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**LIST OF ACRONYMS**

<b>ADEC</b>	Alaska Department of Environmental Conservation
<b>ADF&amp;G</b>	Alaska Department of Fish & Game
<b>ADNR</b>	Alaska Department of Natural Resources
<b>AMHS</b>	Alaska Marine Highway System
<b>FAA</b>	Federal Aviation Administration
<b>FOSC</b>	Federal On-Scene Coordinator
<b>GRP</b>	Geographic Response Plan
<b>MSO</b>	Marine Safety Office
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NRC</b>	National Response Center
<b>NRP</b>	Near-shore Response Project
<b>OPA 90</b>	Oil Pollution Act of 1990
<b>PST</b>	Pacific Strike Team
<b>RFP</b>	Request for Proposal
<b>RP</b>	Responsible Party
<b>RPS</b>	Response Planning Standard
<b>SCP</b>	Subarea Contingency Plan
<b>SOSC</b>	State On-Scene Coordinator
<b>SSC</b>	SCIENTIFIC SUPPORT COORDINATOR
<b>Unified Plan</b>	<i>Alaska Federal/State Preparedness Plan for Response to Oil &amp; Hazardous Substance Discharges/Releases</i>
<b>USCG</b>	United States Coast Guard
<b>USFWS</b>	United States Fish & Wildlife Service

**DRAFT GEOGRAPHIC RESPONSE PLAN  
NORTHERN LYNN CANAL  
HAINES TO SKAGWAY, ALASKA**

**1.0 INTRODUCTION AND PURPOSE**

This draft Geographic Response Plan (GRP) summarizes our review of response plans and identifies the best mix of spill response equipment and strategies to protect near-shore resources in the Northern Lynn Canal region of Southeast Alaska. The GRP was prepared for the Alaska Department of Environmental Conservation (ADEC) under the guidance of the Division of Spill Prevention and Response - Prevention and Emergency Response Program. This plan is intended to augment the existing spill response capability of regulated operators in the Northern Lynn Canal area.

Northern Lynn Canal is located in Southeast Alaska and connects the communities of Haines and Skagway by water, as shown in Figure 1. The nature of the Northern Lynn Canal environment, the conditions during which a spill response would be most likely to be required, and the type of spill most likely to occur have been taken into consideration in developing this document.

**1.1 Near-shore Response Project/Geographic Response Plan**

The Northern Lynn Canal GRP is part of a series of plans required under the Oil Pollution Act of 1990 (OPA 90) and Alaska state statute. The statewide plan is the *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases* (also known as the Unified Plan). The *Southeast Subarea Contingency Plan* (SCP) is one of ten subarea plans that supplement the Unified Plan, and is more specifically focused on the Southeast region of Alaska. The Northern Lynn Canal GRP will become a portion of the Southeast SCP and contains information that is specific to this distinct area.

The Near-shore Response Project (NRP) is a program designed to provide information to local communities that will enable them to protect local resources in the event a discharge is not contained before approaching shore. The GRP is the guide to local initial response and a reference to all response coordinators working in the region. Based on an examination of the potential near-shore spill scenarios, the nature and types of potential response actions, and the environmental resources at risk, the GRP recommends specific strategies, tactics, equipment, and storage and staging locations to protect near-shore resources. In developing near-shore response tactics, consideration has been given to the type of response (i.e., offensive or defensive) that would most likely occur in each of the identified areas under expected environmental conditions.

Tradeoffs between protecting sensitive resources and/or attempting to recover oil on water have also been considered.

The primary purpose of this project is to allow local responders to address spills that escape the containment and cleanup efforts of the responsible party (RP), or spills from unknown sources where no RP has been identified. As the selected contractor, Shannon & Wilson analyzed the existing response capability and strategies as identified in local contingency plans in designing the response plan and developing the equipment list and response strategies.

## **1.2 Purpose of the Northern Lynn Canal Project**

There are five goals identified for the Northern Lynn Canal NRP:

- Evaluate existing risks and current status of response readiness
- Identify and prioritize environmentally sensitive areas at risk
- Examine equipment needs for protection of prioritized sensitive areas
- Identify gaps in current locally available equipment
- Procure equipment to fill the identified gaps

The Northern Lynn Canal GRP addresses the first four of these.

## **2.0 ENVIRONMENTAL RISKS AND EXISTING RESPONSE CAPABILITIES**

This section identifies the regulated facilities in Haines and Skagway. For each regulated facility, the response planning standard and potential for a spill to water is described. The strategies for response to spills, as reported by the facilities, are summarized.

### **2.1 Regulated Facilities and Vessels: Non-Persistent Oil**

Non-persistent oils are those that evaporate and dissipate quickly in the environment. Non-persistent oils typically include refined petroleum products. There are three regulated facilities handling non-persistent oil in the Northern Lynn Canal. Two of these are located in Haines, and the third is located in Skagway.

#### **2.1.1 Petro Marine Services, Haines**

Response Planning Standards (RPS) are generally defined in ADEC regulations, 18 AAC 75.430, which states the plan must demonstrate the general procedures to clean up a discharge of any size, including the greatest possible discharge that could occur. RPS requirements for oil terminal facilities are defined in 18 AAC 75.432. The RPS for the Petro Marine Services Haines Facility is 235,200 gallons. To determine the RPS, Petro Marine used the volume of the largest tank (372,330 gallons) and volume reduction credits for a sufficiently impermeable secondary containment, an alcohol and drug testing program, and a prevention training program. There are three general potential routes of spill discharge: the product transfer headers, the storage tanks, and the tank truck loading racks. A failure at the product transfer headers, which are located on the Petro Marine Services cargo dock, would result in product reaching the water. According to the Petro Marine Services Contingency Plan, the maximum rate of delivery is 45,000 gallons per hour, with a likely spill quantity of 252 gallons. Failures at the storage tank or at both of the tank truck loading racks are expected to be contained before reaching the river or ocean water.

The deployment strategies for this facility include local and out-of-region equipment. Petro Marine Services trains personnel and maintains a boat and 1,000 feet of boom at their Haines facility. This could be mobilized within 1 hour of notification. A skimmer and tank truck are also maintained by Petro Marine in Haines. Out-of-region equipment would be available from Petro Marine offices in Skagway and Juneau. It would take approximately 1 hour for equipment to arrive by air from Skagway and 1 to 2 hours for equipment to arrive by air from Juneau. Air transport is dependent on weather. Additional equipment is also available from SEAPRO in Juneau. (Petro Marine Services, 1996a)

### **2.1.2 Delta Western, Haines**

The RPS for the Delta Western Haines Facility is 500,000 gallons, with an adjusted RPS of 135,375 gallons. ADEC-approved drug and alcohol testing, training programs, secondary containment, and appropriate leak detection are factors in the RPS reduction. The largest tank in the facility is 500,000 gallons. There are three potential routes of spill discharge: the product transfer headers, the storage tanks, and the tank truck loading racks. According to the Delta Western Contingency Plan, the estimated amount of product that would reach water if the secondary containment were breached is approximately 40,612 gallons. A failure at the product transfer headers, located at the Alaska Marine Highway Terminal and Haines City Dock, would result in product reaching the water. The maximum rate of delivery is 60,000 gallons per hour. Up to 3 headers may be in use at one time, but an overfill is likely to be noticed within 5 minutes. The Contingency Plan indicates that no more than an estimated 15,000 gallons would be released to water. Spills originating at the storage tanks or at the tank truck loading racks are expected to be contained by secondary containment structures before reaching the water.

The deployment strategies for this facility include local and out-of-region equipment. Delta Western maintains equipment and a list of trained personnel at their Haines facility. SEAPRO has additional co-op member resources in the Haines area. All equipment located in Haines can be accessed by road and can be mobilized within 30 minutes during working hours and within 2 hours during off-hours. Out-of-region equipment is available from Delta Western facilities in Juneau and Wrangell, and from SEAPRO members in Juneau, Sitka, and Ketchikan. The mobilization of out-of-region equipment would be by aircraft, and is dependent on weather. Estimated times for equipment to arrive in Haines is 2 hours from Juneau, 3 hours from Sitka, 4 hours from Wrangell, and 5 hours from Ketchikan under normal weather conditions. The primary response equipment for a discharge from the marine header is a dedicated skiff and 2,500 feet of containment boom, which are ready for deployment at all times. (Delta Western, 1995)

### **2.1.3 Petro Marine Services, Skagway**

The RPS for the Petro Marine Services Skagway facility is 154,000 gallons. The volume of the largest tank in the facility is 1,050,000 gallons. There are three general potential routes of spill discharge: the product transfer headers, the storage tanks, and the tank truck loading racks. A failure at the product transfer headers, which are located on the Petro Marine Services cargo dock and Alaska Marine Highway System (AMHS) Ferry Terminal, would result in product reaching the water. The Petro Marine Services Contingency Plan indicates a maximum rate of delivery of 50,000 gallons per hour, with a likely spill quantity of 840 gallons. Failures at the



storage tank or at both of the tank truck loading racks, is expected to be contained before reaching the river or ocean water.

The deployment strategies for this facility include local and out-of-region equipment. Petro Marine Services trains personnel and maintains a boat and 1,000 feet of boom at their Skagway facility. This could be mobilized within 1 hour of notification. An additional 500 feet of boom are available locally through SEAPRO. Out-of-region equipment would be available from Petro Marine offices in Whitehorse, Yukon Territories, and Juneau. It would take 3 to five hours for equipment to arrive by vehicle from Whitehorse and 1 to 2 hours for equipment to arrive by air from Juneau. Air transport is weather dependent. Additional equipment is also available from SEAPRO in Juneau. (Petro Marine Services, 1996b)

## 2.2 Non-Regulated Facilities and Vessels: Persistent Oil

Non-regulated facilities storing or using persistent oil have not been identified in Northern Lynn Canal.

Non-regulated vessels that commonly visit the Haines and Skagway Ports include cruise ships that run during the tourist season. In the past, ore ships have operated from the Skagway Port to transport ore from the Faro Mine. These ships carry a persistent oil for fuel.

### 2.2.1 Cruise Ships

Cruise ships dock at Haines and Skagway from April through September. Many of the ships stop at both locations, spending about two days in the Northern Lynn Canal. Table 2-1 lists the number of cruise ships expected to visit Haines and Skagway per month during the 1999 season. If one ship was present at a harbor for more than one day, it was counted twice.

**Table 2-1: Cruise Ship Dockings**

Month	Skagway	Haines
April	3	3
May	48	23
June	87	41
July	97	44
August	90	43
September	65	21

(Source: Cruise Line Agency of Alaska schedule)

More than 25 different cruise ships are scheduled to visit Northern Lynn Canal in the 1999 season. The cruise ships vary in size and capacities, but generally carry enough fuel for their entire trip. They do not refuel in either Haines or Skagway, and are not carrying their

maximum fuel loads in these regions. Fuel capacities for ships operating in the Haines and Skagway region range from approximately 600,000 gallons to 1,000,000 gallons of Bunker C fuel. In addition to the Bunker C fuel, other fuels on board may be present in volumes as great as 70,000 gallons.

Skagway has dock space for five large cruise ships. During the cruise ship season, six cruise ships are scheduled to be in Skagway in one day. This will require the departure of one ship and the arrival of another that day. Haines has dock space for one large cruise ship; additional ships anchor offshore. There are days where three to five ships are scheduled to be in Haines. This situation requires that either several ships anchor offshore and transport the passengers to shore with smaller boats, or the departure and arrival of ships on the same day.

