the plan.

The VERP is designed as a port-specific guide to aid and enhance the safety of tanker navigation and the protection of the marine environment within the waters of PWS. This plan contains information regarding intended routes, planned speeds, navigational considerations, vessel equipment, escort positions, review of emergency tow line connection procedures, and the pre-escort conference requirements.

The VERP also contains guidance regarding the capabilities and limitations of the PWS escort vessels, as well as operating guidelines for the effective use of these escorts in the event of an equipment failure aboard a tanker.

SERVS and the marine shipping companies apply these guidelines to all tankers operating within the waters of PWS. While OPA 90 requires only single hull tankers to be escorted, SERVS implements the VERP regardless of hull configuration as per the tanker plan. Consequently, as previously mentioned, SERVS escorts every laden tanker that transits the waters of PWS – both single hulled and double hulled – with two state-of-the-art escort tugs.

Conventional Tugs: In addition to the five escort tugs, SERVS has six conventional tugs. These tugs are highly capable platforms in their own right. These vessels are stationed in Valdez and PWS, and they are primarily used to assist in tanker docking operations and mobilizing response barges. These tugs may also accompany and escort laden tankers. If a tanker needs

assistance, these tugs can push or tow a tanker to safety.

One of these six tugs serves as a Utility Vessel. The Utility Vessel performs specific oil spill prevention and response duties, and is also capable of towing a tanker if such assistance is required.

While the Utility Vessel is specifically designated to provide oil spill prevention and response, all of the 11 tugs in the SERVS fleet can, and do, serve in this capacity.

Preparation

The preparation portion of the SERVS mission is covered in depth in the next section of this paper. Please review Exercises and Drills for a detailed account of SERVS' preparedness tactics and strategies.

Response

SERVS' second function – with prevention being first and foremost – is to provide response capabilities that meet the aforementioned 300,000-barrel recovery capacity in 72 hours.

Incident Command System (ICS): SERVS utilizes the National Incident Management System's (NIMS) Incident Command System (ICS) as a foundation to structure oil spill responses and organizational hierarchy. ICS was originally developed in the 1970's during wildfire suppression efforts in California and following a series of catastrophic wildfires in California's urban areas. Property damage ran into the millions, and many people died or were injured as a result of poor organizational response. Studies determined that response problems were often related to communication and management deficiencies rather than a lack of resources or failure of tactics.

ICS is based on a flexible, scalable response organization providing a common framework within which people can work together effectively. ICS participants may be drawn from multiple agencies that do not routinely work together, and ICS is designed to give standard response and operation procedures to reduce the problems and potential for miscommunication on incidents such as oil spill responses.

While the original intent of ICS was to drawn multiple agencies together that do not routinely work with one another, this is not the case in PWS. SERVS routinely exercises and drills with the USCG and ADEC. Members of SERVS, the USCG, and ADEC comprise the Unified Command, the leadership of the incident command structure tasked with formulating oil spill response in the Sound. This familiarity between agencies increases the effectiveness of PWS' oil spill response and brings a multitude of talents and agency skill sets under a single umbrella, while eliminating the potential for communication lapses and operational deficiencies.

Response Inventory: SERVS has an extensive inventory of oil spill prevention and response equipment. This equipment represents – for a single port – the highest concentration of oil spill prevention and response equipment in the world. SERVS owns or leases the following vessels and equipment:

11 Tugboats: The SERVS fleet of 11 tugboats is discussed in detail in the previous section (see Prevention).

9 Oil Spill Response Barges: The nine SERVS oil spill response barges represents a variety of functions. These operating platforms support nearshore and open-water operations, as well as providing support such as mobile command posts, helicopter pad, and oil recovery storage. This fleet of oil spill response barges has the following equipment and capability:

- 850,000 barrels of temporary storage capacity.
- 1 heliport.
- Approximately 33,000 feet of various boom.
- 10 TransRec 350 Skimming Systems (each with 2,200 barrel per hour skimming capacity).
- 4 GrahamRec Skimming Systems (each with 2,200

barrel per hour skimming capacity).
- Workboats.
- Cranes.
- Micro- and mini-barges.
- Generators.
- Power packs.
- Large stores of Personnel Protective Equipment (PPE).
- Misc. oil spill response equipment.

