DELTA WESTERN, LLC
KETCHIKAN BULK FACILITY

OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN (CPLAN)

required by:
18 AAC 75

Operated by:
Delta Western, LLC

Plan Date: March 2025
Last Revised: Not Applicable (Original Issuance, 5-Year Renewal)

Certificate of Approval

Plan Contents

18 AAC 75.448(a)

As required, by 18 Alaska Administrative Code (AAC) 75.448(a), this plan was written to:

- Be usable as a working plan for oil discharge control, containment, cleanup, and disposal;
- Contain enough information, analyses, supporting data, and documentation to demonstrate the ability of Delta Western, LLC (DW) to meet the requirements of Alaska Statute (AS) 46.04.030, AS 46.04.055(c)(2), and 18 AAC 75.400 – 18 AAC 75.495;
- Demonstrate that the personnel, equipment, and other resources identified in the plan are sufficient for meeting each response planning standard (RPS) applicable for each facility in the plan; and
- Take into account realistic maximum operating limitations and their effects on response capability and the deployment of resources.

Greatest Possible Discharge

18 AAC 75.448(b)

DW considers the greatest possible discharge (GPD) that could occur at the facility covered by this plan to be the facility's total oil storage of 1,188,324 gallons[1]. The general procedures to respond to a discharge of this magnitude are described throughout this plan and addressed specifically in Section 1.8.

Field Constructed Aboveground Storage Tank (FCAST) Total	1,052,000	gallons
Shop Fabricated Aboveground Storage Tank (SFAST) Total	130,000	gallons
Piping Total	6,324	gallons
Facility Total / GPD	**1,188,324**	**gallons**

[1] The volume presented here assumes the full capacity (100%) of every aboveground storage tank of 1,000 gallons or greater plus the full capacity (100%) of every component of facility oil piping, and assumes the complete and utter failure of all containment capacity. In reality, DW does not fill tanks to full capacity (100%) and the conditions that would result in the catastrophic failure of every aboveground storage tank, all facility oil piping, and all containment structures are few.

Cover Page

18 AAC 75.448(d)

Official Plan Title	DELTA WESTERN, LLC KETCHIKAN BULK FACILITY OIL DISCHARGE PREVENTION AND CONTINGENCY PLAN
Date of Plan	March 2025

I have the appropriate authority under 18 AAC 75.408(b) to commit the oil discharge prevention and response resources necessary to implement this plan.

Name	Henry Palmer
Title	President
Signature	Henry Palmer Henry Palmer (Mar 27, 2025 15:02 AKDT)
Date	03/27/25

Plan Organization

18 AAC 75.448(e)

As required by 18 AAC 75.448(e), this plan was written to:

- Consist of the five parts and contain the information described in 18 AAC 75.449 – 18 AAC 75.453;
- Contain a complete table of contents and lists of tables and/or figures referenced in the table of contents as each section appendix as well as a detailed list at the beginning of each section appendix; and
- Include a cross-reference table that directs the reader to the appropriate information.

These specific requirements can be found as follows:

Five Parts	Sections 1, 2, 3, 4, and 5, respectively
Table of Contents	Begins on page iv
Cross-Reference Table	Begins on page viii

Table of Contents

The table of contents provides a structured guide for navigating this document. Certain tables, figures, forms, and other embedded elements are assigned page numbers. While in most cases these page numbers appear on the pages, some do not.

Cross-Reference Table

While this plan is presented in the order shown in 18 AAC 75.449 – 18 AAC 75.453, as required by 18 AAC 75.448(e), the following cross reference tables are provided to direct the reader to the appropriate information. Where multiple references appear, the first one is the primary section in which the content is addressed followed by any and all cross references contained within that section. If section specific cross-reference tables are provided, only the primary cross-reference is provided here.

18 AAC 75.448

Citation	Description	Plan Section
(a)	Plan contents	Plan Contents
(b)	Greatest possible discharge	Greatest Possible Discharge
(c)	Multiple operations	Not Applicable
(d)	Cover page	Cover Page
(e)	Plan requirements	Plan Organization

18 AAC 75.449

Citation	Description	Plan Section
(a)	Response action plan	1
(a)(1)	Emergency action checklist	1.1
(a)(2)	Reporting and notification	1.2
(a)(3)	Safety plan	1.3
(a)(4)	Communications procedures	1.4
(a)(5)	Deployment strategies	1.5, 1.1
(a)(6)	Response scenario	1.6[2], Response Scenario, 6.2
(a)(7)	Additional requirements – exploration & production	Not Applicable
(a)(8)	Nonmechanical response options	Not Applicable
(a)(9)	Facility diagrams	1.7
(a)(10)	General procedures for greatest possible discharge	1.8, 5
(b)	Definitions	Not Actionable

[2] As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference here: 2025_03_KTN – CPLAN Response Scenario_REV 0

18 AAC 75.450

Citation	Description	Plan Section
(a)	Prevention plan	2
(b)	Prevention plan contents	See Below
(b)(1)	Discharge prevention programs	2.1
(b)(2)	Facility discharge history	2.2
(b)(3)	Potential discharge analysis	2.3
(b)(4)	Specific conditions	2.4
(b)(5)	Discharge detection	2.5
(b)(6)	Waivers	Not Applicable

18 AAC 75.451

Citation	Description	Plan Section
(a)	Supplemental information	3
(b)	Facility description and operational overview	2.1.6
(b)(1)	Aboveground storage tanks >10,000 gallons	2.1.6
(b)(2)	Aboveground storage tanks >1,000 and ≤ 10,000 gallons	2.1.6
(b)(3)	Information specific to vessels	Not Applicable
(b)(4)	Information specific to railroads	Not Applicable
(b)(5)	Procedures for loading / transfer	2.1.5
(b)(6)	Information specific to production facilities	Not Applicable
(b)(7)	Piping diagram	1.7
(b)(8)	Information specific to transmission pipelines	Not Applicable
(c)	Receiving environment	3.1, 1.7, 5, Response Scenario
(d)	Command system	3.2, 1.2
(e)	Realistic maximum response operating limitations summary	3.3
(f)	Logistical support	3.4
(g)	Response equipment	3.5, Response Scenario
(h)	Response equipment specifications	3.6, Response Scenario
(i)	Primary response action contractor	3.7
(j)	Training for discharge response personnel	3.8, 2.1.1

Citation	Description	Plan Section
(k)	Environmentally sensitive areas and areas of public concern	3.9, 6.2, Response Scenario
(l)	List of resources for greatest possible discharge	3.10, 1.8
(m)	Additional information	3.11
(n)	Bibliography	3.12
(o)	Definitions applicable to this section	Not Actionable

18 AAC 75.452

Citation	Description	Plan Section
--	Best available technology review	4

18 AAC 75.453

Citation	Description	Plan Section
--	Response planning standard	5

1 Response Action Plan

18 AAC 75.449(a)

The Response Action Plan, which comprises Section 1 of this plan, is designed to clearly guide responders in an emergency event.

1.1 Emergency Action Checklist

18 AAC 75.449(a)(1)

Below is a short checklist, immediately available to response personnel while on duty, of the immediate response and notification steps to be taken if an oil discharge occurs.