### **2.2.2 Ore Ships**

In the past, ore ships have docked in Skagway to load and transport ore from the Faro Mine. However, the Faro Mine has not been shipping ore for more than a year. No ore shipments are scheduled for the near future. (Russo, personal communication)

## **2.3 Non-Regulated Facilities and Vessels: Non-Persistent Oil**

Non-regulated facilities storing or using non-persistent oil have not been identified in Northern Lynn Canal.

The non-regulated vessels operating in Northern Lynn Canal include small boats that dock at the small boat harbors in both Haines and Skagway, and the AMHS ferries, which call at both communities. Day boats, including the Haines/Skagway Water Taxi, are also in this category. The AMHS contracts its fueling to Petro Marine Services, which is a regulated facility.

### **2.3.1 Small Boats**

The Small Boat Harbor in Skagway has slips for 130 local boats. Many of these boats are used on a daily basis during the summer season (generally defined as Memorial Day to Labor Day). In addition, there are an estimated 450 additional small boat arrivals during the 3-month summer season. These boats, on average, hold approximately 50 gallons of fuel. The estimated maximum fuel storage capacity for the larger of the small boats may be as much as 3,000 gallons. In addition, Amak Towing keeps two tugs in the Skagway area in the summer season. Of these tugs, the Ethan B. holds 10,000 gallons of diesel and La Cheval Rouge holds 22,000 gallons of diesel. (Source: Russo, personal communication)

The Haines Small Boat Harbor has slips for 140 local boats. It is estimated that nearly 300 boats use the harbor during the busy summer season. The average vessel size is estimated to be about 34 feet in length and the average fuel capacity is 100 to 150 gallons. A fueling facility is located in the small boat harbor. It is currently contracted to Petro Marine, a regulated facility. Fuel barges bring fuel to town one to two times monthly in the summer months, and once or twice over the winter. Fuel barges hold about 1.5 million gallons of fuel. In addition, two freight barges stop in Haines each week. (Source: Stokely, personal communication)

### 2.3.2 Alaska Marine Highway System Ferries

AMHS Ferries serve Northern Lynn Canal throughout the year. There are seven different vessels scheduled to service this area in 1999. Table 2-2 shows the AMHS ferry port calls by month. The ships stop at Haines both on the way to and from Skagway, giving Haines twice the number of ferry calls as Skagway. Table 2-2 is based on the 1999 schedule for January through September. Information for October through December are taken from the 1998 schedule, as the 1999 fall ferry schedule is not currently available.

**Table 2-2: AMHS Ferry Dockings**

Month	Skagway	Haines
January	19	38
February	18	35
March	19	38
April	17	35
May	23	46
June	13	27
July	12	24
August	14	28
September	18	36
October	17	34
November	16	38
December	18	36

(Source: published AMHS Schedule)

Table 2-3 shows the fuel carried by each of the seven AMHS ferries, which is considered the likely maximum fuel capacities. Vessels are not always filled to capacity during refueling. Skagway is a refueling stop.

**Table 2-3: Fuel Carried by Alaska State Ferries**

<b>Vessel</b>	<b>Diesel Fuel, gallons</b>	<b>Lube Oil, gallons</b>	<b>Waste Oil, gallons</b>
<b>Aurora</b>	52,217	1,891	1,200
<b>Le Conte</b>	50,470	1,880	1,210
<b>Columbia</b>	309,766	19,661	2,681
<b>Kennicott</b>	211,258	9,183	5,335
<b>Taku</b>	76,178	3,250	1,800
<b>Malaspina</b>	134,978	4,361	1,800
<b>Matanuska</b>	106,334	5,000	1,800

### **2.3.3 Day Boats**

Day boat traffic includes a water taxi service, the Haines/Skagway Water Taxi. This service operates as a small, local tour boat. There are generally two departures each day from each port. The 50-foot catamaran can carry approximately 80 passengers. Travel time is approximately 45 minutes one way. The same company offers a charter boat service as well. A similar tour service may be available from Haines and Skagway to Juneau beginning summer 1999. Travel time is expected to be 2 to 3 hours.

### **2.3.4 AMHS Fueling Facility**

The AMHS uses the Skagway Ferry Terminal as their fueling facility. These services are contracted to Petro Marine Services in Skagway. Their marine fueling header is included in their Oil Discharge Prevention and Contingency Plan dated January 1996. The aspects of the plan related to this document are outlined above in Section 2.1.3.

## **2.4 Current Equipment Inventories**

Oil spill response equipment is available locally in Haines and in Skagway. Additional equipment is available for use in both communities from out-of-region sources. Skagway and Haines are the closest, by boat and air, out-of-region resources for each other. Juneau, by air and boat, is the next nearest out-of-region location for additional equipment. Skagway also has road access to equipment in Whitehorse, Yukon Territories, Canada.

### 2.4.1 Haines: In-Region Equipment

The following tables summarize spill response equipment inventories in Haines.

**Table 2-4: Petro Marine Services Equipment Inventory (Haines)**

<b>Facility Location</b>	Junction of Haines Cut-Off Highway and Beach Road		
<b>Telephone</b>	907-766-2338 or 907-766-2738 907-766-2871 fax		
<b>Spill Response Equipment Location</b>	Lower warehouse on the facility grounds		
<b>Contact</b>	Charlie Lietz, Facility Manager 907-766-2338 work 907-766-2446 home		
<b>Transport Options</b>	¾-ton pickup 18' skiff, 70 HP		
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
<b>Containment Boom</b>	Boom, 8"x12", Kepner Sea Curtain	1000	feet
<b>Storage Tanks</b>	Drums, 55-gallon	6	
	Skid tank, 15,000-gallon	1	
	Storage tanks, 550-gallon/275-gallon	2/4	
	Tank trucks, 2970-, 2670-, and 2300-gallon capacity*	1	each
<b>Sorbent Material</b>	Sorbent pads, 3M 156, 100/bale	60	bales
	Sorbent rolls, 3M 1000	10	
	Sorbent sweeps, 3M 126	6	
	Sorbent booms, 3M 270	6	
<b>Transportation</b>	Skiff, 18', 70 HP	1	
	Pick-up truck, ¾-ton*	1	
<b>Communication</b>	Radios, VHF base/vehicle/hand-held*	1/4/2	
<b>Miscellaneous</b>	Safety glasses, pails, duct tape, flagging, rubber gloves, shovels, garbage bags, broom, first aid kit	various	

\* located at facility office

**Table 2-5: Delta Western Equipment Inventory (Haines)**

<b>Facility Location</b>	Lutak Road, adj. to the AMHS Dock & Haines City Dock (approx. 6 miles from downtown)		
<b>Telephone</b>	907-766-3190 907-766-3196 fax		
<b>Spill Response Equipment Location</b>	Stored at the Delta Western fueling facility at the Haines City Dock		
<b>Contact</b>	Fred Gray, Facility Manager 907-766-3190 work 907-766-3071 home		
<b>Transport Options</b>	1-ton Flatbed truck/boom truck ½-ton 4x4 pickup with snow plow cube van (vehicles located at facility) 2 Skiffs, 18' and 23' (located at Tank Truck Loading Rack, between facility and header)		
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
<b>Containment Boom</b>	Containment boom	1500	feet
	Containment boom (located in boom truck)	1000	feet
	Contractor sweep boom, Pac Environmental, 18' x 18"	200	feet
<b>Boom Hardware</b>	Boom tow bridles	4	
	Anchor buoy systems	8	
	Boom lights, Scotty 12 volt	4	
	Boom repair kit, Kepner	1	
<b>Skimmers &amp; Pumps</b>	Skimming system, Skim Pac 4200, 804 gph @ 20%	1	
	Skimmer pump, Yanmar Diesel L2S5/ 2", 185 gpm	1	
	Suction hose, Aftech, 2" x 20', QC fittings	4	
	Discharge hose, Seattle Ship, 2" x 50', QC fittings	8	
	Hose floats, Aftech, 2"	4	
<b>Sorbent Material</b>	Absorbent boom, Pac Environmental, 8"	240	feet
	Sorbent pads, PolyPro, 12' x 12"	1000	
	Sorbent blankets, Ergon E-200, 3" x 150'	10	bales
	Sorbent roll, Maxx, 38" x 144'	6	rolls
	Sorbent sweeps, Ergon, 18" x 100'	2	
	Sorbent kit, Pac Environmental, misc.	1	
<b>Transportation</b>	1-ton Flatbed truck/boom truck	1	
	½-ton 4x4 pickup with snow plow	1	
	cube van	1	
	Boom deployment and response skiff 18', 50 HP	1	
	Response skiff, 23'	1	

**Table 2-6: SEAPRO Equipment Inventory (Haines)**

<b>Facility Location</b>	none		
<b>Telephone</b>	907-766-3190		
<b>Spill Response Equipment Location</b>	Stored in containers at Delta Western fueling facility at the Haines City Dock.		
<b>Contact</b>	Fred Gray, Facility Manager 907-766-3190 work 907-766-3071 home		
<b>Transport Options</b>	none		
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
<b>Containment Boom</b>	Harbor boom, 8" x 12"	1000	feet
<b>Boom Hardware</b>	Anchor systems, 30 lb.	13	
<b>Skimmers &amp; Pumps</b>	Action skimmer system (drum)	1	
<b>Storage Tanks</b>	Portable tank, 1000 gallon	1	
	Bladder, 4200 gallon	1	
<b>Sorbent Material</b>	Absorbent pads	10	
	Absorbent rolls	4	
	Absorbent boom, 8"	200	feet
	Geo-bags (rolls)	2	
<b>Miscellaneous</b>	Shovels	2	
	Responder bags	10	
	Rakes	4	
	Mustang suits	6	
	Misc. equipment module	1	
	PPE / safety module	1	

**Table 2-7: ADEC Equipment Inventory (Haines)**

<b>Facility Location</b>	none		
<b>Telephone</b>	907-465-5340 or 1-800-478-9300 after hrs		
<b>Spill Response Equipment Location</b>	Stored in connex at the Haines City Dock, in the Alaska Marine Lines yard		
<b>Contact</b>	none		
<b>Transport Options</b>	none		
<b>Category</b>	<b>Response Equipment</b>	<b>Amount</b>	<b>Unit</b>
<b>Containment Boom</b>	Boom, Kepner Sea Curtain, 8" x 12"	1000	feet
<b>Boom Hardware</b>	Tow bridles w/2 stainless snap hooks	2	
	Boom connector adapters, universal, w/1 galv. snap hook	2	
	Anchors, Danforth, 22 lbs	11	
	Anchor chain, 10'-3/8" galv. w/ connectors	11	
	Anchor chain spare 10' shots w/ 1 snap hook	11	
	Tow lines, 5/8" x 100' w/ stainless thimble, 1 snap hook	2	
	Anchor ropes, 1/2" x 100' w/stainless thimbles and 1 snap hook	33	
	Crab buoys, A-3 15" w/1/2" SPA shackle, 3/8" x 10' nylon line, 1 galv. Snap hook	11	boxes
<b>Sorbent Material</b>	Sorbent pad hand wringer	1	
	Sorbent pads 18" x 18", 100/bundle (SpilFyter 311050/ Ergon E100)	37	bundles
	Sorbent Boom 5" x 10', 4/bundle	19	bundles
	Sorbent sweeps, Ergon E1800, 19" x 100'	10	
	Sorbent sweeps, SpilFyter, 18" x 100'	4	boxes
	Sorbent roll, 3M 100, 38" x 144'	1	roll
<b>Miscellaneous</b>	Oil snare on a rope, 50'	10	
	Lift bags, 35" x 35" x 35" w/ 2 galv. snap hooks	2	
	Lift bag poly liners, 4 mil	nr	
	Nylon line, 3/8" 3 strand braided, 600' spool	1	spool
	Cargo straps, 2" x 12' & 2" x 20'	nr	
	Spare bolts and pins for Kepner boom	nr	
	Concrete pierblocks	6	