Valdez Star: The *Valdez Star* is a self-propelled dynamic inclined plane skimmer. As the *Valdez Star* cruises through an oil spill area, bow doors are opened revealing the skimmer system. Two 7-foot-wide belts push the oil under the front of the vessel to a collection "well," where pumps transfer the oil to onboard storage tanks. Additional pumps allow stored oil to be transferred to other vessels while skimming continues. The *Valdez Star* can also tow barges, place containment boom, and serve as a base for scientific research. Heated decks provide sure footing in cold weather, and heated storage tanks allow recovered oil to be pumped regardless of weather conditions. The *Valdez Star* is generally on station near the VMT or the Port of Valdez, but may be used throughout PWS.
- 2,000 barrel per hour recovery capacity.
- 1,310 barrels of temporary storage capacity.

108 Skimming Units: SERVS has a total of 108 skimming units of various size and recovery capability. The total SERVS oil recovery capacity is in excess of 59,000 barrels per hour.

49.7 Miles of Boom: SERVS has a total of 49.7 miles of boom. This boom consists of various sizes and configurations, ranging from open water boom to protected-water boom and calm-water boom.

350+ Fishing Vessel Fleet: SERVS trains more than 1,100 fishermen in and around PWS to participate in its Fishing Vessel program. Training for these individuals includes classroom instruction, hands-on training with oil spill response equipment, Hazardous Waste Operations and Emergency Response (HAZWOPER) training, and on-water exercises that annually deploy oil spill equipment.

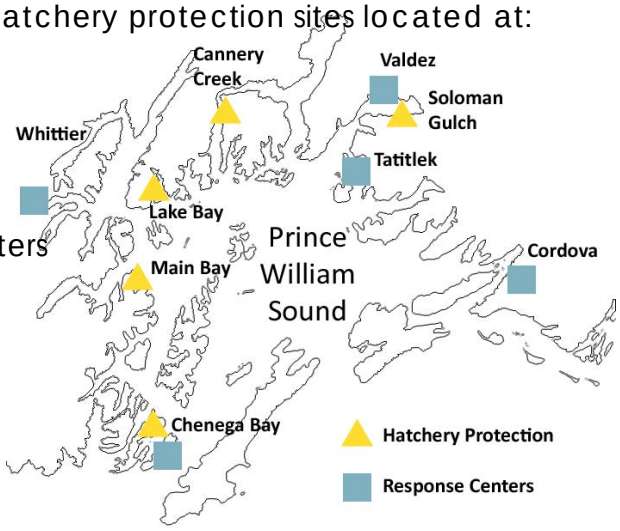
Participants learn about response tactics and practice preparedness plans to ensure response readiness. This program has more than 350 fishing vessels under contract to provide support for oil spill response in PWS.

Pre-positioned Equipment: SERVS has oil spill response equipment pre-positioned throughout PWS. There are five salmon hatchery protection sites located at:

- Cannery Creek
- Chenega Bay
- Lake Bay
- Main Bay
- Solomon Gulch

In addition, SERVS has five response centers located at:

- Chenega Bay
- Cordova
- Tatitlek
- Valdez
- Whittier



Rapid deployment is the essential key to effective response. With this pre-positioned equipment and resources, SERVS has developed a spring-loaded response strategy that is ready to deploy response assets anywhere in PWS in a timely manner.

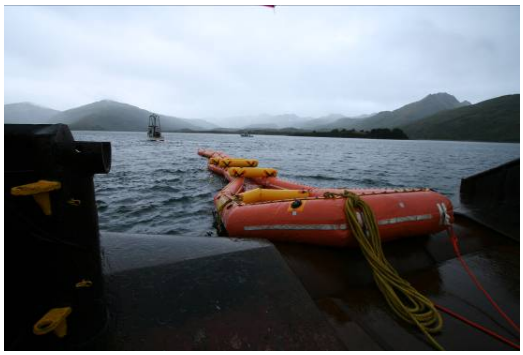
SERVS Technical Manual: SERVS and the tanker plan holders have assembled a comprehensive set of response tactics in the SERVS Technical Manual. The SERVS Technical Manual is accessible both to plan reviewers and operations personnel. The tactics were designed to provide the building blocks and predefined strategies for the response scenarios in the PWS.