Safety	• Warn persons in the immediate area, activate internal alarms • Eliminate sources of ignition, if safe to do so • Determine safety requirements • Identify the character, source, amount, and extent of the release and other pertinent information needed for notification
Initial Control & Containment	• Stop the flow at the source • Transfer product out of damaged tank, vessel, and/or piping • Assess and implement prompt removal actions to contain and remove the spilled substance • Deploy containment boom and response equipment, as needed • Construct a containment berm • Divert discharged oil to a collection area
Reporting & Notifications	Notify immediate supervisor, Facility Manager, facility response personnel, emergency responders (i.e., 911), Qualified Individual (QI), and agencies as applicable[3]
Transfer of Command	The initial on scene coordinator (IOSC) shall direct cleanup activities until relieved of this responsibility by an incoming Incident Commander (IC)

[3] Notification requirements vary based on each incident, as described throughout this plan.

1.2 Reporting and Notification

18 AAC 75.449(a)(2)

All DW personnel have been trained to report spills to their immediate supervisor and the Facility Manager, regardless of hour of day. The individual discovering the spill, the immediate supervisor, or the Facility Manager, is then required by company policy to notify a company-designated QI.

Company-designated QIs typically make all agency notifications[4]. Company-designated QI names and phone numbers are presented in Table 1-1.

In the event a spill meets a regulatory-defined reporting threshold, notification to the appropriate government agency/agencies will be made. The criteria for reporting spills and the telephone numbers for government agency/agencies that may require notification are presented in Tables 1-2A and 1-2B.

Contact information for potentially impacted groups is presented in Table 1-2C.

[4] Immediate supervisors and Facility Managers are also authorized to make agency notifications in the unlikely event a company-designated QI is unable to be reached within a reasonable amount of time.

Table 1-1: Designated QI Names & Phone Numbers

Primary	Cell Phone Number	Office Phone Number
Christina Bentz	907-331-8075	907-265-3836
Wyatt Morgan	907-280-8038	907-265-3825
Garret Lyons	907-841-5348	907-265-3838

Table 1-2A: Regulatory Reporting Thresholds

State	Administrative Agency	Substance Spilled	Spill Location	Reporting Quantity	Links to Regulations	Contact Information
Alaska	Alaska Department of Environmental Conservation's Division of Spill Prevention and Response	Hazardous substances	On Land	Any release must be reported as soon as the person has knowledge.	18 AAC 75.300	DEC Response Team office: 1-800-478-9300 Call International: 1-907-269-0667 Report Online: ReportSpills.alaska.gov
Alaska	Alaska Department of Environmental Conservation's Division of Spill Prevention and Response	Hazardous substances	Into Water	Any release must be reported as soon as the person has knowledge.	18 AAC 75.300	DEC Response Team office: 1-800-478-9300 Call International: 1-907-269-0667 Report Online: ReportSpills.alaska.gov
Alaska	Alaska Department of Environmental Conservation's Division of Spill Prevention and Response	Petroleum/Oil from a facility and not a UST	On Land	Any release of oil in excess of 55 gallons must be reported as soon as the person has knowledge.	18 AAC 75.300	DEC Response Team office: 1-800-478-9300 Call International: 1-907-269-0667 Report Online: ReportSpills.alaska.gov
Alaska	Alaska Department of Environmental Conservation's Division of Spill Prevention and Response	Petroleum/Oil from a facility and not a UST	On Land	Any release of oil in excess of 10 gallons but less than 55 gallons must be reported within 48 hours of discovery.	18 AAC 75.300	DEC Response Team office: 1-800-478-9300 Call International: 1-907-269-0667 Report Online: ReportSpills.alaska.gov
Alaska	Alaska Department of Environmental Conservation's Division of Spill Prevention and Response	Petroleum/Oil from a facility and not a UST	Into Water	Any release of oil must be reported as soon as the person has knowledge of discharge.	18 AAC 75.300	DEC Response Team office: 1-800-478-9300 Call International: 1-907-269-0667 Report Online: ReportSpills.alaska.gov
Alaska	Alaska Department of Environmental Conservation's Division of Spill Prevention and Response	Petroleum/Oil from a facility and not a UST	To Impermeable Secondary Containment Area	Any release of oil in excess of 55 gallons must be reported within 48 hours after the person has knowledge of the discharge .	18 AAC 75.300	DEC Response Team office: 1-800-478-9300 Call International: 1-907-269-0667 Report Online: ReportSpills.alaska.gov
EPA	United States Environmental Protection Agency	Oil	On Water, Adjoining Shorelines	Any discharge in violation of Section 311(b0(3) of the Clean Water Act must be remoted immediately.	https://www.ecfr.gov/current/title-40/section-300.300	National Response Center: 1-800-424-8802
EPA	United States Environmental Protection Agency	Hazardous substance	Any	Any release that equals or exceeds the reportable quantity in 40 CFR 302.4 must be reported immediately.	https://www.ecfr.gov/current/title-40/section-302.6	National Response Center: 1-800-424-8802
CG	United States Coast Guard	Oil	On Water	Any discharge in violation of Section 311(b0(3) of the Clean Water Act must be remoted immediately.	https://www.ecfr.gov/current/title-33/section-153.203	National Response Center: 1-800-424-8802
CG	United States Coast Guard	Hazardous substance	On Water	Any discharge in violation of Section 311(b0(3) of the Clean Water Act must be remoted immediately.	https://www.ecfr.gov/current/title-33/section-153.203	National Response Center: 1-800-424-8802

Table 1-2B: Government Agency Phone Numbers

Type	Entity Name	Phone #	Phone # Notes
Emergency Planning	Emergency Planning	907-225-9616	
Emergency Planning	Local Emergency Planning Committee (LEPC)	907-228-6618	
Emergency Planning	SERC	907-428-7000	
Federal Agency	CG Marine Safety Detachment (MSD) Ketchikan	907-225-4496	
Federal Agency	CG Sector Juneau	907-463-2980	
Federal Agency	EPA Anchorage	907-271-5083	
Federal Agency	EPA Region 10	206-553-1263	
Federal Agency	US Fish & Wildlife Service (USF&W)	907-242-6893	
Federal Agency	US National Marine Fisheries (NMFS)	907-271-5006	
State Agency	ADEC Southeast Region Day Time Reporting	907-465-5340	
State Agency	ADEC After Hours	1-800-478-9300	
State Agency	Alaska Department of Natural Resources (ADNR) Office of History and Archeology	907-269-8728	or 907-269-8718
State Agency	Alaska Department of Natural Resources (ADNR) Office of History and Archeology	907-269-8721	OHA Desk
State Agency	Alaska Department of Natural Resources (ADNR) Statewide Abatement of Impaired Land	907-465-3400	or 907-465-3513
State Agency	Alaska Department of Fish and Game (ADF&G) Anchorage	907-267-2541	
State Agency	Alaska (AK) Division of Homeland Security/Emergency Management	907-428-7000	