\* nr quantity not recorded on ADEC inventory



**Table 2-8: Additional Equipment Located in Haines Region**

<b>Containment Boom</b>			
<b>Owner</b>	<b>Type and Size</b>	<b>Length, Feet</b>	<b>Telephone</b>
Klukwan	Kepner 8"x12"	1500	225-6125
Totem Oil	Kepner 8"x12"	600	766-3190
Haines Harbormaster	Kepner 8"x12"	500	766-2448
<b>Additional Tank Storage</b>			
<b>Owner</b>	<b>Portable Tank, Gallons</b>		<b>Telephone</b>
Klukwan	3,500		766-2806

### 2.4.2 Skagway: In-Region Equipment

The following tables summarize spill response equipment inventories in Skagway:

**Table 2-9: Petro Marine Services Equipment Inventory (Skagway)**

<b>Facility Location</b>	Located adjacent to the Ferry Dock at the Skagway Boat Harbor		
<b>Telephone</b>	907-983-2239		
<b>Spill Response Equipment Location</b>	Warehouse on the facility grounds		
<b>Contact</b>	Floyd Matthews, Facility Manager 907-983-2239 work 907-983-2390 home		
<b>Transport Options</b>	Flat bed truck, 1 ½ ton, w/ 12' bed Welded aluminum oil response vessel, 18'		
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
<b>Containment Boom</b>	Sea curtain boom, Kepner	1,500	feet
<b>Boom Hardware</b>	Anchors, 25 lbs.	4	
	Buoys, several shackles	1	
<b>Skimmer</b>	Rope mop skimmer	10	bph
<b>Sorbent Material</b>	Sorbent material, 36" x 150', 3M	61	rolls
	Sorbent pads, 18" x 18", 3M, 100/bundle	53	bundles
	Sorbale 156	48	bundles
	Sorboom 270	30	sacks
	Sorben sweep 126	24	sacks
<b>Transportation</b>	Welded aluminum oil response vessel, 18'	1	
	Flat bed truck, 1 ½ ton, w/ 12' bed	1	
<b>Communication</b>	UHF handheld radios	3	
<b>Miscellaneous</b>	Rope	1,200	feet
	Drums, 55 gallon, steel	90	
	Centrifugal pump, 2", 3 HP gas engine, w/ 20' suction hose & 50' discharge hose, 2000 gph rating	2	

**Table 2-10: SEAPRO Equipment Inventory (Skagway)**

<b>Facility Location</b>	none		
<b>Telephone</b>	907-983-2239 or 1-800-478-9300 after hrs		
<b>Spill Response Equipment Location</b>	Equipment is stored in the warehouse at the Petro Marine Services facility at the Skagway Boat Harbor		
<b>Contact</b>	none, use after hours telephone number		
<b>Transport Options</b>	none		
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
<b>Containment Boom</b>	Harbor boom, 8" x 12"	1000	feet
<b>Boom Hardware</b>	Boom anchor systems, 40 lb.	7	
<b>Skimmer</b>	Rope mop, 4"	1	
<b>Miscellaneous</b>	Portable tank, 1000 gallon	1	
	Misc. equipment module	1	
	Bird hazing module*	1	
	PPE / safety module	1	
	Responder bags	10	

\*Located in the Petro Marine office.

**Table 2-11: ADEC Equipment Inventory (Skagway)**

<b>Facility Location</b>	none		
<b>Telephone</b>	907-465-5340 or 1-800-478-9300 after hrs		
<b>Spill Response Equipment Location</b>	Connex storing equipment is located on northwest side of the entrance to the Skagway Boat Harbor, between Alaska Marine Lines yard and Marine Highway parking lot.		
<b>Contact</b>	none, use after hours telephone number		
<b>Transport Options</b>	none		
<b>Category</b>	<b>Response Equipment</b>	<b>Amount</b>	<b>Unit</b>
<b>Containment Boom</b>	Boom, Kepner Sea Curtain, 8" x 12"	1000	feet
<b>Boom Hardware</b>	Tow bridles w/2 stainless snap hooks	2	
	Boom connector adapters, universal, w/1 galv. snap hook	2	
	Anchors, Danforth, 22 lbs	11	
	Anchor chain, 10'-3/8" galv. w/ connectors	11	
	Anchor chain spare 10' shots w/ 1 snap hook	11	
	Tow lines, 5/8" x 100' w/stainless thimble, 1 snap hook	2	
	Anchor ropes, 1/2" x 100' w/stainless thimbles, 1 snap hook	33	
	Crab buoys, A-3 15" w/1/2" SPA shackle, 3/8" x 10' nylon line, 1 galv. snap hook	11	boxes
<b>Sorbent Material</b>	Sorbent pad hand wringer	1	
	Sorbent pads 18" x 18", 100/bundle (SpilFyter 311050/ Ergon E100)	37	bundles
	Sorbent Boom 5" x 10', 4/bundle	19	bundles
	Sorbent sweeps, Ergon E1800, 19" x 100'	10	
	Sorbent sweeps, SpilFyter, 18" x 100'	4	boxes
	Sorbent roll, 3M 100, 38" x 144'	1	roll
<b>Miscellaneous</b>	Oil snare on a rope, 50'	10	
	Lift bags, 35" x 35" x 35" w/ 2 galv. snap hooks	2	
	Lift bag poly liners, 4 mil	nr	
	Nylon line, 3/8" 3 strand braided, 600' spool	1	spool
	Cargo straps, 2" x 12' & 2" x 20'	nr	
	Spare bolts and pins for Kepner boom	nr	
	Concrete pierblocks	6	

\* nr quantity not recorded on ADEC inventory

**Table 2-12: Additional Equipment Located in Skagway Region**

<b>Containment Boom</b>			
<b>Owner</b>	<b>Type and Size</b>	<b>Length, Feet</b>	<b>Telephone</b>
Alaska Marine Lines	Kepner 8" x 12"	500	907-950-4265
<b>Additional Storage</b>			
<b>Owner</b>	<b>Portable Tank, Gallons</b>		<b>Telephone</b>
Alaska Marine Lines	various		907-950-4265

### 2.4.3 Out-Of-Region Equipment: Juneau

The following tables summarize spill response equipment inventories in Juneau.

**Table 2-13: ADEC Equipment Inventory (Juneau)**

<b>Facility Location</b>	none		
<b>Telephone</b>	907-465-5340 or 1-800-478-9300 after hrs		
<b>Spill Response Equipment Location</b>	Connex storing equipment is located at the Auk Bay Boat Dock		
<b>Contact</b>	none, use after hours telephone number		
<b>Transport Options</b>	none		
<b>Category</b>	<b>Response Equipment</b>	<b>Amount</b>	<b>Unit</b>
<b>Containment Boom</b>	Boom, Kepner Sea Curtain, 8" x 12"	1000	feet
<b>Boom Hardware</b>	Tow bridles w/2 stainless snap hooks	2	
	Boom connector adapters, universal, w/1 galv. snap hook	2	
	Anchors, Danforth, 22 lbs	11	
	Anchor chain, 10'-3/8" galv. w/ connectors	11	
	Anchor chain spare 10' shots w/ 1 snap hook	11	
	Tow lines, 5/8" x 100' w/stainless thimble, 1 snap hook	2	
	Anchor ropes, 1/2" x 100' w/stainless thimbles, 1 snap hook	33	
	Crab buoys, A-3 15" w/1/2" SPA shackle, 3/8" x 10' nylon line, 1 galv. snap hook	11	boxes
<b>Sorbent Material</b>	Sorbent pad hand wringer	1	
	Sorbent pads 18" x 18", 100/bundle (SpilFyter 311050/ Ergon E100)	37	bundles
	Sorbent Boom 5" x 10', 4/bundle	19	bundles
	Sorbent sweeps, Ergon E1800, 19" x 100'	10	
	Sorbent sweeps, SpilFyter, 18" x 100'	4	boxes
	Sorbent roll, 3M 100, 38" x 144'	1	roll
<b>Miscellaneous</b>	Oil snare on a rope, 50'	10	
	Lift bags, 35" x 35" x 35" w/ 2 galv. snap hooks	2	
	Lift bag poly liners, 4 mil	nr	
	Nylon line, 3/8" 3 strand braided, 600' spool	1	spool
	Cargo straps, 2" x 12' & 2" x 20'	nr	
	Spare bolts and pins for Kepner boom	nr	
	Concrete pierblocks	6	

\* nr quantity not recorded on ADEC inventory

**Table 2-14: US Coast Guard Equipment Inventory (Juneau)**

<b>Facility Location</b>	U. S. Coast Guard Offices 709 W 9th		
<b>Telephone</b>	907-463-2450		
<b>Spill Response Equipment Location</b>	At U. S. Coast Guard MSO, Juneau		
<b>Contact</b>	41' Patrol Boat 25' Boston Whaler		
<b>Transport Options</b>	none		
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
<b>Containment Boom</b>	Harbor boom, 10" x 16"	2000	feet
	Harbor boom, 6" x 12"	600	feet
	Inner harbor boom, 4" x 6"	200	feet
<b>Boom Hardware</b>	Anchor systems, 22 lb.	10	
<b>Skimmer &amp; Pumps</b>	Skimmer, Skim Pac	1	
	Pump, 2" gasoline Pacer	1	
	Pump, 2" diesel Yanmar	1	
	Pump, 3" diesel Yanmar	2	
<b>Storage Tanks</b>	Portable tanks, 1000, 1100, 1800 gallons	1	each
<b>Transportation</b>	41' Patrol Boat	1	
	25' Boston Whaler	1	
<b>Sorbent Material</b>	Misc. sorbent materials		
<b>Miscellaneous</b>	Portable generator, 4 kw Onan	1	
	Helicopter sling	1	

**Table 2-15: Additional Equipment Located in Juneau**

<b>Containment Boom</b>					
<b>Owner</b>	<b>Length, feet</b>	<b>Type and Size</b>			<b>Telephone</b>
<b>Delta Western</b>	500	Kepner 8" x12"			586-2800
<b>Douglas Oil Heat</b>	300	Kepner			789-1917
<b>Taku Oil</b>	500	Kepner 8" x 12"			586-1276
<b>SEAL</b>	1650	Abasco 18"			789-4210
	1120	Hydrotechnic			
	100	Jet Line 18"			
	2600	Kepner 40"			
	300	Kepner 18"			
	1200	Omi 36"			
	600	PSI 18"			
4250	Texaboom 18"				
<b>Skimmers</b>					
<b>Owner</b>	<b>Type</b>	<b>Capacity barrel/hr</b>	<b>20% Capacity barrel/hr</b>	<b>24 hr Derated Recovery</b>	<b>Telephone</b>
<b>Taku Oil</b>	Oleo III	20	4	96	586-1276
<b>Douglas Oil Heat</b>	Rope Mop Suction	unknown unknown	unknown unknown	unknown unknown	789-7917
<b>Delta Western</b>	Skim Pac 4200	95	19	456	586-2800
<b>Storage Tanks</b>					
<b>Owner</b>	<b>Portable Tanks, gallons</b>	<b>Tank Trucks, gallons</b>	<b>Bladder, gallons</b>	<b>Other, gallons</b>	<b>Telephone</b>
<b>Taku Oil</b>	3,650	21,400	0	0	586-1276
<b>Delta Western</b>	0	25,100	0	0	586-2800
<b>Douglas Oil</b>	18,300	0	0	0	789-1917
<b>SEAL</b>	9,650	0	50,000	18,000	789-4210
<b>Channel Corp.</b>	4,500	0	0		780-4288

### 2.4.4 Out-Of-Region Equipment: Whitehorse, Yukon Territories, Canada

The following tables summarize spill response equipment inventories in Whitehorse.