The SERVS Technical Manual tactics are arranged in the following manner:

- Safety
- Open Water
- Nearshore
- Onshore
- Tracking and Surveillance
- Non-Mechanical Response
- Hatchery and Special Area Protection
- Wildlife
- Waste Management
- Logistics and Planning

Safety: Safety is the most important aspect of an oil spill response, and the tactics associated with the safety program ensures a response is conducted in the safest manner possible. Safety requires that managers in the Emergency Operations Center work closely with field responders. Conducting a safe response is the primary focus of SERVS, and all responders are trained in conducting safe operations and being responsible for their own safety and the safety of fellow responders.

Open Water: The spill tactics developed for open water response in PWS are designed to collect and store large volumes of oil and assist stricken tankers by lightering (removing) their remaining cargo. Open water response involves deployment of large amounts of equipment and a large pool of highly skilled oil spill response personnel.



Nearshore: Nearshore response is designed to collect and recover oil from nearshore environments and to protect sensitive areas. The nearshore tactics are flexible and structured to be easily expandable based on the size of the response. Utilizing these tactics, vessels and response equipment can be deployed and managed in a number of configurations at a variety of different locations.

Onshore: Onshore response tactics are employed if an oil spill impacts shoreline. PWS has variety of shoreline types ranging from sheltered beaches to exposed bedrock. These tactics outline the methods for collecting oil and cleaning shorelines with different topographies.

Tracking and Surveillance Tactics: The tracking and surveillance tactics – which use a combination of visual observations, computer modeling, and electronic tracking of the oil – produce data to determine the actual location of the oil, the projected direction that the oil will travel, and the amount and type of oil in a certain location. This information assists in planning a response and the tactical deployment of assets.

Non-Mechanical Response: The non-mechanical tactics available in PWS involve the application of dispersants and the use of in-situ burning. Both options are considered secondary to mechanical response and require an extensive permitting process.

Hatchery and Special Area Protection: Equipment storage containers are

deployed throughout PWS at hatcheries, towns, and villages. Response plans are in place to protect the hatcheries and special areas of PWS, and the equipment stored in these locations is designated specifically for this purpose. Equipment stored at Response Centers is dedicated to sensitive area protection and nearshore response operations. These tactics describe this program and provide deployment configurations for protecting these areas.

Wildlife: Wildlife tactics cover response actions to protect wildlife and to provide initial treatment of oiled wildlife during an oil spill response. The objectives of the wildlife program are:

- Hazing wildlife away from spilled oil or response operations.
- Capturing oiled wildlife and transporting them to treatment facilities.
- Recovering dead wildlife.

Waste Management: This section covers waste management issues associated with oil spill response. In any spill, regardless of size, waste is generated almost immediately and can become an issue that needs to be addressed to keep the response going.

Logistics and Planning: This section of the manual identifies strategies associated with the background activities that take place during a response or planning for a response.

Exercises and Drills

Exercises and drills comprise a major portion of SERVS operations. This constant testing of equipment and personnel allows SERVS to evaluate and re-evaluate the organization's effectiveness. This testing also allows SERVS to strengthen oil spill prevention and response planning and identifying potential deficiencies in tactics and strategies. These exercises and drills demonstrate to regulators, stakeholders, and plan holders that SERVS can, indeed, meet the 300,000 barrels/72 hours planning standard.

A look at the Oil Spill Removal Organization (OSRO) verification process that SERVS routinely undergoes will highlight the exercises and drills that are a regular part of SERVS operations and that keep the organization response ready.

National Preparedness For Response Exercise Program (NPREP) guidelines: One of the primary ways that SERVS measures its response readiness are the NPREP guidelines. SERVS is, in fact, an officially recognized OSRO as defined by these federal guidelines.

NPREP was developed to establish a workable exercise program and provides a mechanism to determine compliance. NPREP is a unified federal effort that satisfies the combined exercise requirements of the USCG, the EPA, the Research and Special Programs Administration (RSPA) Office of Pipeline Safety, and the Minerals Management Service (MMS). Adherence of the NPREP guidelines satisfies all OPA 90 federal oil pollution response requirments.