Table 1-2C: Potentially Impacted Groups Contacts

Type	Entity Name	Phone #	Phone # Notes
Local Public Safety	Fire and Police	911	
Local Public Safety	Alaska State Troopers	907-225-5118	
Local Public Safety	Ketchikan Harbormaster	907-228-5637	
Local Public Safety	Ketchikan Medical Clinic	907-225-5144	
Local Public Safety	Ketchikan General Hospital	907-225-5171	
Local Public Safety	Ketchikan Public Utilities	907-225-1122	
Local Public Water Intakes	Ward Cove Deli & Liquor	907-2478200	
Local Seafood Processors	Fish From Trish	907-220-0668	
Local Seafood Processors	Seabright	508-971-1180	
Local Seafood Processors	Hump Island Oyster	907-225-7917	
Local Seafood Processors	Oceans Alaska	907-225-7900	
Local Seafood Processors	Seagrove Kelp	206-321-3443	
Local Tribal Organization	Ketchikan Indian Community	907-228-4900	
Local Tribal Organization	Ketchikan Indian Community	907-228-9499	after hours

1.3 Safety Plan

18 AAC 75.449(a)(3)

Safety of personnel, responders, and the public are prioritized in the event of a spill. In the event of a spill for which a full incident management team (IMT)/spill management team (SMT) activation is needed, an incident-specific safety plan may be developed by the assigned Safety Officer (SO) or designee. DW anticipates utilizing the Incident Command System (ICS) Form 208, if needed[5].

1.4 Communications Procedures

18 AAC 75.449(a)(4)

The IOSC, IC, or designee, will be responsible for establishing field communications procedures. This includes, but is not limited to, establishing radio channels/frequencies and their appropriate usage by response personnel. DW relies primarily on the following means of communication:

- Cellular phones
- Very High Frequency (VHF) radios
- Land lines
- Microsoft Teams

DW communications can be supplemented by Primary Response Action Contractor (PRAC), Oil Spill Response Organization (OSRO), parent company, contractor, and/or IMT/SMT communications equipment. In addition, various state and federal agencies in Alaska maintain communications equipment, which may be available in the event of a spill response.

In the event of a spill for which full IMT/SMT activation is needed, an incident-specific communications list and/or an incident radio communication plan may be developed. DW anticipates utilizing the ICS 205A and/or ICS 205, if needed. In all other instances, DW will rely on existing means of communication.

With respect to VHF radios, channel and frequency guidance information is presented in Table 1-3.

[5] Any written incident-specific safety plan will be written to meet the requirements of the Hazardous Waste Operations and Emergency Response regulation (29 CFR 1910.120).

Table 1-3: VHF Radio Channel & Frequency Guide

Type	Description
Marine VHF Channel 10	Will be monitored during response operations
Marine VHF Channels 68, 69, 71, 72, and 78	Non-commercial channels that MAY BE USED during a spill response
Marine VHF Channels 13, 15, 16, 17, 21, 23, 81, and 83	MAY NOT BE USED unless specific permission has been granted by the CG
Additional Marine VHF Frequencies	Will be designated, as appropriate
Frequency 155.295	AK state emergency frequency
Marine Single Sideband (SSB) 4125.00MHz	Designated frequency within AK waters
SSB 4125 and Marine VHF Frequencies	Are utilized by the CG

1.5 Deployment Strategies

18 AAC 75.449(a)(5)

In the event of a spill, DW will initially rely on local Ketchikan-based personnel and resources that can be mobilized immediately. Local Ketchikan-based personnel and resources may be supplemented, if needed, as described below.

In addition to local Ketchikan-based personnel and resources, DW may utilize one or more of the following:

- Location-based or regional PRAC/OSRO responders and equipment[6]
- Location-based State of Alaska spill response equipment
- DW regional personnel and equipment
- Parent company personnel and equipment
- Contracted personnel and equipment

The primary means of mobilizing equipment, personnel, and other resources to the site will be dependent on the needs of the incident, availability, and current location. Typical transportation methods that may be utilized include, but are not limited to:

- Motor vehicle
  - Company-owned vehicle(s)
  - Rental vehicle(s)
- Vessel
  - Skiffs
  - Barges
  - OSRO/PRAC response vessel
- Aircraft
  - Helicopter
  - Cargo plane
  - Passenger plane

In the event of adverse weather, equipment, personnel, and other resources will be staged and maintained in "ready" status for mobilization when conditions allow.

The decision to mobilize PRAC/OSRO resources is typically made by the QI in consultation with the IOSC or IC. In the event PRAC/OSRO resources are needed, the actions outlined in the emergency action checklist (refer to Section 1.1) will be carried out to the extent feasible utilizing local personnel and resources available. No interruption of response or cleanup will occur as the result of transition and substitution of equipment and resources between DW and the PRAC/OSRO.

[6] SEAPRO responders and equipment can be made available within 4 hours of notification (SEAPRO, 2025).

1.6 Response Scenario

18 AAC 75.449(a)(6)

DW has prepared a written description of a hypothetical spill and response that demonstrates DW's ability, using the resources described in the plan, to respond to a discharge of each applicable RPS volume within the required time frames under 18 AAC 75.430 – 18 AAC 75.442 and under environmental conditions that might reasonably be expected to occur. The response scenario is written to be useable as a general guide for a discharge of any size, and describes the discharge containment, control, recovery, transfer, storage, and cleanup actions that may be taken, and clearly demonstrates the strategies and procedures that may be used to conduct and maintain an effective response, consistent with ensuring the safety of personnel. As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference here:

2025_03_KTN –CPLAN Response Scenario_REV 0

In an actual spill response, it is important to note landownership in the areas in which response activities are occurring. As noted by Alaska Department of Natural Resources (ADNR):

> *Excluding those lands conveyed or withdrawn, the State of Alaska Department of Natural Resources (ADNR) manages most tidelands and submerged lands from the line of mean high tide and seaward to a line three nautical miles distant from the mean low tideline. In addition, ADNR manages most shorelands below ordinary high water, and over 100 million acres of uplands spread throughout the state. Spills impacting ADNR land call for notification, consultation, and coordination with ADNR. Certain response activities on state land may require permitting from ADNR. Such activities include those that go beyond uses that are Generally Allowed, e.g., anchoring a response vessel in the same location for more than 14 days or using heavy equipment on state land. To inquire about whether a spill is impacting state land or if response strategies require permitting, please contact ADNR.*

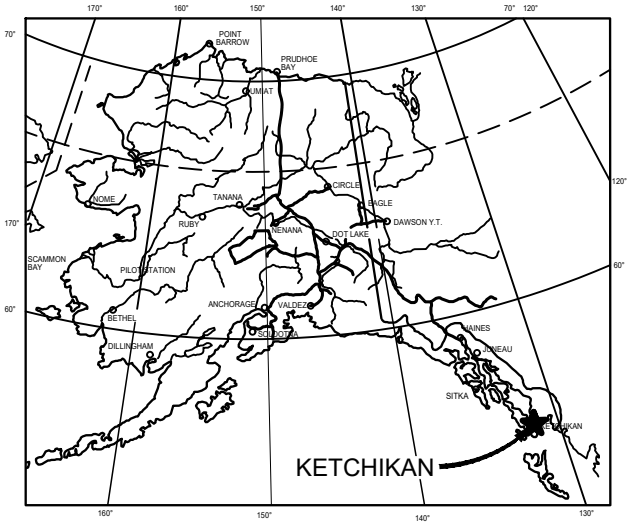
DW acknowledges the need for notification, consultation, and coordination with ADNR for spills impacting lands owned/managed by ADNR. A fact sheet denoting typical "Generally Allowed Uses" can be used as reference; a copy of this fact sheet is provided in Section 6.2.