**Table 2-16: Petro Marine Equipment Inventory (Whitehorse)**

<b>Facility Location</b>	153 Industrial Way, Whitehorse		
<b>Telephone</b>	867-633-8820, after hours 633-6562		
<b>Spill Response Equipment Location</b>	Van parked at facility		
<b>Contact</b>	Dispatcher, at above phone numbers		
<b>Transport Options</b>	Oil Spill Containment and Response (OSCAR) equipment stored in van at facility		
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
<b>Boom</b>	Oil booms, type 270	10	
<b>Sorbent Materials</b>	Sorbent pads, type 150	10	
	Sorbent pads, 3M	9	
	Sorbent pads, type 126	11	
	Oil boom, six 31'	10	bales
	Oil sorbent	10	rolls
	Fiberpearl	1	bag
	pads	10	bags
<b>Miscellaneous</b>	Floor Dry and sand		
	Bucket plug & dike (leak sealer)	1	
	Steel braided cable, 30' lengths	4	
	Air hose with fittings	1	
	Hand pump	1	
	Air drill and cutter kit	1	
	Air regulators	1	set
	Peat moss	6	bales
	Drain pipe	2	lengths
	Dome cover recovery bags (fuel recovery from overturned vehicles)	2	
	Hose, 1 ¼"	20	feet
	Hose, 2"	10	feet
	Fire extinguishers	4	
	skimmers	10	bags
	Hard hats, winter liners, rubber jackets, pant and boots	various	
	Rakes, post hole diggers, shovels, picks, axes, bolt cutters, fork, sledge hammer, flood lamp, boomers (chain), plastic trash cans, mop & pail, broom, 5 <sup>th</sup> wheel lock puller	various	

**Table 2-17: Petro Canada Equipment Inventory (Whitehorse)**

<b>Facility Location</b>	110 Galena Rd, Whitehorse		
<b>Telephone</b>	867-667-2468		
<b>Spill Response Equipment Location</b>	Located at Facility		
<b>Contact</b>	Reg Mitchell		
<b>Transport Options</b>			
<b>Category</b>	<b>Spill Response Equipment</b>	<b>Quantity</b>	<b>Unit</b>
	Welding torches, necessary gas	1	set
	Chainsaw, gas, oil	1	
<b>Boom Hardware</b>	Boom drag (approx. 15")	1	
	Anchor, 35 lb. c/w 10' x 3/8" chains	3	
	Anchor marker buoys	3	
	Side bridles for 6/6 boom	10	
<b>Miscellaneous</b>	Pump, gas powered	2	
	Generator, gas powered	1	
	Propane tank and tiger torch	1	
	Complete spill buckets	2	
	Tools, including: rope, suction pipe, discharge hose, various camlocks, suction screen, pipe wrenches, steel stakes, flashlight, pliers, crescent wrenches, hammer vise grips.	various	
	Chicken wire, 36" x 100'	1	roll
	Suction hoses, 15'	2	
	Hose floats	15	
	Styrofoam, 1/4"	1	roll
	Personal gear: rubber gloves, rain gear, mustang life jackets, hard hats, rubber boots, safety goggles, first aid kit, chest waders, hand cleaner, rags, safety vests	various	
	Toboggan, tarps, drain pan, reducers & connectors, extension cord, ground hook-up equipment, expandable plugs, mechanic wire, chain, 1-1/2" fuel hose	various	

**Table 2-18: Additional Equipment Located in Whitehorse**

<b>Vacuum Trucks</b>			
<b>Owner</b>	<b>Size</b>		<b>Telephone</b>
<b>McInroy Disposal</b>	3,000-gallon 1,500-gallon		867-668-4338
<b>Vehicles and Drivers</b>			
<b>Owner</b>			<b>Telephone</b>
<b>Department of Highways Maintenance</b>	May have vehicles, heavy equipment and personnel available		867-667-5644

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### 3.0 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally sensitive areas are identified in the following sections to aid local responders in implementing the near-shore protection strategy. The environmentally sensitive areas described below are varied, and include areas with plant and animal resources sensitive to spill impacts; areas with animal species used as food sources; areas containing important cultural resources (subsistence use and sites of historic and prehistoric origins); other resources identified as being at high risk from a discharge; and public interest lands (such as harbors and public use areas). These areas are shown in Figures 2 and 3 for the Haines region, Figure 4 for the area south of Haines, and Figure 5 for the Skagway region. Information in this section has been compiled from the Unified Plan Part 3, the Southeast SCP, the Delta Western 1995 Plan, and the Petro Marine Services 1996 Plans for Skagway and Haines.

#### 3.1 List of Environmentally Sensitive Areas

In the following sections, environmentally sensitive areas are listed alphabetically by association with the towns of Skagway and Haines. Much of the rest of the coastline of Northern Lynn Canal is categorized as a rocky coastline, and as such, is not highly sensitive to a discharge. A description of location, resources of concern, and degree of sensitivity are provided for each environmentally sensitive area.

##### 3.1.1 Haines Environmentally Sensitive Areas

**Alaska Chilkat Bald Eagle Preserve.** The Alaska Chilkat River Bald Eagle Preserve is located northwest of Haines, along the Chilkoot and Chilkat Rivers (Figure 3). The Preserve extends along the Chilkat River to the north end of the mudflats at the river's mouth in Chilkat Inlet. The region itself is not likely susceptible to impacts from a spill, but the bald eagles that congregate in this location would likely be using coastal food sources and fall salmon runs in the river.

**Chilkat River Critical Habitat Area.** The Chilkat River Critical Habitat Area is along the Chilkat River, northwest of Haines, between the communities of Katkwaahltu and Klukwan, adjacent to a portion of the Alaska Chilkat Bald Eagle Preserve (Figure 3). It is upstream from the mouth of the Chilkat River, and is not likely to be directly affected by a discharge in the Inlet. However, bald eagles that congregate in this region would likely be using coastal areas and fall salmon runs in the river as food sources.

**Chilkat River Flats.** The Chilkat River Flats are located at the northern end of the Chilkat Inlet, at the mouth of the Chilkat River (Figures 2 and 3). This area contains a variety of fishery resources. These include near-shore adult salmon runs, early May to late November; spawning

salmon, early August to late December; juvenile salmon out-migration and near shore rearing, early March to late September; and eulachon spawning/egg incubation, mid-March to late June. In addition, the region is a waterfowl and shorebird staging area in the spring and fall and hosts bald eagle concentrations for feeding activities in early September to late January. This area is also used for subsistence waterfowl hunting. The area is considered highly sensitive all year.

**Chilkoot River Delta.** The Chilkoot River Delta is located at the northwest end of the Lutak Inlet, south of Chilkoot Lake (Figure 3). This region contains estuarine flats, coho and pink salmon runs, a herring spawning area, and intertidal and subtidal resources. The area is considered highly sensitive all year.

**Katzehin River and River Mouth.** The Katzehin River runs through the Tongass National Forest and empties into Lynn Canal south of Haines and on the east side of the Chilkoot Inlet (Figures 2 and 4). The region contains estuarine flats, harbor seal concentration and haul-out areas, salmon resources, and intertidal and subtidal resources. Subsistence gathering of clams, cockles, and limpets, and hunting of waterfowl occurs in this area. The river and delta areas are considered highly sensitive all year, with the most sensitive period for harbor seals running from late May to mid-October.

**Lutak Inlet.** Lutak Inlet is the northwestern branch of the Northern Lynn Canal, north of Haines (Figures 2 and 3). Areas in the Lutak Inlet are used for subsistence harvesting of salmon, harbor seals, crab, and shrimp.

**Mud Bay Point and Flats.** Mud Bay Point and Flats are located in the Chilkat Inlet, on the south side of the peninsula on which Haines is located (Figure 4). This region contains estuarine flats and subtidal resources. Fishery concerns include coho and pink salmon and spring herring spawning activity. The region is highly sensitive, with special concerns during the spring.

**Nukdik Point.** Nukdik Point is located north of Haines on the northern point of Portage Cove (Figures 2 and 3). This area is a herring spawning area, and is considered moderately sensitive, with the period of greatest sensitivity in the spring.

**Taiyasanka Harbor.** Taiyasanka Harbor is a small natural harbor located between Lutak Inlet and Taiya Inlet (Figures 2 and 3). It contains estuarine flats and tidal and intertidal resources. The region is important to coho and pink salmon and herring fisheries. It is considered highly sensitive all year.

**Tanani Point.** Tanani Point is located north of Haines, on the north end of Tanani Bay (Figures 2 and 3). The area is a herring spawning area and is considered moderately sensitive, with the period of greatest sensitivity in the spring.

### 3.1.2 Skagway Environmentally Sensitive Areas

**Nahku Bay.** Nahku Bay is a small bay near the northern end of Taiya Inlet (Figure 5). An anadromous fish stream flows into the north end of Nahku Bay. The bay contains tidal flats. This area is considered highly sensitive all year.

**Skagway River and Flats.** The Skagway River enters the Taiya Inlet after passing through Skagway on the northwest edge of town (Figure 5). The Skagway River has Dolly Varden and minor coho salmon runs, in addition to tidal and intertidal habitats for fish and wildlife. The area has medium sensitivity all year.

**Taiya Inlet.** The Taiya Inlet is the northeastern branch of the northern end of Lynn Canal (Figures 2 and 5). The town of Skagway is located on the east side of this inlet. A harbor seal concentration is located in a cove on the west side of the inlet near the mouth. This region is considered highly sensitive, with special concerns in the spring.

**Taiya River Mouth and Dyea Flats.** The Taiya River mouth is located at the northwestern end of Taiya Inlet (Figure 5). The Dyea Flats are at the mouth of the Taiya River and are named for the historic former gold rush settlement of Dyea. The Klondike Gold Rush National Historical Park is located along the river and flats in this area. The Taiya River has chum, pink, and coho salmon spawning runs from June through September, with juveniles present all year. Additional fishery resources include Dolly Varden and cutthroat trout. A harbor seal concentration is located near the Dyea Flats. This area is also important for its tidal flats and historic resources. The region is considered highly sensitive all year.

## 3.2 Resources at Risk

### 3.2.1 Haines Resources at Risk

**Blue Heron Sea Farm.** The Blue Heron Sea Farm is located in Haines, and cultivates oysters.

**Subsistence Use.** Several areas in the Haines region have been identified as subsistence harvest areas. These areas include: the Chilkat River Flats for waterfowl; the Katzehin River and river mouth for clams, cockles, limpets and waterfowl; and areas of the Lutak Inlet for salmon, harbor seals, crab, and shrimp.

### 3.2.2 Skagway Resources at Risk

**Burro Creek Hatchery.** Burro Creek Farms Hatchery is located on the west side of the Taiya Inlet, to the southwest of Skagway (Figure 5). The hatchery is a non-profit hatchery for pink, coho, chinook, and chum salmon eggs.

**Pullen Creek Hatchery.** The Pullen Creek Hatchery is a scientific and educational permit hatchery operated by Skagway City Schools for chinook and coho salmon eggs (Figure 5).