OSRO Verification: Recognizing the need to increase the efficiency of OSRO verification, the USCG developed an OSRO selection process in 1992. The goal of this process was to provide a means for the Coast Guard to take a detailed look at certain elements of an OSRO applicant and, based on this analysis, determine the applicant's ability to provide oil spill response.

The OSRO classification process consists of two major phases and considers three elements prior to endorsing an OSRO classification.

In the first phase, the OSRO applicant submits documentation for review attesting to their ability and capacity to provide spill response. This documentation primarily identifies owned or controlled resources, exercise and drill frequencies, personnel trained, etc.

The three elements scrutinized during the application phase are: the amount and size of oil spill boom, the total amount of effective daily recovery capacity (EDRC), and the amount of temporary storage capacity (TSC).

The second and final phase of the application process centers on inspection and verification of the applicant's resources, facilities, and records. Members of the USCG's National Strike Force Coordination Center (NSFCC) conduct onsite inspections and search for potential deficiencies and discrepancies that could disqualify the OSRO applicant from certification.

The original OSRO classification program called for re-inspections to occur every three years.

SERVS attains official NPREP OSRO status by meeting the following criteria:

Contingency Plan Testing: Based on NPREP expectation, Alyeska tests all of the scenarios, tactics, and equipment associated with the two PWS contingency plans (C-Plan) – the terminal plan and the tanker plan– on a three-year cycle.[2] SERVS personnel conduct a thorough and detailed documentation process for each drill and exercise, and this documentation is then submitted during the NSFCC three-year renewal for OSRO classification.

Typical objectives for a terminal drill can include:

- Ensure safety of all participants.
- Conduct exercise in conjunction with USCG, ADEC, PWSRCAC, SERVS, and other key stakeholders.
- Demonstrate ability to fully staff the Terminal Emergency Operations Center (TEOC) or Valdez Emergency Operations Center (VEOC).
- Demonstrate ability to utilize Incident Action Plan (IAP) software.
- Demonstrate ability to develop and conduct Incident Command System (ICS) briefings.
- Evaluate decisions to appropriately respond to an oil spill and adjust response to weather and sea conditions if applicable.
- Demonstrate ability to implement oil spill recovery tactics.

[2] The scenarios, tactics, and equipment associated with Alyeska's Pipeline Plan are also tested on a three-year cycle, but fall outside of SERVS responsibility and the contracts signed with the five shipping companies.

- Validate identification and logistics for appropriate establishment of staging areas.
- Develop waste management plans to include estimation, collection and disposal of consumables, including insitu burn consumables.
- Validate effective external positioning:
  - Unified Command (UC) decision-making.
  - Joint Information Center (JIC) performance.
  - Utilization of Regional Stakeholders Committee (RSC).
- Demonstrate effective communication from the TEOC to field response personnel if applicable.

Annual Shipper Drill: In addition to terminal exercises and drills, SERVS and one of the marine shippers conduct an annual shipper drill. During this drill, the SERVS Incident Management Team (IMT) and the marine shippers' IMT conduct a large-scale tabletop exercise, utilizing the Valdez Emergency Response Center (VEOC) located in the SERVS building. Field deployments can also be a component of these drills involving response assets such as oil spill recovery barges, Fishing Vessel responders, and SERVS field personnel. These drills are also thoroughly documented and submitted to the NSFCC.

The objectives for the annual shipper drill (meeting requirements for testing the tanker plan) can include:

- Ensure safety of all participants.
- Conduct exercise in conjunction with USCG, ADEC, PWSRCAC, SERVS and other key stakeholders.
- Demonstrate ability to fully staff the TEOC or VEOC.
- Demonstrate ability to utilize Incident Action Plan (IAP) software.
- Demonstrate ability to develop and conduct Incident Command System (ICS) briefings.

- Validate identification and logistics for appropriate establishment of staging areas, including areas for out of region resources if applicable.
- Develop waste management plans to include estimation, collection and disposal of consumables, including insitu burn consumables.
- Validate effective external positioning:
  - Unified Command (UC) decision-making.
  - Joint Information Center (JIC) performance.
  - Utilization of Regional Stakeholders Committee (RSC).