1.7 Facility Diagrams

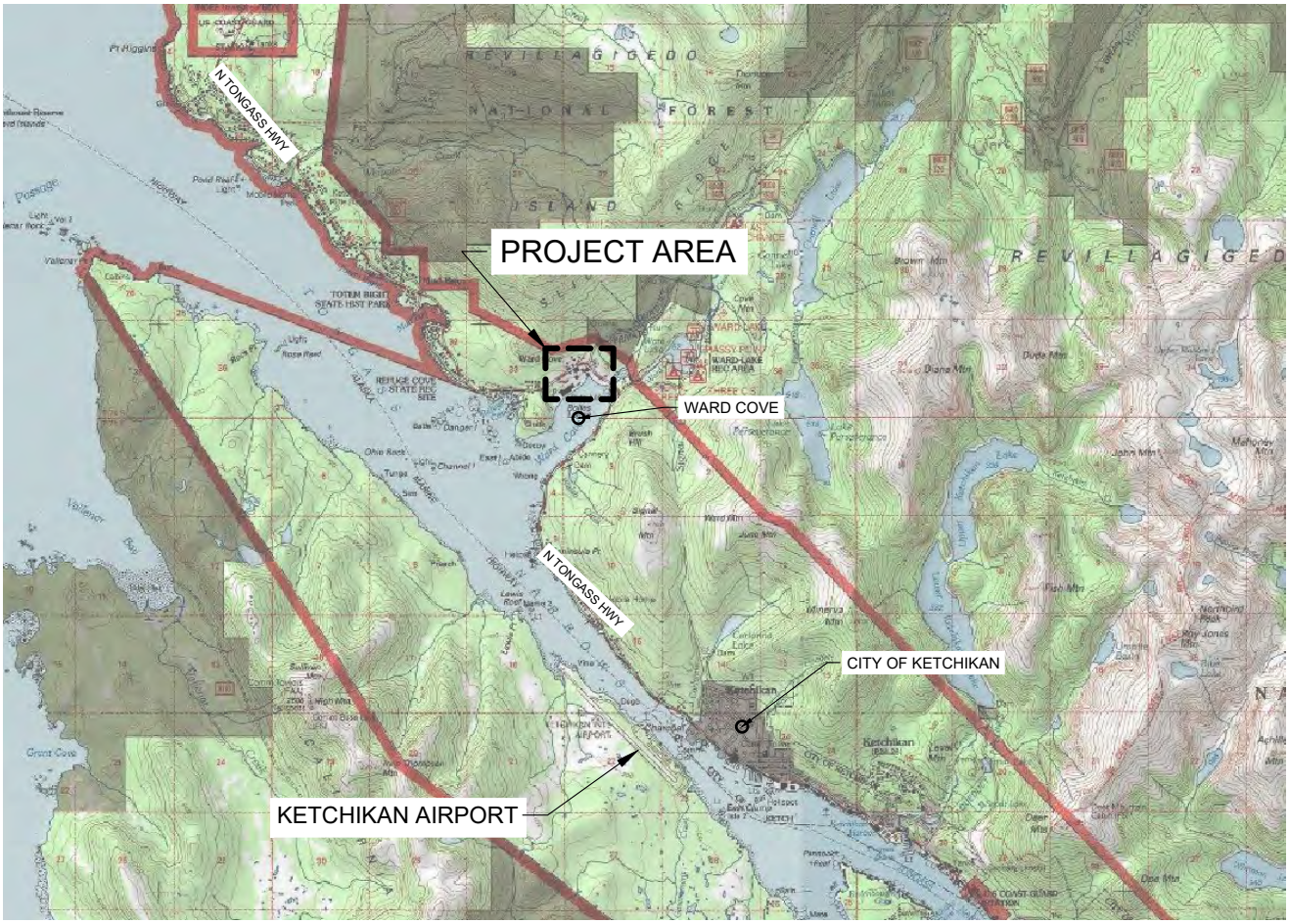
18 AAC 75.449(a)(9), 18 AAC 75.451(b)(7)

Facility diagrams are provided on the following pages.

DW has submitted the piping diagram required by 18 AAC 75.451(b)(7) under separate cover. This diagram contains sensitive security information that is not eligible for public disclosure under Federal Regulations.