## 3.3 Public Interest Lands

### 3.3.1 Archeological Sites

A list of archeological sites and resources identified to date is maintained in the Alaska Heritage Resources Survey at the Alaska Department of Natural Resources (ADNR) Office of History and Archeology (907-269-8715). Archeological resources, both historic and prehistoric, have been identified in the intertidal zone in the Haines and Skagway regions of Northern Lynn Canal (Figures 2 through 5).

**Haines Archeological Resources.** In the Haines area, sites have been identified at the mouth of Chilkoot Lake in the Lutak Inlet and in the Chilkat Inlet, north of Kochu Island and including the mudflats of the Chilkat River. Additional archeological resources may be present in the Haines region, but have not yet been reported to the ADNR.

**Skagway Archeological Resources.** In the Skagway region, major archeological resources with intertidal components are associated with the Klondike Gold Rush National Historical Park. Archeological resources have been identified in the coastal area around Dyea Flats and the Taiya River, the harbor at the edge of Skagway, and mouth of the Skagway River. Additional archeological resources may be present in the Skagway region, but have not yet been reported to the ADNR.

### 3.3.2 Haines Public Interest Lands

**Alaska Chilkat Bald Eagle Preserve.** See Section 3.1.1 for a description of the Preserve. This area is of high interest to tourists and people interested in bald eagles.

**Chilkat State Park.** This state park is located south of Haines, encompassing much of the Chilkat Peninsula (Figures 2 and 4). It is approximately 6,405 acres in size. The primary land

use is recreational. The facility is managed by the Alaska Division of Parks. Whales, seals, and sea otters are present in Northern Lynn Canal and Chilkat Inlet.

**Haines State Forest and Resource Management Area.** Located north of Haines, the Haines State Forest and Resource Management Area encompasses approximately 250,600 acres. This is a multiple use, recreation, and forest management area. It borders the inlets and intertidal areas and mobile animal populations may be impacted by discharges.

**Portage Cove.** Haines public boat marina and docks are located in Portage Cove (Figures 2 and 3). The town of Haines is adjacent to this cove.

**Seafood Processing.** Local seafood processors may be operating in the Lutak Inlet, Taiya Inlet, or Chilkoot Inlet during the salmon processing season from June 1 to September 15. Commercial, sport, and subsistence fishing also take place in these waters.

### 3.3.3 Skagway Public Interest Lands

**Skagway Port and Pullen Creek Mouth and Hatchery.** A public boat harbor and several private and public docks are located in the Skagway port area. Pullen Creek also drains into the port area. The Pullen Creek Hatchery is located upstream.

**Taiya River Mouth and Dyea Flats.** Located at the head of Taiya Inlet is the Klondike Gold Rush National Historical Park (Figure 5). The Dyea Flats are the site of the gold rush town of Dyea. Although there are little visible remains of the town, the area is an important cultural resource. Klondike Goldrush National Historic Park hosts many visitors each year.

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#### **4.0 BASIC NEAR-SHORE RESPONSE SCENARIOS AND STRATEGIES**

To facilitate operations during a cleanup, the following four near-shore response scenarios have been created. The basic scenarios have been designed to enable the user of the GRP to understand the goals, strategy, and the mechanism necessary to defend the identified environmentally sensitive environment during an actual event. The scenarios are designed to cover the basic spill response and strategy and to provide a foundation for handling real life situations. Two scenarios each have been created for both Haines and Skagway.

These scenarios have been developed to examine the environmental risks and response capabilities associated with a spill of heavy bunker oil (persistent) or number 1 diesel oil (non-persistent). The scenarios are for descriptive purposes and should not be considered a performance standard. The scenario conditions or assumptions that are associated with this incident include: vessel, timing, weather, location, Unified Command decisions, and spill volume.

The intent and design of the scenarios are to address spill sources that may not have been fully considered or the magnitude of a possible release that may not have been previously envisioned. The scenario details are intended to provide a response that would require near-shore - onshore cleanup.

#### **4.1 Haines Scenario No. 1: Persistent Oil from Cruise Ship**

Site Description	Indian Rock/Taiya Point Area, Chilkoot Inlet, 59 16.4' N, 135 24' 0 W Indian Rock is a projection of rocks exposed at low water. Indian Rock is approximately 1.5 miles south of Taiya Point and 1.75 miles east of Tanani Point. Indian Rock forms the junction point of Lutak Inlet, Taiya Inlet, and Chilkoot Inlet. The shoreline is relatively steep with the mouth of the Chilkoot River being the major beach site in the area. The closest harbor to the grounding is Haines, 3.5 miles to the southwest.
Vessel	Cruise Ship North Star
Location	Indian Rock - 59 16.4' N, 135 24' 0 W
Date	June 4, 1999
Time	0530
Weather	Day 1 Winds SE 18 knots, Visibility 1 mile, Seas < 1 foot Day 2 Winds S 10 knots, Visibility 3 miles, Seas < 1 foot Day 3 Winds S 10 knots, Visibility 10 miles, Seas < 1 foot
Oil Loss	70,000 gallons Number 6 Bunker Oil
Scenario Duration	Day 1 - 2,000 Gallons Per Hour Day 2 - 500 Gallons Per Hour Day 3 - 500 Gallons Per Hour

Oil Type	Persistent Oil - Specific Gravity of 0.92
Bunker Oil Capacity	3,200 Metric Tons (958,532 US gallons)
Potential Trajectories	See Appendix A.
Logistical Support	See Appendix B.

#### **4.1.1 Situation**

At 0530, June 4, 1999, the foreign-flagged cruise ship North Star runs aground after experiencing a main propulsion plant power failure. The vessel is carrying 21,000 barrels of No. 6 bunker fuel oil. The vessel was underway to Skagway with 650 passengers aboard. After losing power, the vessel is able to anchor in 20 fathoms of water. After anchoring, the vessel swings on the incoming tide and grounds on the east side of Indian Rock. The vessel sustains damage to its port double-bottom bunker tanks. Bunker oil is observed on the water surface aft of the vessel. High tide will occur at 0615 local time at 12.5 feet; next low tide will be 2010. The winds are light, 18 knots out of the southeast, and tide and current will move the oil in a northwesterly direction.

#### **4.1.2 Initial Action**

Immediately after the grounding, the Master of the North Star notifies their home office who in turn notifies the United States Coast Guard (USCG) Command center in Juneau and the ADEC. The owner/operator of the vessel accepts responsibility for the spill when contacted by the Federal On-Scene Coordinator (FOSC), Commanding Officer of the USCG Marine Safety Office (MSO) Juneau. A temporary Unified Command post is established at MSO Juneau until a Command Post can be established in Haines. The makeup of the temporary Unified Command post is the Commanding Officer, MSO Juneau (FOSC); ADEC (State On-Scene Coordinator - SOSOC); and a representative from the RP.

The USCG Command Center in Juneau dispatches vessels for any necessary Search and Rescue assistance. The time frame for the evacuation of the passengers will depend on the structural integrity and stability of the vessel.

The following additional actions are requested and taken by the Unified Command:

- Federal Aviation Administration (FAA) - Restricted air space over the vessel.
- Alaska Department of Fish & Game (ADF&G) and United States Fish & Wildlife Service (USFWS) - Dispatch for biological and marine monitoring.
- Local Spill Cooperative - RP contracts to coordinate initial cleanup activities.
- USCG - Local Notice to Mariners.
- National Oceanic and Atmospheric Administration (NOAA) - Spill trajectories are requested from the Scientific Support Coordinator (SSC).



- National Response Center (NRC) and Pacific Strike Team (PST) - Notified of incident.

#### 4.1.3 Strategies

Placement of containment and deflection boom for the protection of sensitive areas and resources is the priority under this GRP. Secondary strategies addressed under spill contingency plans (RP, Southeast SCP, etc.) are listed below and are not addressed herein.

- Placement of containment and deflection booms to stop the spread of oil.
- Open water recovery as skimmers become available.
- Staging and storage requirements for the recovered oil.
- Shoreline cleanup prioritization and cleanup resource requirements.

#### 4.1.4 Boom Deployment

Response equipment for oil of this type is not readily available in the immediate area. Initially, the first objective is the identification of all readily available boom and shortfalls. The immediate deployment strategy of available boom should be based on the initial spill trajectories and in a defensive manner for the protection of sensitive areas and resources. Available boom will be used to safeguard sensitive areas.

The trajectories provided by NOAA and included in Appendix A indicate the oil moving to the north and northwest, into Lutak Inlet and Taiyasanka Harbor. Sensitive areas (discussed in Section 3.0) that could be impacted by the spread of oil include the Alaska Chilkat Bald Eagle Preserve, Chilkoot Lake and Chilkoot River Delta Archeological sites, and Lutak Inlet and Taiyasanka Harbor themselves.

Boom deployment will be arranged to divert the oil away from these sensitive areas. Boom will be deployed to divert oil away from the Chilkoot River mouth and log boom will be used for diversion protection of Taiyasanka Harbor.

#### 4.2 Haines Scenario No. 2: Non-Persistent Oil from Unregulated Vessel

Site Description	Port Chilkoot - Portage Cove, Chilkoot Inlet, 59 13.9' N, 135 26' 3 W The closest harbor to the grounding is Haines, 0.2 mile to the north.
Vessel	Towing Vessel Big Pull and Barge Northern Hauler
Location	Portage Cove, 59 13.9' N, 135 26' 3 W
Date	June 4, 1999
Time	0530
Weather	Day 1 Winds SE 18 knots, Visibility 1 mile, Seas < 1 foot Day 2 Winds S 10 knots, Visibility 3 miles, Seas < 1 foot
Oil Loss	45,000 gallons Number 1 Diesel Bunker Fuel

Scenario Duration	Day 1 - 35,000 Gallons Instantaneous Release Day 2 - 500 Gallons Per Hour
Oil Type	Non-Persistent Oil
Potential Trajectories	See Appendix A.
Logistical Support	See Appendix B.

#### 4.2.1 Situation

At 0530, June 4, 1999, the single screw towing vessel Big Pull with the freight barge Northern Hauler in tow is heading in a northerly direction in Chilkoot Inlet, making final preparations to dock at Port Chilkoot. The towing vessel Big Pull has shifted from the previous towing arrangement and is now on the port side of the barge. The towing vessel Big Pull experiences a steering system failure and is unable to control the barge. The anchor on the tug is deployed and has little affect on the situation. SE winds at 18 knots and the incoming tide push the barge with the tug alongside into the shore north of Port Chilkoot. The tug is between the barge and the shore. The towing vessel Big Pull sustains extensive structural hull damage. Immediately after the grounding, oil is observed on the water surface aft of the vessel's present location. High tide will occur at 0615 local time; next low tide will be at 2010 local time. The winds are light at 18 knots out of the southeast and tide and current will move the oil in a northerly direction.

#### 4.2.2 Initial Action

Immediately after the grounding, the Master of the Big Pull notifies their home office who in turn notifies the USCG Command center in Juneau and the ADEC. The owner/operator of the vessel accepts responsibility for the spill when contacted by the FOSC, the Commanding Office of MSO Juneau. A temporary Unified Command post is established at MSO Juneau until a Command Post can be established in Haines. The makeup of the temporary Unified Command post is the Commanding Officer, MSO Juneau (FOSC), ADEC (SOSC), and a representative from the RP. The USCG Command Center in Juneau dispatches vessels for any necessary Search and Rescue assistance.

The following additional actions are requested and taken by the Unified Command:

- FAA - Restricted air space over the vessel.
- ADF&G and USFWS - Dispatch for biological and marine monitoring.
- Local Spill Cooperative - RP contracts to coordinate initial cleanup activities.
- USCG - Local Notice to Mariners.
- NOAA - Spill trajectories are requested from the SSC.
- NRC and PST - Notified of incident.