Annual Fishing Vessel Training: SERVS annually trains approximately 1,100 fishermen in and around PWS. Fishermen from the ports of Valdez, Cordova, Chenega, Whittier, Seward, Homer and Kodiak participate in this training. The focus of the training is to ensure these individuals are response ready. Fishing Vessel training includes classroom instruction, hands-on training with response equipment, marine Hazardous Waste Operations and Emergency Response

(HAZWOPER) training, and on-water exercises involving the deployment of oil spill response equipment. In addition, participants learn about response tactics and practice preparedness plans to further ensure readiness. More than 350 fishing vessel are under contract with SERVS to participate with oil spill response in PWS, and these vessels and their crews annually take part in this training program.

The objectives for the annual Fishing Vessel training include:

- Demonstrate understanding of terminology and behavior of chemicals and their toxic effects.
- Implement relevant scenarios of the contingency plan.
- Demonstrate situational awareness and familiarity involving oil spill response.
- Demonstrate ability to apply hazard and risk assessment techniques.
- Demonstrate ability to select and use proper PPE.
- Demonstrate ability to use field survey instruments and equipment to identify and measure hazards (site characterization).
- Demonstrate ability to function within assigned roles in ICS.
- Demonstrate understanding of, and be able to, implement decontamination procedures.
- Prove response readiness of fishing vessels.

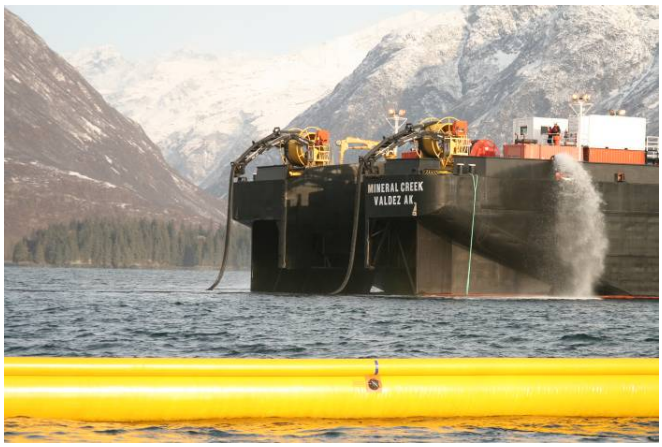
In addition to exercise and drill verification, the USCG also uses the following criteria to measure SERVS' qualifications as an OSRO:

Boom Inventory: The size and specification of SERVS boom varies. The length of boom in the SERVS response inventory totals nearly 50 miles (approximately 49.7 miles). All of the SERVS boom, in line with the NPREP expectation, is deployed and inspected on a three-year maintenance cycle. NSFCC has deemed the size and quantity of the SERVS boom to meet the geographical needs of PWS and, consequently, SERVS meets this element of the OSRO review process.

Effective Daily Recovery Capacity (EDRC): SERVS' total amount of EDRC is also measured during the OSRO review. SERVS currently has 108 skimming units in

PWS. These skimming units have a combined recovery capacity of more than 59,000 barrels per hour. This capacity will position SERVS to meet the 300,000 barrel/72 hour response planning standard required by the state and also positions SERVS to meet this element of the OSRO review process.

Temporary Storage Capacity (TSC): SERVS has more than 900,000 barrels of temporary storage capacity (TSC). Eight of SERVS' nine oil spill recovery barges have a storage capacity of 850,000 barrels. This figure is augmented by the storage capacity of SERVS' PRTs and ETTs, as well as a large inventory of micro- and mini-barges, and portable Sea Slug and Unitor Oil Bags, which brings SERVS total TSC to 900,000 barrels. NSFCC has deemed the SERVS TSC to meet the oil response capability needed to support the tanker traffic in PWS and, therefore, SERVS meets the TSC element of the OSRO review process.



OSRO Verification Visits: During the final phase of SERVS' OSRO verification process, the USCG conducts an OSRO verification visit. The last visit was conducted in 2007. This visit involved a detailed three-day inspection which included:

- Verifying the resources identified in the application.
- Completing a visual equipment survey of the material condition of the response resources.
- Ensuring the response resources are properly maintained and maintenance is documented.
- Ensuring the OSRO has sufficient personnel available and trained to mobilize, deploy, and operate the equipment identified in the OSRO application and that personnel meet HAZWOPER requirements.
- Verifying a cross-section of response inventory for system operability and logistics support capability.
- Reviewing records of participation in exercises.
- Reviewing applicant's support services and ability to mobilize and sustain the resources.