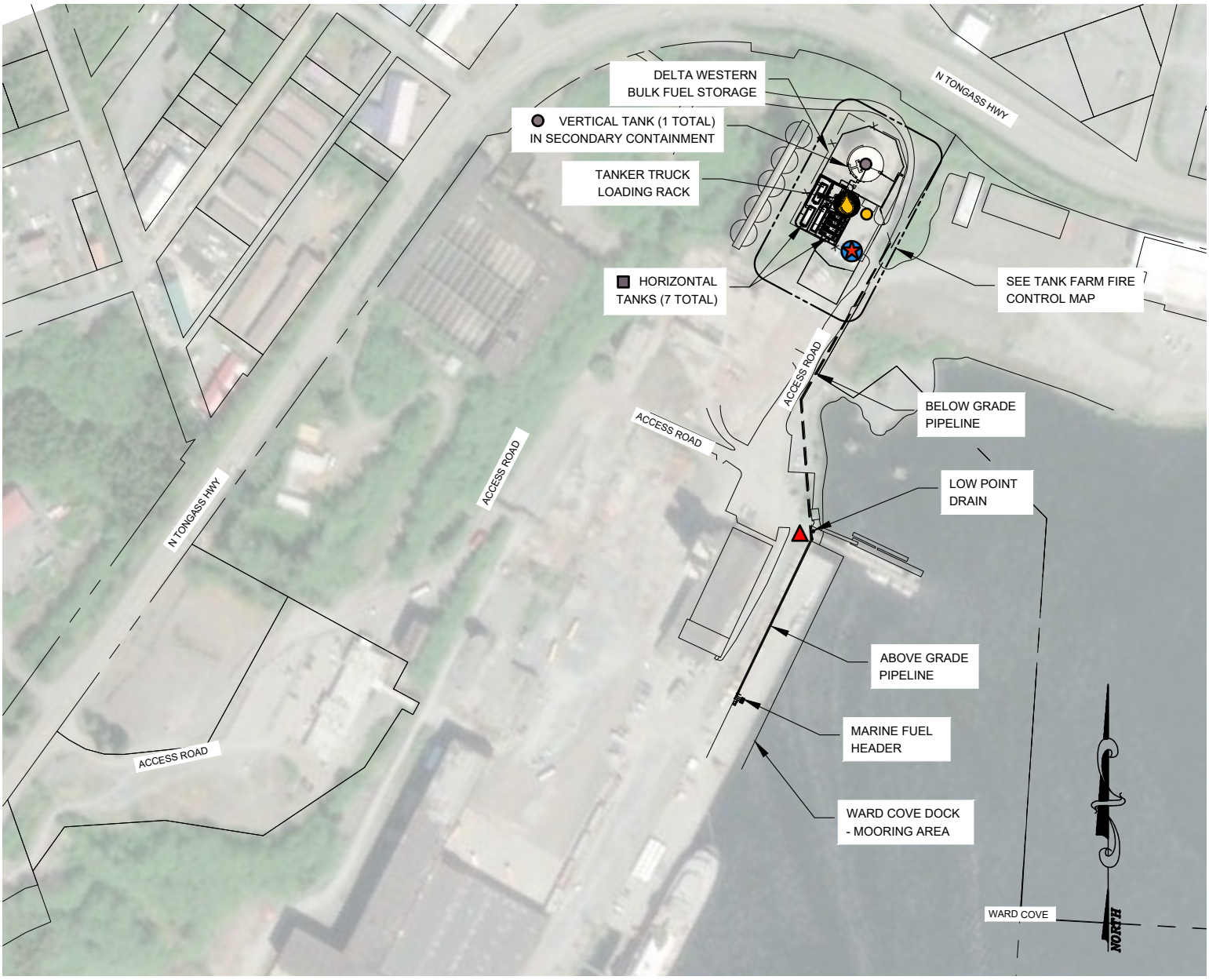


ALASKA MAP



0 1.5 MILES 3 MILES

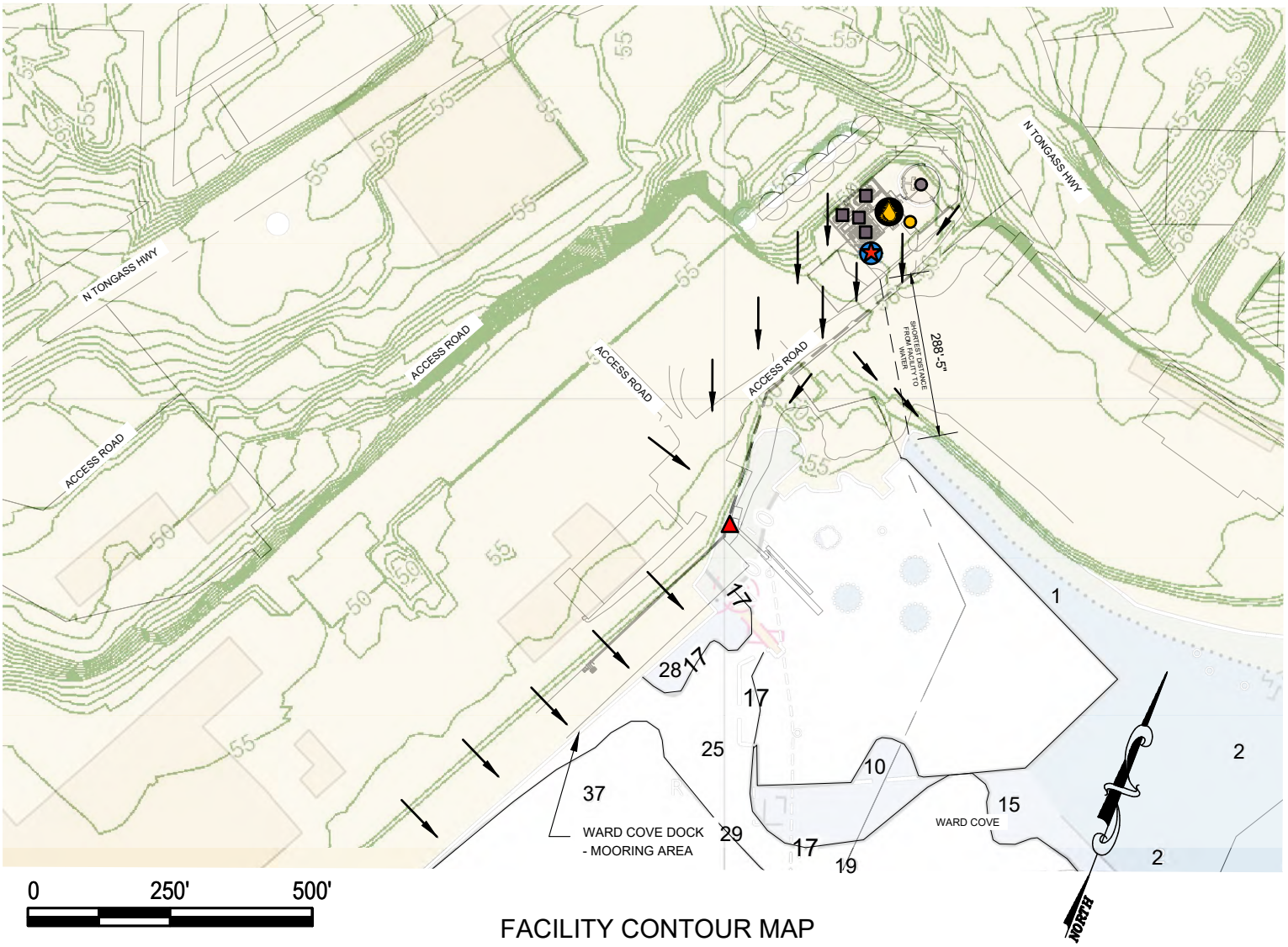
KETCHIKAN GENERAL VICINITY MAP



0 250' 500'