### 4.2.3 Strategies

Placement of containment and deflection boom for the protection of sensitive areas and resources is the priority under this GRP. Secondary strategies addressed under spill contingency plans (RP, Southeast SCP, etc.) are listed below and are not addressed herein.

- Placement of containment and deflection boom to stop the spread of oil.
- Open water recovery as skimmers become available.
- Staging and storage requirements for the recovered oil.
- Shoreline cleanup prioritization and cleanup resource requirements.

### 4.2.4 Boom Deployment

Response equipment for oil of this type is readily available in this area. The primary objective is the identification of readily available boom. The immediate deployment strategy of available boom should be based on the initial spill trajectories and in a defensive manner for the protection of sensitive areas and resources.

The trajectories provided by NOAA and included in Appendix A indicate the oil moving to the north, past Nukdik Point, Tanani Bay, and the mouth of Lutak Inlet into Taiyasanka Harbor. Sensitive areas (discussed in Section 3.0) that could be impacted by the spread of oil include Nukdik Point, Portage Cove, Tanani Bay, Lutak Inlet, and Taiyasanka Harbor.

Boom deployment will be arranged to protect sensitive areas in the path of the spill trajectory. Boom will be deployed to divert oil away from Nukdik Point and Tanani Bay and log boom will be used for diversion protection of Taiyasanka Harbor. One thousand feet of boom is available in the first hour with an additional 3,500 feet of boom available within 2 hours.

## 4.3 Skagway Scenario No. 1: Persistent Oil from Cruise Ship

Site Description	Skagway Harbor, 59 26.9' N, 135 19' 4 W Skagway Harbor is a southwesterly facing harbor. Water depths and dock configurations support the mooring of multiple cruise ships at the same time. The shoreline to the east and southeast is steep with little exposed beach area. To the west side of the harbor is lower terrain and a wider expanse of exposed shoreline with several waterside industrial structures. Further to the west and north are tide flats. Anadromous streams and rivers are in the immediate area of the spill. The closest harbor to Skagway is Haines, 17 miles to the southwest.
Vessel	Cruise Ship North Star
Location	Skagway Harbor - 59 26.9' N, 135 19' 4 W
Date	June 4, 1999
Time	0530

Weather	Day 1 Winds SE 18 knots, Visibility 1 mile, Seas < 1 foot Day 2 Winds S 10 knots, Visibility 3 miles, Seas < 1 foot
Oil Loss	35,000 gallons Number 6 Bunker Oil
Scenario Duration	Day 1 - 1000 Gallons Per Hour Day 2 - 500 Gallons Per Hour
Oil Type	Persistent Oil - Specific Gravity of .92
Bunker Oil Capacity	3,200 Metric Tons (958,532 US gallons)
Potential Trajectories	See Appendix A.
Logistical Support	See Appendix B.

### 4.3.1 Situation

At 0530, June 4, 1999, the foreign-flagged cruise ship North Star runs aground after experiencing a steering failure. The vessel is carrying 21,000 barrels of number 6 bunker fuel oil. The vessel was underway to Haines with 650 passengers aboard. After losing steering, the vessel reverses engines and attempts to maneuver with thruster to avoid grounding or a collision. The anchor is deployed but fails to hold. The vessel grounds on the east side of the breakwater. The vessel sustains damage to the port forward bunker fuel tanks. Bunker oil is observed on the water surface forward of the vessel and alongside the port side of the vessel. High tide will occur at 0615 local time at 12.5 feet; next low tide will be 2010 local time. The winds are light, 18 knots out of the southeast, and tide and current will move the oil in a northerly direction.

### 4.3.2 Initial Action

Immediately after the grounding, the Master of the North Star notifies their home office who in turn notifies the USCG Command center in Juneau and ADEC. The owner/operator of the vessel accepts responsibility for the spill when contacted by the FOOSC, Commanding Officer of MSO Juneau. A temporary Unified Command post is established at MSO Juneau until a Command Post can be established in Skagway. The makeup of the temporary Unified Command post is the Commanding Officer, MSO Juneau (FOOSC), ADEC (SOSC), and a representative from the RP.

The USCG Command Center in Juneau dispatches vessels for any necessary Search and Rescue assistance. The time frame for the evacuation of the passengers will depend on the structural integrity and stability of the vessel.

The following additional actions are requested and taken by the unified command:

- FAA - Restricted air space over the vessel.
- ADFG and USFWS - Dispatch for biological and marine monitoring.
- Local Spill Cooperative - RP contracts to coordinate initial cleanup activities.
- USCG - Local Notice to Mariners.

- NOAA - Spill trajectories are requested from the SSC.
- NRC and PST - Notified of incident.

### 4.3.3 Strategies

Placement of containment and deflection boom for the protection of sensitive areas and resources is the priority under this GRP. Secondary strategies addressed under spill contingency plans (RP, Southeast SCP, etc.) are listed below and are not addressed herein.

- Placement of containment and deflection boom to stop the spread of oil.
- Open water recovery as skimmers become available.
- Staging and storage requirements for the recovered oil.
- Shoreline cleanup prioritization and cleanup resource requirements.

### 4.3.4 Boom Deployment

Response equipment for oil of this type is not readily available in the immediate area. Initially, the first objective is the identification of all readily available boom and determining shortfalls. The immediate deployment strategy of available boom should be based on the initial spill trajectories and in a defensive manner for the protection of sensitive areas and resources. Available boom will be used to safeguard sensitive areas.

The trajectories provided by NOAA and included in Appendix A indicate the oil moving to the northwest across Taiya Inlet, and north into the Skagway Boat Harbor and the Skagway River, Nahku Bay and the mouth of the Taiya River. Sensitive areas (discussed in Section 3.0) that could be impacted by the spread of oil include the Skagway River and Flats, archeological sites in Skagway, Pullen and Burro Creeks hatcheries, Dyea Flats, Taiya River Mouth, and Nahku Bay.

Boom deployment will be arranged to protect sensitive areas in the path of the spill trajectory. Boom will be deployed to divert oil away from the mouth of Skagway River, Pullen Creek, Dyea Flats, and the Taiya River Mouth. Additional boom to be transported to Burro Creek Hatchery for deployment. If available, log boom will be deployed for diversion protection of Nahku Bay.

## 4.4 Skagway Scenario No. 2: Non-Persistent Oil from Unregulated Vessel

Site Description	Skagway Harbor, 59 26.9' N, 135 19' 4 W Skagway Harbor is a southwesterly facing harbor. Water depths and dock configurations support the mooring of multiple cruise ships at the same time. The shoreline to the east and southeast is steep with little exposed beach area. To the west side of the harbor is lower terrain and
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a wider expanse of exposed shoreline with several water-side industrial structures. Further to the west and north are tide flats. Anadromous stream and rivers are in the immediate area of the spill. The closest harbor to Skagway is Haines, 17 miles to the southwest.

Vessel	Towing Vessel Big Pull and Barge Northern Hauler
Location	Skagway Harbor 59 26.9' N, 135 19' 4 W
Date	June 4, 1999
Time	0530
Weather	Day 1 Winds SE 18 knots, Visibility 1 mile, Seas < 1 foot Day 2 Winds S 10 knots, Visibility 3 miles, Seas < 1 foot
Oil Loss	20,000 gallons Number 1 Diesel Bunker Fuel
Scenario Duration	Day 1 - 15,000 gallons Instantaneous Release Day 2 - 350 Gallons Per Hour
Potential Trajectories	See Appendix A.
Logistical Support	See Appendix B.

#### 4.4.1 Situation

At 0530, June 4, 1999, the single screw towing vessel Big Pull with the freight barge Northern Hauler in tow is heading in a northerly direction in Chilkoot Inlet, making final preparations to dock at Skagway. The towing vessel Big Pull has shifted from the previous towing arrangement and is now on the starboard side of the barge. The towing vessel Big Pull experiences a propulsion system failure and is unable to control the barge. The anchor on the tug is deployed and has little affect on the situation. Southeast winds at 18 knots and the incoming tide push the barge with the tug alongside into the Skagway Harbor Breakwater. The tug is between the barge and the breakwater. The towing vessel Big Pull sustains extensive structural hull damage. Immediately after the grounding, oil is observed on the water on all sides of the vessel's present location. High tide will occur at 0615 local time; next low tide will be at 2010 local time. The winds are light at 18 knots out of the southeast, and tide and current will move the oil in a northerly direction.

#### 4.4.2 Initial Action

Immediately after the grounding, the Master of the Big Pull notifies their home office who in turn notifies the USCG Command center in Juneau and the ADEC. The owner/operator of the vessel accepts responsibility for the spill when contacted by the FOOSC, Commanding Officer of MSO Juneau. A temporary Unified Command post is established at the MSO Juneau until a command post can be established in Skagway. The makeup of the temporary Unified Command post is the Commanding Officer, MSO Juneau (FOOSC) ADEC (SOSC), and a representative from the RP. The USCG Command Center in Juneau dispatches vessels for any necessary Search and Rescue assistance.

The following additional actions are requested and taken by the Unified Command:

- FAA - Restricted air space over the vessel.
- ADFG and USFWS - Dispatch for biological and marine monitoring.
- Local Spill Cooperative - RP contracts to coordinate initial cleanup activities.
- USCG - Local Notice to Mariners.
- NOAA - Spill trajectories are requested from the SSC.
- NRC and PST - Notified of incident.

#### **4.4.3 Strategies**

Placement of containment and deflection boom for the protection of sensitive areas and resources is the priority under this GRP. Secondary strategies addressed under spill contingency plans (RP, Southeast SCP, etc.) are listed below and are not addressed herein.

- Placement of containment and deflection boom to stop the spread of oil.
- Open water recovery as skimmers become available.
- Staging and storage requirements for the recovered oil.
- Shoreline cleanup prioritization and cleanup resource requirements.

#### **4.4.4 Boom Deployment**

Response equipment for oil of this type is readily available in this area. The primary objective is the identification of readily available boom. The immediate deployment strategy of available boom should be based on the initial spill trajectories and in a defensive manner for the protection of sensitive areas and resources.

1,000 feet of boom is available in the first hour with an additional 3,000 feet of boom available within 1 hour. Two rope mop skimmers are also available.

The trajectories provided by NOAA and included in Appendix A indicate the oil moving to the northwest past Yakutania Point across Taiya Inlet, and north into the Skagway Boat Harbor and the Skagway River, Nahku Bay, and the mouth of the Taiya River. Sensitive areas (discussed in Section 3.0) that could be impacted by the spread of oil include the Skagway River and Flats, archeological sites in Skagway, Pullen and Burro Creeks hatcheries, Dyea Flats, Taiya River Mouth, and Nahku Bay.

Boom deployment will be arranged to protect sensitive areas in the path of the spill trajectory. Boom will be deployed to divert oil away from the mouth of Skagway River, Pullen Creek, Dyea Flats, and the Taiya River Mouth. Additional boom to be transported to Burro Creek Hatchery for deployment. If available, log boom will be deployed for diversion protection of Nahku Bay.

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## 5.0 SENSITIVE AREA SITE-SPECIFIC PROTECTION STRATEGIES

### 5.1 Katzehin River Flats

#### 5.1.1 Site Description

The Katzehin River runs through the Tongass National Forest and empties into Lynn Canal south of Haines and on the east side of the Chilkoot Inlet (Figure C1 in Appendix C).