SERVS OSRO Approval Letter: Shortly after the USCG inspection, Alyeska received a letter from the USCG approving SERVS' status as an OSRO meeting the

requirements set forth in the NPREP guidelines. Currently on file at the SERVS building, the letter states:

"This letter serves as the official statement by the National Strike Force Coordination Center of your classification as an Oil Spill Removal Organization (OSRO) as outlined in the Coast Guard OSRO Classification Guidelines."

The next OSRO verification visit is scheduled for early to mid 2010.

Summary

Alyeska Pipeline Service Company's Ship Escort/Response Vessel System offers premier oil spill prevention and response services to the marine shipping tankers that transit the waters of Prince William Sound, with the SERVS personnel and equipment representing the world's highest concentration of prevention and response capability.

Shortly after the *Exxon Valdez* ran aground, the state of Alaska and federal government passed two laws that strengthened tanker regulations in Alaska and, subsequently, govern all Alyeska operations in PWS: the State of Alaska's House Bill 567 and the Oil Pollution Act of 1990

These pieces of legislation set a new standard for companies that ship crude oil in Alaska to have a response plan that, at a minimum, allows for the recovery of 300,000 barrels of oil in the first 72 hours of an incident involving the discharge of oil into Alaskan waters. The leadership of Alyeska, in conjunction with the marine shippers who transport oil from Alaska, immediately developed response plans and assembled the assets that would allow them to meet these new requirements. These response plans and assets came together and, in fact, were the birth of SERVS.

SERVS provides two escort vessels to every laden tanker that sails through PWS. SERVS five primary escort tugs are state-of-the-art and are on the

cutting edge of tugboat technology. These five tugs were specifically designed for the demands of PWS.

SERVS also provides response capabilities that allow Alyeska to meet the aforementioned 300,000-barrel recovery capacity in 72 hours. With pre-positioned equipment placed throughout PWS, a pool of local fishermen that Alyeska annually trains, and the SERVS assets and personnel, Alyeska and the marine shipping companies are positioned to respond to large-scale oil spills and, thus, fulfill both state and federal requirements allowing crude oil transportation in Alaskan waters.

The following list provides a recap of SERVS capabilities, personnel, and assets:

- 300 trained oil spill prevention and response personnel.
- Planning standard to recover 300,000 Barrels in 72 Hours.
- 108 Skimming Units.
- 49.7 Miles of Boom.
- 59,000+ barrels per hour recovery capacity.
- 900,000+ barrels of temporary storage capacity.
- Pre-positioned Equipment throughout PWS.
- Fishing Vessel Program (350+ Vessels & 1100 Participants).
- Two Escorts for all laden tankers.

Recent events have proven the viability of the system.

T/V Kodiak: On Jan. 17, 2010, the tanker vessel *Kodiak* reported an electrical problem that caused the tanker to briefly lose power.

The *Kodiak* was at the end of its SERVS escort and was steaming through Hinchinbrook Entrance, where PWS opens into the Gulf of Alaska. Weather conditions at the time were recorded an average of 10.5 foot seas with winds at 14–17 knot winds.

The *Tan'erlaq*, one of SERVS' ETTs, was performing the duty of primary escort. The *Tan'erlaq* crew immediately attached a tether to the stern of the *Kodiak* and brought the vessel under control and to a full stop in 11 minutes.

Shortly after the *Tan'erlaq* brought the *Kodiak* to a halt, the tanker's secondary escort, the *Aware*, a SERV' PRT, attached a tow line to the bow of the vessel which further secured the tanker.

The *Tan'erlaq* and *Aware* then towed the *Kodiak* and its cargo of 613,000 barrels of oil to the shelter of Knowles Head, an anchorage in PWS just northeast of Hinchinbrook Entrance.

The entire maneuver was performed in less than 30 minutes, despite the weather conditions. This rescue, given the sea state, attests to the skill and seamanship of the SERVS personnel who escort the tankers in and out of PWS.