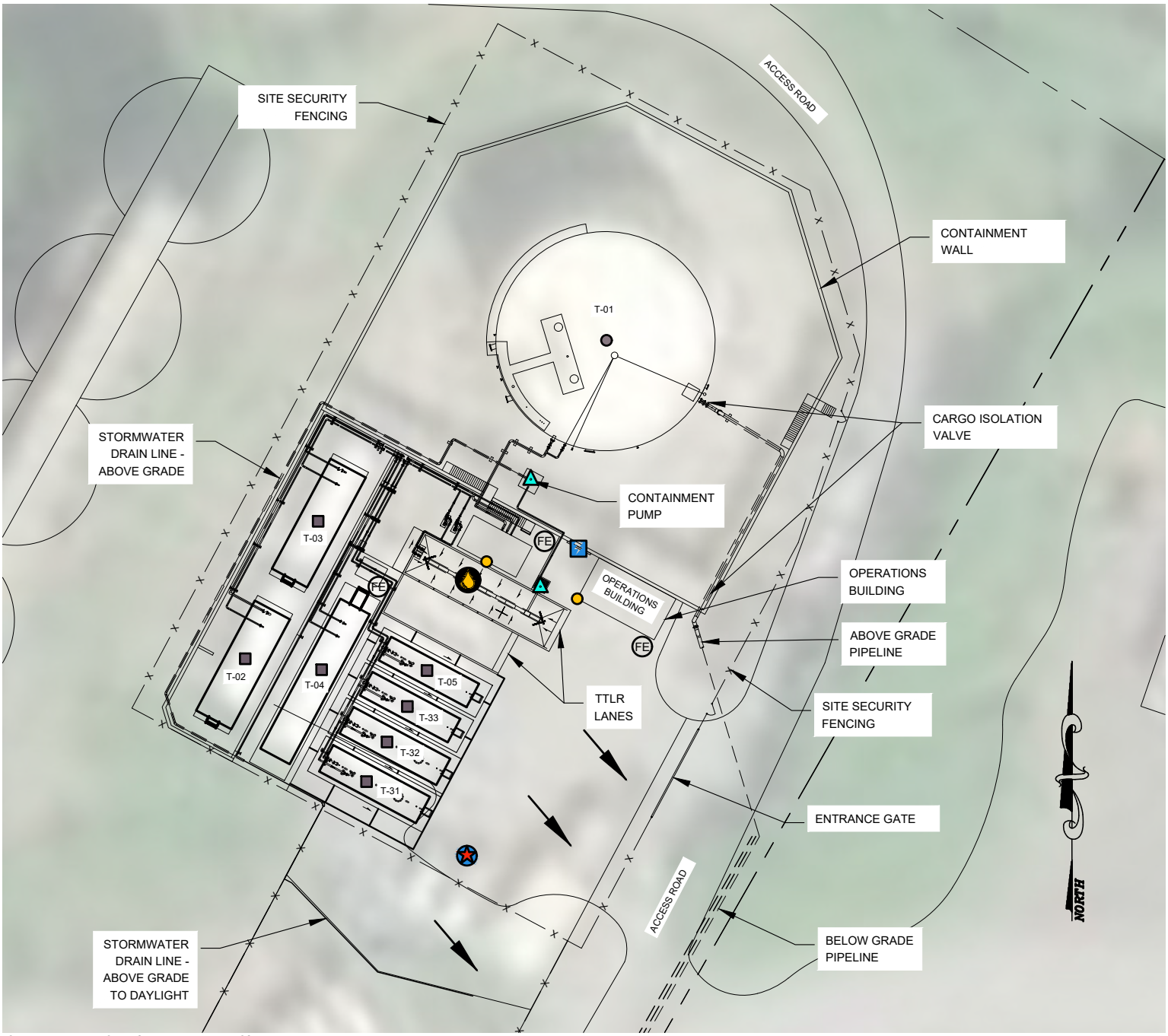
FACILITY SITE LAYOUT

- EMERGENCY STOP
- BULK FUEL STORAGE TANK - VERTICAL
- BULK FUEL STORAGE TANK - HORIZONTAL
- OIL TRANSFER LOCATION
- CP RECTIFIER
- SPILL RESPONSE EQUIPMENT
- SURFACE DRAINAGE DIRECTION



FACILITY CONTOUR MAP

- ELECTRICAL DISCONNECT
- EMERGENCY STOP
- BULK FUEL STORAGE TANK - VERTICAL
- BULK FUEL STORAGE TANK - HORIZONTAL
- OIL TRANSFER LOCATION
- CP RECTIFIER
- SPILL RESPONSE EQUIPMENT
- SURFACE DRAINAGE DIRECTION



0 37.5' 70'

TANK FARM FIRE CONTROL MAP

- ELECTRICAL DISCONNECT
- EMERGENCY STOP
- BULK FUEL STORAGE TANK - VERTICAL
- BULK FUEL STORAGE TANK - HORIZONTAL
- OIL TRANSFER LOCATION
- FIRE EXTINGUISHER
- DRAIN
- CP RECTIFIER
- SPILL RESPONSE EQUIPMENT
- SURFACE DRAINAGE DIRECTION

Ketchikan Bulk Facility – Piping Diagram

This document is not available for public distribution.

1.8 General Procedures for Greatest Possible Discharge

18 AAC 75.449(a)(10)

The procedures to respond to the GPD at the facility would follow the same steps and be similar in nature to those defined in the response scenario[7]. However, the main difference between a RPS scenario and a GPD scenario is that additional resources may be needed to respond to the GPD. DW anticipates that conditions resulting in a GPD would likely impact other infrastructure within the community and/or region, thus potentially resulting in limitations on resources and additional time to receive outside support. In this case, DW would focus their efforts on:

- Safety
- Initial containment and control
- Mitigation efforts

The GPD is very similar to the unadjusted RPS (shown in Section 5) for this facility as a fact of its unique configuration compared to many tank farms. Additionally, it may be faster to mobilize certain resources from the Lower 48 than from other locations within Alaska due to the facility's southern location within the state.

In addition to contracted resources, DW may employ other resources when responding to a GPD such as:

- Local non-PRAC/OSRO personnel, equipment and resources, such as local fishermen, charter flights, portable tanks, waste vendors, and qualified environmental professionals
- Agency personnel, equipment, and resources, such as those from Alaska Department of Environmental Conservation (ADEC) spill response caches
- PRAC/OSRO personnel, equipment, and resources located outside of the southeast region, including the Lower 48
- Use of DW equipment and personnel not identified in this CPLAN, such as company-owned or operated skimmers, tankage, and barges
- Use of parent and sister company personnel, equipment and resources

[7] [7] As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference in Section 1.6 of this plan.

2 Prevention Plan

18 AAC 75.450(a), 18 AAC 75.450(b), 18 AAC 75.005(a)

The Prevention Plan which comprises Section 2 of this plan is designed to demonstrate that DW meets all applicable requirements of 18 AAC 75.005 through 18 AAC 75.085.

The following cross reference tables are provided to direct the reader to the appropriate information[8].

18 AAC 75 Article 1

Citation	Description	Plan Section
.005	Responsibility	2
.007	General oil pollution prevention requirements	2
.015	Waiver	Not Applicable
.020	Oil discharge prevention training and recordkeeping	2.1.1
.025	Transfer requirements	3.1.3
.027	Requirements for laden tank vessels	Not Applicable
.037	Requirements for laden oil barges	Not Applicable
.045	Operating requirements for exploration and production facilities	Not Applicable
.047	Requirements for flow lines at production facilities	Not Applicable
.055	Leak detection, monitoring, and operating requirements for crude oil transmission pipelines	Not Applicable
.065	Field-constructed aboveground oil storage tank requirements	2.1.5
.066	Shop-fabricated aboveground oil storage tanks	2.1.5
.075	Secondary containment requirements for aboveground oil storage tanks	2.1.5
.080	Requirements for facility oil piping	2.1.5
.085	Requirements for railroad tank cars and operations by rail	Not Applicable

[8] In some cases, the information required by this section to demonstrate that DW meets all the applicable requirements of 18 AAC 75.005 - 18 AAC 75.085 is also required under other CPLAN sections. Information has been placed where it is believed to be most appropriate.