#### 5.1.2 Protection Strategies

With an exposure of more than 1.5 miles, deploying boom to protect the Katzehin River Flats will have a low rate of effectiveness. The defensive approach to take is one of exclusion.

- 500 feet of containment boom anchored to shore south of the exposure of the flats at low tide and deployed in a southwesterly direction. The boom arrangement will be for oil collection.
- 300 feet of boom anchored to shore 100 yards south in the same configuration.
- Three 500-foot sections of diversion boom arranged in a cascade manner to deflect the oil across the seaward side of the flats. The arrangement of the boom will be in the southern sector of the flats. The outflow of water from Katzehin River should provide positive assistance with the deflection of oil in the northern sector.
- 300-foot section of diversion boom anchored to shore 2,500 feet north of the navigational buoy. The boom shall be deployed in a northwesterly direction.

Appendix C includes boom deployment maps. Figure C1 shows the above boom locations in red. Note that boom length is not to scale on the map.

#### 5.1.3 Logistical Support

Vessels Needed:

- Six vessels to maintain the three tiers of boom used in a cascade manner. Vessels that transport the boom to the site can be used to maintain the boom on station. The vessel must have sufficient deck area to store and deploy the boom. Towing the boom to this location is not recommended.
- Two vessels to transport and deploy the containment boom that will be placed south of the Katzehin River Flats.
- Two vessels to deploy the deflection boom north of the Katzehin River Flats.

Aircraft Needed:

- The proper positioning of the tier boom is critical. A fixed wing aircraft can assist with the alignment of the boom and the origination to the flow of oil.

See Appendix B for more information on logistical support.

#### **5.1.4 Equipment Requirements**

2,600 feet of containment and deflection boom:

- 1,500 feet of 30- to 40-inch boom with towing bridles.
- 500 feet of 30-inch boom with anchors.
- Two 300-foot sections of 30-inch boom with anchors.

Three 60-pound Danforth anchors with 600 feet of ground tackle each.

## **5.2 Chilkoot Inlet and Portage Cove**

### **5.2.1 Site Description**

Portage Cove is located south of Lutak and Taiya Inlets on the west side of Chilkoot Inlet, which is the northern portion of Lynn Canal. Haines is located on the west side of Portage Cove (Figures C2 and C3).

### **5.2.2 Protection Strategies**

Haines Small Boat Harbor: 5,300 feet of exclusion and containment boom.

- Two 350-foot sections of exclusion boom to be placed across the opening to the harbor.
- 2,000 feet of exclusion boom to be placed along the face of the breakwater. Boom to be arranged to hold oil away from the rocks.
- 300 feet of containment boom anchored to shore 500 feet south of the harbor to the land projecting out into Portage Cove. The boom shall be arranged for the collection of oil.
- 300 feet of containment boom anchored to shore 6,000 feet north of the harbor. The boom shall be arranged for the collection of oil.

Cruise Ship Pier: 3,100 feet of containment boom.

- 2,000 feet of exclusion boom with each end anchored to shore. The boom will be arranged to form a barrier around the pier.
- Two 300-foot sections of containment boom. One section to be deployed north of the pier and another section to the south. The boom will be arranged to collect oil for recovery.
- 500-foot section of containment boom deployed in a southeasterly direction at Battery Point.

Appendix C includes boom deployment maps. Figure C2 shows the above boom locations, except for the boom at Battery Point, in red. Figure C3 shows the above boom locations, including the one at Battery Point, in red. Note that boom length is not to scale on the maps.

### 5.2.3 Logistical Support

Vessels Needed:

- Two vessels to deploy the boom secured to shore.
- Two vessels to deploy the boom across the face of the small boat harbor.
- Two vessels to deploy the boom at Battery Point.

Vehicles Needed:

- Trucks to deploy the boom around the cruise ship pier.

See Appendix B for more information on logistical support.

### 5.2.4 Equipment Requirements

6,400 feet of exclusion and containment boom:

- 700 feet of 24-inch of rigid exclusion boom.
- 5,200 feet of 20-inch boom.
- 500-foot section of 30-inch boom with anchors.

Five 60-pound Danforth anchors with 200 feet of ground tackle each.

## 5.3 Lutak Inlet

### 5.3.1 Site Description

Lutak Inlet is the northwestern branch of the Northern Lynn Canal, north of Haines (Figure C4).

### 5.3.2 Protection Strategies

State Ferry Dock Facilities (750-foot City Pier): 1,800 feet of containment boom.

- 1,200 feet of containment boom. The ends of the boom are anchored to shore north and south of the dock. Anchors are deployed to keep the boom away from the dock.
- Two 300-foot sections of containment boom are anchored to shore, north and south of the dock. Oil recovery locations are established at the shore connection point.

Taiyasanka Harbor: 1,900 feet of exclusion boom, containment and shore seal boom

- 700 feet of exclusion boom placed between the narrow point across the entrance to the harbor.
- Two 200-foot sections of shore seal boom are also anchored to shore inside of the exclusion boom. One section on each end of the exclusion boom.
- 500 feet of containment boom anchored to shore and deployed in a southerly direction.
- 300 feet of containment boom anchored to Taiya Point and deployed in a southeasterly direction.
- The shoreline between the two boom shore anchor points will be a sacrificial beach for the collection and recovery of oil.

Chilkoot River: 5,900 feet containment boom and exclusion boom

- 500 feet of containment boom anchored to the shore east of Shakuseyi Creek and deployed in a northeasterly direction.
- 500 feet of containment boom anchored to shore directly north of the Shakuseyi Creek boom and deployed on a southeasterly direction.
- 200 feet of containment boom anchored to shore 100 yards east of the north boom and deployed in a southeasterly direction.
- 4,000 feet of shore seal boom deployed north to south across the Chilkoot River flats. The boom will be secured to shore at each end.
- 200 feet of exclusion boom for deployment across the mouth of the river.
- 500 feet of containment boom deployed in a southeasterly direction at Tanani Point.

Appendix C includes boom deployment maps. Figure C4 shows the above boom locations in red. Note that boom length is not to scale on the map.

### 5.3.3 Logistical Support

Vessels:

- Six vessels will be required to deploy the boom at Taiya Point and Taiyasanka Harbor.
- Three vessels will be required to deploy the boom east of the Chilkoot River flats.
- One shallow-draft landing craft type vessel to transport and provide a work platform for the placement of the shore seal boom.

See Appendix B for more information on logistical support.

### 5.3.4 Equipment Requirements

9,600 feet of exclusion, containment, and shore seal boom:

- 3,100 feet of 24-inch boom
- 2,100 feet of 30-inch boom

- 4,400 feet of shore seal boom

Five 60-pound Danforth anchors with 600 feet of ground tackle each.

## 5.4 Taiya Inlet

### 5.4.1 Site Description

Taiya Inlet is the northeastern branch of the northern end of the Lynn Canal. The town of Skagway is located on the east side of this inlet (Figures C5 and C6).

### 5.4.2 Protection Strategies

**Inlet Mouth:** The placement of boom at this location will be difficult to manage and anchor. Wind and tides will have a tremendous affect on any boom placement. The seaward end of any boom will require a vessel to tend and adjust deployment angles as conditions warrant.

- 300 feet of containment boom with the shore end secured to Taiya Point. The boom will be arranged in a southeasterly direction. The pump out point will be west of Taiya Point.
- 500 feet of containment boom with the shore end secured at Low Point.
- 300 feet of containment boom with the shore end secured 2,000 feet south of Low Point.

Appendix C includes boom deployment maps. Figure C5 shows the above boom locations in red. Note that boom length is not to scale on the map.

**Dyea Flats:** 4,500 feet containment and shore seal boom

- 500 feet of containment boom secured to the west side of the inlet, 6,000 feet from the mouth of the Taiya River (south west end of the flats).
- 500 feet of containment boom secured to the east side of the inlet, directly east of the west side boom (southeast end of the flats).
- 500 feet of containment boom secured to the east side of the inlet, 3,000 feet south of the north boom.
- 1000 feet of shore seal boom. One 500-foot section will be positioned 200 feet north of the boom positioned at the south end of the flats. The shore seal boom will provide additional protection against any oil that passes beyond the shore side anchor point (pump out points).
- 2,000 feet of viscous boom. One thousand feet of boom on each side of the inlet will be pre-positioned between the containment boom and the shore seal boom and stored on shore until needed.
- Tides washing over the flats will make boom tending and oil recovery difficult.

Nahku Bay: 1000 feet of containment boom.

- 500 feet of containment boom secured to the south end of the unnamed peninsula.
- 500 feet of containment boom secured 600 feet north of Yakutania Point.
- The shoreline between the two boom shore anchor points will be a sacrificial beach for the collection and recovery of oil.

Appendix C includes boom deployment maps. Figure C6 shows the above boom locations in red. Note that boom length is not to scale on the map.

### 5.4.3 Logistical Support

Vessels Needed:

- Three vessels will be required for initial boom deployment and maintaining the boom on station at the Burro Creek Hatchery.
- One vessel to tend the boom at Taiya Point.
- One landing craft type vessel to transport and provide a work platform for boom deployment at Dyea Flats.

Aircraft Needed:

- Aerial view point to assist with the placement of the boom.

See Appendix B for more information on logistical support.

### 5.4.4 Equipment Requirements

6,600 feet of containment and shore seal boom:

- 2,500 feet of 24-inch boom
- 1,100 feet of 30-inch boom
- 1,000 feet of shore seal boom
- 2,000 feet of viscous sweep boom
- Eight 60-pound Danforth anchors with 600 feet of ground tackle each.

## 5.5 Skagway Harbor

### 5.5.1 Site Description

Skagway Harbor is a southwesterly-facing harbor on the east side of Taiya Inlet (Figures C7 and C8). Water depths and dock configurations support the mooring of multiple cruise ships at the same time. The shoreline to the east and southeast is steep with little exposed beach area. To the west side of the harbor is lower terrain and a wider expanse of exposed shoreline with several water-side industrial structures. Further to the west and north are tide flats.

### 5.5.2 Protection Strategies

Small Boat Harbor: 1,550 feet of exclusion and diversion boom.

- 500 feet of exclusion boom across the mouth of the harbor.
- 650 feet of diversion boom along seaward side of the breakwater.
- 400 feet of exclusion boom from the northwest opening of the small boat harbor to the ferry dock.

State Ferry and Ore-Loading Dock (Pullen Creek).

- 700 feet of containment boom, southeast mouth of the Skagway River to the ferry dock.

Skagway River Mouth: 4,700 feet barrier, containment and viscous sweep boom.

- 500 feet of shore seal boom from the southeast mouth of the Skagway River to Yakutania Point.
- 1,200 feet of 24-inch containment boom from the southeast mouth of the Skagway River to Yakutania Point.
- 3,000 feet of viscous sweep boom behind the containment boom.

Pullen Creek: 250 feet of exclusion boom and viscous sweep boom.

- 50 feet of exclusion boom to be placed across the mouth of the creek (culvert) and secured to shore.
- 100 feet of viscous sweep boom placed inside the barrier boom and 100' of viscous sweep boom placed upstream of the culvert.

Burro Creek Hatchery: 3,200 feet of exclusion and deflection boom.

- 200 feet of exclusion boom arranged to provide a barrier at the mouth of Burro Creek.
- Deflection boom to be arranged to prevent the oil from reaching the barrier boom. Six 500-foot sections of deflection boom, three sections north of the river mouth and three sections south of the river mouth.

Appendix C includes boom deployment maps. Figures C7 and C8 show the above boom locations in red. Note that boom length is not to scale on the map.