Pathfinder Incident: The tug *Pathfinder* ran aground at about 6:14 p.m. on Dec. 23, 2009. The 136-foot tug had just completed an ice report when it grounded on Bligh Reef.

The tug reported a breach in its 2-center and 3-center fuel tanks. The number 1 port tank was also compromised but was not holding fuel at the time.

The *Pathfinder* crew removed the tug from the reef and anchored in Busby Bay just southwest of Busby Island. The SERVS PRT, *Alert*, was immediately dispatched from Valdez with containment boom, anchors, and extra crew to secure the *Pathfinder*.

Shortly afterward, additional response crews were dispatched to Busby Bay. By Dec. 25, the following SERVS vessels and equipment were on scene, participating in containment and recovery efforts: the self-propelled skimmer *Valdez Star*, five tugboats (*Endurance*, *Alert*, *Attentive*, *Aware*, and *Invader*), two response barges (*Allison Creek* and *Sawmill Creek*), two Kvichaks (fast response boats), one helicopter, and 11 fishing vessels.

By Saturday, Dec. 26, according to the Alaska Department of Environmental Conservation (ADEC), little evidence of diesel sheen remained. "The spilled diesel has either evaporated or been cleaned up," said Gary Folley, ADEC on-site coordinator. In addition, Folley said that there appeared to be no significant environmental damage from the spill. "There is no evidence that wildlife were impacted, and we don't believe there was any shoreline impact," Folley said.

By late Saturday, the vessel was towed 17 miles to the Port of Valdez and approximately 36,000 gallons of diesel was removed from the *Pathfinder's* fuel tanks.

The rapid response minimized the release of diesel and brought the incident to a safe conclusion, firmly demonstrating SERVS' response capability and readiness.

Chevron Mississippi: On the morning of July 10, 2001, the tanker vessel *Chevron Mississippi* departed from the VMT with two SERVS escorts. The *Aware* was the primary escort and, as standard Alyeska procedure, would remain tethered to the tanker until it cleared the Valdez Narrows, the entrance to the Port of Valdez.

As the *Mississippi* approached the Narrows, the pilot in charge of the tanker noticed that a fishing vessel had run its fishing nets across the tanker lanes. After repeated attempts to hail the fishing vessel failed, the pilot radioed the *Aware* and asked the tug to bring the *Mississippi* to a halt.

The 140-foot *Aware*, with twin engines capable of generating 10,200 horsepower, initiated an arrest and brought the *Mississippi* to a full stop in approximately two tanker lengths. The tanker came to a stop within 200 feet of the fishing nets.

The *Aware* then held the tanker in position until the crew of the fishing vessel cleared the nets from the tanker lanes.

The *Chevron Mississippi* incident was the first time a SERVS tug was required to perform an emergency stop of a laden tanker.

The tanker crews and the crews manning the SERVS escorts practice this maneuver on a regular basis, practicing again and again to stop, assist and tow a tanker if a loss of power, a loss of steering, or other emergency occurs.

Tanker captains annually participate in tether exercises, where the tug is already tethered and the escort tug stops the ship after a simulated steering or propulsion failure. This training prevented the *Mississippi* from colliding with the fishing nets, a collision that would have certainly resulted in damage to the fishing vessel and could have easily caused an injury or fatality.[3]

Emergency towing exercises, where the tug is not tethered and must come along and attach a line to the tanker, are also conducted on a routine basis. This training, obviously, played a hand in the quick recovery of the *Kodiak*.

These incidents, again, speak to the professionalism and seamanship that define the relationship between Alyeska's Ship Escort/Response Vessel System and the marine shipping companies that operate in PWS. SERVS and the shipping companies are at the forefront of prevention and response for marine crude oil transportation, providing the first line of defense to the waters of Prince William Sound, while setting new standards for this crucial component of the oil industry.

This paper offers a general description of numerous topics pertaining to Alyeska and our operations. Any opinions expressed during its presentation are the views of the author and may not represent the positions of Alyeska Pipeline Service Company and its owner companies.

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[3] Note: The fishing vessel owner was at fault in this incident and had strewn its nets across the tanker lanes, a act that violated maritime regulations in PWS and that forced the tanker and SERVS escort to perform the emergency procedure.