18 AAC 75.005

Citation	Description	Plan Section
(a)	General duty to comply	2
(b)	Non-crude tank vessel/barge with limited capacity	Not Applicable

18 AAC 75.007

Citation	Description	Plan Section
(a)	General duty to comply	Not Actionable
(b)	Duty to operate in a manner that prevents oil discharge	2
(c)	Most stringent requirement clause	Not Actionable
(d)	Repealed	Not Applicable
(e)	Duty to ensure employees are fit for duty	2.1.3
(f)	Duty to provide security measures and surveillance	2.1.4
(g)	Repealed	Not Applicable
(h)	Repealed	Not Applicable

As the owner and/or operator of a CPLAN regulated facility, DW understands their general duty to meet the applicable sections of 18 AAC 75 and to prevent the discharge of oil into waters or onto land of the state. This includes the duty to comply with other state and federal laws applicable to the prevention of an oil discharge.

2.1 Discharge Prevention Programs

18 AAC 75.450(b)(1)

DW's discharge prevention programs that are in place at this facility include the following, which are described in the subsequent sections if further detail:

Oil Discharge Prevention Programs (including Training)	Section 2.1.1, 3.8
Inspection and Maintenance	Section 2.1.2
Substance Abuse and Medical Monitoring	Section 2.1.3
Security and Surveillance	Section 2.1.4
Procedures for Loading / Transfer	Section 2.1.5

2.1.1 Oil Discharge Prevention

18 AAC 75.020(a), 18 AAC 75.020(e)

DW's oil discharge prevention training program was designed to comply with 18 AAC 75.020 and 18 AAC 75.451(j) to ensure that all personnel with job duties that directly involve the inspection, maintenance, or operation of oil storage and transfer equipment regulated under 18 AAC 75.005 – 18 AAC 75.085 are appropriately trained with respect to company and state oil pollution prevention measures applicable to their position.

The applicability of each paragraph of 18 AAC 75.020 is shown below along with where it is addressed in this plan.

18 AAC 75.020

Citation	Description	Plan Section
(a)	Training program required	2.1.1 (above)
(b)	Training program components	2.1.1.1
(c)	Documentation of training	2.1.1.2
(d)	Facility discharge history	2.2
(e)	Recordkeeping	2.1.1 (below)

DW maintains all records related to training, inspections, tests, maintenance, and repairs required under 18 AAC 75.005 – 18 AAC 75.085 in a retrievable form, such that a copy of each required record can be provided to the ADEC upon request. These records are kept for at least five (5) years, as required by 18 AAC 75.020(e).

2.1.1.1 Persons to be Trained

18 AAC 75.020(b)

This section describes DW's personnel training program as it relates to the successful implementation of this plan[9].

The following positions are identified as it relates to DW's personnel training program for CPLAN regulated facilities:

- IMT/SMT Member
- QI

[9] Where DW relies on contracted personnel to meet the requirements of this plan, their training and training records, are completed and maintained by their employer, not DW.

- IOSC
- Spill Responder, Non-Tank Truck Operator
- Spill Responder, Tank Truck Operator
- Project Team Member
- Facility Assigned Personnel with Job Duties Directly Involving the Inspection or Operation of Oil Storage and Transfer Equipment

Table 2-1 contains each of these job duties; training appropriate to their role; licensing, certification, or prerequisites; and a listing of the training objectives and means of achieving them, inclusive of the subject, schedule, frequency, and type.

Table 2-1: Personnel Training Program Matrix

Date	Position	Job Duties	License, Certification, and Pre-Requisites	Training - Subject	Training - Schedule	Training - Frequency	Training - Type	Training - Record
	IMT / SMT Member	Fulfill one or more roles on the IMT / SMT	None	Incident Command System	Upon Assignment	One Time	ICS-100, ICS-200	Certificate
	IMT / SMT Member	Fulfill one or more roles on the IMT / SMT	None	Incident Command System	Ongoing	Ongoing	Participation in Drills & Exercises	Sign In Sheet
	Qualified Individual	On call 24-7 to receive and record information related to potential, discovered, or actual spills	None	Internal Spill Reporting Training for Operating Company	Prior to Designation by Company President	One Time	Internal - within Learning Management System	Certificate
	Qualified Individual	Report spills in accordance with applicable regulations, leases, and other governing documents	None	Spill Reporting	Ongoing / Initial Training to be Completed Prior to Designation by Company President	Ongoing	On The Job	Designation by Company President
	Qualified Individual	Interface with regulatory agencies as it relates to spills; may include fulfilling the role of Incident Commander if a formal IMT / SMT is note required	None	Incident Command System	Prior to Designation by Company President	One Time	ICS-100, ICS-200	Certificate
	Qualified Individual	Interface with regulatory agencies as it relates to spills; may include fulfilling the role of Incident Commander if a formal IMT / SMT is note required	None	Spill Reporting	Ongoing / Initial Training to be Completed Prior to Designation by Company President	Ongoing	On The Job	Designation by Company President
	Initial On-Scene Coordinator	Report spill to supervisor, Facility Manager, and QI, as appropriate	None	Internal Spill Reporting Training for Operating Company	Upon Assignment	Recurring, Minimum of Once Every Two (2) Years	Internal - within Learning Management System	Certificate
	Initial On-Scene Coordinator	Manage spill response activities until relieved of duties by incoming Incident Commander	None	Incident Command System	Upon Assignment	One Time	ICS-100, ICS-200	Certificate
	Initial On-Scene Coordinator	Manage spill response activities until relieved of duties by incoming Incident Commander	None	Incident Command System	Ongoing	Ongoing	Participation in Drills & Exercises	Sign In Sheet
	Initial On-Scene Coordinator	Complete initial response actions as defined in facility CPLAN	None	CPLAN	Upon Assignment	Annual	Annual CPLAN Review	Training Roster
	Spill Responder, Non-Tank Truck Operator	Understand spill reporting requirements; secondary spills may occur during spill response activities	None	Internal Spill Reporting Training for Operating Company	Upon Assignment	Recurring, Minimum of Once Every Two (2) Years	Internal - within Learning Management System	Certificate
	Spill Responder, Non-Tank Truck Operator	Take appropriate response actions as defined in facility CPLAN	24 Hour HAZWOPER	HAZWOPER (includes Hazardous Communications, Safe Materials Handling)	Prior to Acting in a Spill Responder Role	One Time w/Annual Eight (8) Hour Refresher	External - by Appropriate Provider	Certificate
	Spill Responder, Non-Tank Truck Operator	Take appropriate response actions as defined in facility CPLAN	None	CPLAN	Upon Assignment	Annual	Annual CPLAN Review	Training Roster
	Spill Responder, Non-Tank Truck Operator	Take appropriate response actions as defined in facility CPLAN	None	Spill Response	Ongoing	Ongoing	Participates in Spill Response Activities	None
	Spill Responder, Tank Truck Operator	Understand spill reporting requirements; secondary spills may occur during spill response activities	None	Internal Spill Reporting Training for Operating Company	Upon Assignment	Recurring, Minimum of Once Every Two (2) Years	Internal - within Learning Management System	Certificate
	Spill Responder, Tank Truck Operator	Drive tank truck in support of response activities (i.e., Waste Management)	Commercial Driver's License (CDL) w/HAZMAT & Tank Endorsement	Driving (clean driving record, current medical card)	Prior to Driving a Tank Truck Transporting Hazardous Materials	Varies	Internal - within Learning Management System	CDL
	Spill Responder, Tank Truck Operator	Drive tank truck in support of response activities (i.e., Waste Management)	Commercial Driver's License (CDL) w/HAZMAT & Tank Endorsement	DOT HAZMAT	Prior to Driving a Tank Truck Transporting Hazardous Materials	Every Three (3) Years	Internal - within Learning Management System	Certificate
	Spill Responder, Tank Truck Operator	Take appropriate response actions as defined in facility CPLAN	24 Hour HAZWOPER	HAZWOPER (includes Hazardous Communications, Safe Materials Handling)	Prior to Acting in a Spill Responder Role	One Time w/Annual Eight (8) Hour Refresher	External - by Appropriate Provider	Certificate
	Spill Responder, Tank Truck Operator	Take appropriate response actions as defined in facility CPLAN	None	CPLAN	Upon Assignment	Annual	Annual CPLAN Review	Training Roster
	Spill Responder, Tank Truck Operator	Take appropriate response actions as defined in facility CPLAN	None	Spill Response	Ongoing	Ongoing	Participates in Spill Response Activities	None
	Project Team Member	Understand spill reporting requirements; secondary spills may occur during spill response activities	None	Internal Spill Reporting Training for Operating Company	Upon Assignment	Recurring, Minimum of Once Every Two (2) Years	Internal - within Learning Management System	Certificate
	Project Team Member	Take appropriate response actions as defined in facility CPLAN	40 Hour HAZWOPER	HAZWOPER (includes Hazardous Communications, Safe Materials Handling)	Prior to Acting in a Spill Responder Role	One Time w/Annual Eight (8) Hour Refresher	External - by Appropriate Provider	Certificate
	Project Team Member	Take appropriate response actions as defined in facility CPLAN	None	CPLAN	Upon Assignment	Annual	Annual CPLAN Review	Training Roster
	Project Team Member	Take appropriate response actions as defined in facility CPLAN	None	Spill Response	Ongoing	Ongoing	Participates in Spill Response Activities	None
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Understand spill reporting requirements; spills may be discovered or occur during maintenance or operation of oil storage and transfer equipment	None	Internal Spill Reporting Training for Operating Company	Upon Assignment	Recurring, Minimum of Once Every Two (2) Years	Internal - within Learning Management System	Certificate
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Understand facility inspection and maintenance requirements as defined in facility CPLAN	None	CPLAN	Upon Assignment	Annual	Annual CPLAN Review	Training Roster