### 5.5.3 Logistical Support

Vessels Needed:

- Three vessels will be required for initial boom deployment and maintaining the boom on station at the Burro Creek Hatchery.
- One landing craft type vessel to transport and provide a work platform for boom deployment at Skagway River Flats.

Vehicles Needed:

- Four vehicles (trucks) used to deploy and support boom deployment in and around Skagway Harbor.

Aircraft Needed:

- Aerial view point to assist with the placement of the boom.

See Appendix B for more information on logistical support.

#### **5.5.4 Equipment Requirements**

10,400 feet of diversion, deflection, exclusion, containment, and shore seal boom:

- 2,750 feet of 24-inch boom
- 3,000 feet of 30-inch boom
- 950 feet of 24-inch exclusion boom
- 500 feet of shore seal boom
- 3,200 feet of viscous sweep boom

Eleven 60-pound Danforth anchors with 600 feet of ground tackle each.



## **6.0 CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 Summary of Equipment Needs to Protect Environmentally Sensitive Areas**

Based on the priorities of protecting the environmentally sensitive areas, equipment needs for the Haines and Skagway areas of Northern Lynn Canal have been prepared. Priority 1, a defensive strategy to protect sensitive areas and resources identified in this plan, guided the development of this list. Priorities 2 and 3 listed below, including stopping the spread of oil and containment at the source, as well as oil recovery, were not considered in developing this equipment list.

Priority 1: Defensive strategy;

Priority 2: Stop the spreading oil and containment of oil at the source; and

Priority 3: Offensive strategy, which includes initiating recovery actions.

The priority system identified for the environmentally sensitive areas is in reverse of the priorities established in the contingency plans of RPs. Priorities 2 and 3, their response strategies, and equipment lists are addressed in spill contingency plans and are not included in this GRP.

The scenarios were developed for two types of oil, persistent and non-persistent, which resulted in different equipment needs. Equipment needs specific to the oil type are identified in the scenarios and are not repeated here. Due to response time frames, we determined that Haines and Skagway should maintain separate equipment inventories. Table 6-1 summarizes the equipment requirements for complete spill response kits to handle either oil type.

The equipment listed in Table 6-1 is manufactured by Action Petroleum. The following model numbers apply:

24-inch Boom	AP-2401
30-inch Boom	AP-3001
Shore Seal Boom	AP-SS10
20-inch Boom	AP-1803
24-inch Permanent Boom	AP-24PB (identified as “rigid exclusion boom in the table)
60-pound Anchor Buoy Kits	AP-AS60

**Table 6-1: Sensitive Areas Equipment Requirements**

<b>Equipment Description</b>	<b>Quantity</b>	<b>Storage Requirements</b>
<b>List of Katzehin River Equipment Requirements*</b>		
Booms		Will require one 40-foot connex
30-inch boom	2,600 feet	
Anchors		
Danforth, 60-lbs	3 units, 600' of ground tackle per unit	
<b>List of Chilkoot Inlet and Portage Cove Equipment Requirements*</b>		
Booms		Will require one 40-foot and one 20-foot connex
24-inch rigid exclusion boom	700 feet	
30-inch boom	500 feet	
20-inch boom	5,200 feet	
Anchors		
Danforth, 60-lbs	5 units, 200' of ground tackle per unit	
<b>List of Lutak Inlet Equipment Requirements*</b>		
Booms		Will require one 40-foot and one 20-foot connex
24-inch boom	3,100 feet	
30-inch boom	2,100 feet	
Shore seal boom	4,400 feet	
Anchors		
Danforth, 60-lbs	5 units, 600' of ground tackle per unit	
<b>List of Taiya Inlet Equipment Requirements*</b>		
Booms		Will require one 40-foot and one 20-foot connex
24-inch boom	2,500 feet	
30-inch boom	1,100 feet	
Shore seal boom	1,000 feet	
Viscous sweep boom	2,000 feet	
Anchors		
Danforth, 60-lbs	8 units, 600' of ground tackle per unit	
<b>List of Skagway Harbor Equipment Requirements</b>		
Booms		Will require one 40-foot connex
24-inch boom	3,700 feet	
30-inch boom	3,000 feet	
Shore seal boom	500 feet	
Viscous sweep boom	3,200 feet	
Anchors		
Danforth, 60-lbs	11 units, 600' of ground tackle per unit	

\* This equipment will be stored in Haines. The connex configuration can be combined into five 40-foot and one 20-foot connex for the first four areas listed above.

To support the defensive strategy, additional miscellaneous equipment is required such as sorbent pads, sorbent sweeps, oil snares, lift bags, nylon line, cargo straps, and tow lines. This miscellaneous equipment should be included in the staged equipment deployment.

## **6.2 Comparison of Available Equipment to Equipment Needs**

A comparison to ADEC in-region equipment inventories indicated deficiencies that would hinder the implementation of a near-shore defensive strategy. Based on a review of the obtained equipment lists, it appears that the ADEC and USCG lack the length of necessary boom, the skimmers, and the containers to implement the defensive strategy. The ADEC and USCG lists do appear to contain the miscellaneous equipment, such as sorbent pads, sorbent sweeps, etc., necessary for the initial implementation of the defensive strategy. This comparison focused on in-region equipment. The ADEC currently maintains 1,000 feet of 8-inch by 12-inch boom in both Haines and Skagway. This boom is not sufficient to respond to the type and size of spills identified in the scenarios in Section 4.0. This boom is more appropriately used in small releases, such as an overflow at the fuel docks of the small boat harbors.

## **6.3 Recommendations for Additional Equipment**

The current equipment inventories are inadequate to implement the defensive strategy required by the GRP. The present equipment should be considered a supplement to the equipment vital to implement the near-shore defensive strategy. An equipment supply containing the items listed in Table 6-1 is recommended to successfully protect the sensitive environments of Northern Lynn Canal.

## **6.4 List of Recommended Upgrade Work**

It is recommended that the ADEC consider establishing a contracted list of vessels that are targeted to meet the protective goals of the GRP. These vessels should be contracted exclusively to support the GRP and not be part of an RP's contingency plan.

In reality, if a spill of significant magnitude occurred in Northern Lynn Canal, it is likely that vessel owners would contract with the highest paying party, regardless of previous exclusive contracts. For this reason, the purchase of response skiffs for the Skagway and Haines harbormasters should be considered.

It should be noted that one response skiff dedicated to each community is inadequate to provide the defensive strategies outlined in this GRP. As discussed in the protective strategies in Section 5.2 for the Haines boat harbor, two vessels are required to deploy boom across the face of the boat harbor, and four vessels are required for implementing the GRP tactics in other sensitive areas near Haines. In Skagway, four vehicles can be used to deploy boom around and in the boat harbor. However, four vessels are needed to deploy boom at other sensitive areas around Skagway.

## 6.5 Cost Estimate

The following cost estimate has been prepared for the equipment listed in Table 6-1.

**Table 6-2: Northern Lynn Canal GRP Equipment Cost Estimate**

Equipment Description	Quantity	Unit Cost	Sub-Total	Total
<b>List of Katzehin River Equipment Requirements</b>				
Booms*				
30-inch boom	2,600 feet	\$20.50/linear foot	\$53,300	
Anchors				
Danforth, 60-lbs	3 units with 600' ground tackle per unit	\$450/unit	\$1,350	\$54,650
<b>List of Chilkoot Inlet and Portage Cove Equipment Requirements</b>				
Booms*				
24-inch rigid exclusion boom	700 feet	\$32.75/linear foot	\$22,925	
30-inch boom	500 feet	\$20.50/linear foot	\$10,250	
20-inch boom	5,200 feet	\$10.60/linear foot	\$55,120	
Anchors				
Danforth, 60-lbs	5 units with 200' ground tackle per unit	\$425/unit	\$2,125	\$90,420
<b>List of Lutak Inlet Equipment Requirements</b>				
Booms*				
24-inch boom	3,100 feet	\$11.60/linear foot	\$35,960	
30-inch boom	2,100 feet	\$20.50/linear foot	\$43,050	
Shore seal boom	4,400 feet	\$21.50/linear foot	\$94,600	
Anchors				
Danforth, 60-lbs	5 units with 600' ground tackle per unit	\$450/unit	\$2,250	\$175,860
<b>List of Taiya Inlet Equipment Requirements</b>				
Booms*				
24-inch boom	2,500 feet	\$11.60/linear foot	\$29,000	
30-inch boom	1,100 feet	\$20.50	\$22,550	
Shore seal boom	1,000 feet	\$21.50/linear foot	\$21,500	
Viscous sweep boom	2,000 feet	\$1.90/linear foot	\$3,800	
Anchors				
Danforth, 60-lbs	8 units with 600' ground tackle per unit	\$450/unit	\$3,600	\$80,450
<b>List of Skagway Harbor Equipment Requirements</b>				
Booms*				
24-inch boom	3,700 feet	\$11.60/linear foot	\$42,920	
30-inch boom	3,000 feet	\$20.50/linear foot	\$61,500	
Shore seal boom	500 feet	\$21.50/linear foot	\$10,750	
Viscous sweep boom	3,200 feet	\$1.90/linear foot	\$6,080	
Anchors				
Danforth, 60-lbs	11 units with 600' ground tackle per unit	\$450/unit	\$4,950	\$126,200
<b>NORTHERN LYNN CANAL GRP EQUIPMENT TOTAL COST</b>				<b>\$527,580</b>

Prices for cost estimate provided by Unitech of Alaska, Inc., Anchorage (tel. 800-649-5859).

\* All boom prices include:

- 2 each tow bridles for every 500 feet of boom
- 1 each 15-foot x 30-foot slick sheet for deployment on docks (per 1000feet of boom)
- 1 each Boom Deployment Training Video per location

This total cost estimate is significantly higher than the \$200,000 ADEC identified as the maximum amount in the Request for Proposal (RFP) for this project. This cost estimate indicates that a larger budget should be considered for the response equipment needed to protect sensitive areas in Northern Lynn Canal.

The estimate is broken into the five sensitive areas described in Section 5.0 and identified in the RFP by the ADEC as the areas to consider for this project. Each of the estimates for the five areas exceeds the \$40,000 average that would be allowed for each area under the original ADEC estimate. This breakdown should help ADEC to prioritize the five areas so that equipment may be purchased to protect a lesser number of sensitive areas that are individually determined to be more sensitive or more significant than other locations, should additional monies be unavailable.

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## **7.0 CLOSURE/LIMITATIONS**

This document was prepared for the exclusive use of the client and their representatives for evaluating the project as it relates to the aspects discussed herein. The conclusions and recommendations contained in this report are based on information provided from document research, personal interviews, and other conditions described herein. The data presented in this report should be considered representative of the time of publication. Changes due to natural processes or human activity can occur. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations applicable to this project may need to be revised.

Shannon & Wilson has prepared the attachments in Appendix D “Important Information About Your Environmental Site Assessment/Evaluation Report” to assist you and others in understanding the use and limitations of our report.

### **SHANNON & WILSON, INC.**

Prepared By:

Approved By:

Lydia Miner  
Geologist IV

Robert N. Braunstein, C.P.G.  
Senior Associate

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## 8.0 REFERENCES

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- Stokely, Robert, Haines Harbor Master, Personal Communications, March 1999.

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**APPENDIX A**  
**TRAJECTORIES FROM**  
**NOAA HAZARDOUS MATERIALS RESPONSE DIVISION**

**APPENDIX B**

**LOGISTICAL SUPPORT/MOBILIZATION**

**APPENDIX C**  
**DEPLOYMENT MAPS**

**APPENDIX D**

**IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL SITE**

**ASSESSMENT/EVALUATION REPORT**