Date	Position	Job Duties	License, Certification, and Pre-Requisites	Training - Subject	Training - Schedule	Training - Frequency	Training - Type	Training - Record
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Complete inspections of oil storage and transfer equipment	None	Familiarization with Infrastructure and Proper Functionality	Prior to Independently Completing Inspections	Initial; Ongoing as Needed	On The Job	None
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Maintenance of oil storage and transfer equipment, not requiring confined space entry, welding, or lock out / tag out	None	Familiarization with Infrastructure and Maintenance Procedures	Prior to Conducting Maintenance on Oil Storage or Transfer Equipment	Ongoing	On The Job	None
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Maintenance of oil storage and transfer equipment, specifically work that involves entering aboveground storage tanks	Confined Space Entry	Confined Space Entry & Rescue	Prior to Entering a Confined Space	Recurring; Once Every Two (2) Years	External - by Appropriate Provider	Certificate
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Maintenance of oil storage and transfer equipment, specifically work that involves welding	Welding Certification	Proper Welding Techniques	Prior to Conducting Welding on Oil Storage or Transfer Equipment	One Time w/Ongoing Use	External - by Appropriate Provider	Certificate
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Maintenance of oil storage and transfer equipment, specifically work that requires equipment lock out / tag out	None	Lock Out / Tag Out	Prior to Conduct Maintenance in Areas or on Equipment where Lock Out / Tag Out is Required	Recurring; Required Every Three (3) Years	Internal - within Learning Management System or External - by Appropriate Provider	Certificate
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Operation of oil transfer equipment, not over water	None	Transfer Operations	Prior to Independently Completing Over the Water Transfer Operations	One Time	On The Job	None
	Facility Assigned Personnel w/Job Duties Directly Involving the Inspection, Maintenance, or Operation of Oil Storage and Transfer Equipment	Operation of oil transfer equipment, over water	None	Transfer Operations, including Person-In-Charge (PIC) Training	Prior to Independently Completing Over the Water Transfer Operations	One Time	On The Job	PIC Training Documentation Record

2.1.1.2 Documentation of Training

18 AAC 75.020(c)

Training conducted by DW to meet the requirements of this plan will be documented on a form containing the following information:

- a statement listing the course or program content
- signature and date of each participant[10]

2.1.2 Inspection and Maintenance

DW conducts the following inspections of all oil storage and transfer equipment regulated under 18 AAC 75.005 – 18 AAC 75.085:

- Overall/general:
  - Monthly facility inspection
- Aboveground storage tanks (ASTs):
  - Monthly AST American Petroleum Institute (API) 653 tank inspection
  - Monthly AST Steel Tank Institute (STI) SP001 tank inspection
  - Formal third-party internal and external inspections as required by API 653 (every ten [10] years for internal and every five [5] years for external[11])
  - Formal third-party external inspections as required by STI SP001 (frequency varies[12])
- Facility oil piping[13]:
  - Annual hydrotesting[14]
  - Formal third-party API 570 inspection (every five [5] years)
  - Formal third-party cathodic protection inspection (annual)

DW conducts maintenance on oil storage and transfer equipment regulated under 18 AAC 75.005 – 18 AAC 75.085, as needed.

[10] Where certificates are generated by an outside party or learning management system, a certificate is considered to be equivalent to the signature and date of the participant.
[11] Inspection interval is subject to change and may be shortened based on the finding of the previous inspection.
[12] Inspection interval varies by tank characteristics and may be shortened based on the findings of the previous inspection. The most typical inspection interval for STI SP001 regulated tanks is twenty (20) years.
[13] API 570 piping inspection program includes informal inspections and ongoing maintenance including corrosion control mitigation. The program is adopted by reference and will be provided to ADEC upon request.
[14] Limited to facility oil piping that is utilized for the receipt or discharge of oil over water.

2.1.3 Substance Abuse and Medical Monitoring

18 AAC 75.007(e)

DW has a substance abuse program that meets applicable federal Department of Transportation drug and alcohol testing requirements for regulated personnel. Testing includes pre-placement, post-accident, reasonable suspicion, random, return-to-work, and follow up, as required by applicable regulations. Compliance with this program is administered by the Human Resources Department.

With respect to medical monitoring, DW may, at its expense and in its discretion, require personnel to undergo a physical examination by a licensed physician for legitimate work-related reasons. All DW personnel holding a commercial driver's license shall undergo all medical tests and examinations as required by their license.

2.1.4 Security and Surveillance

18 AAC 75.007(f)

The following security measures and surveillance are employed at the facility to minimize the risk of vandalism, sabotage, and unauthorized entry.

Security Measures	• Facility is equipped with permanent lighting • The tank farm and loading/offloading areas are fenced; gates are closed and locked when the facility is unmanned • Access to start/stop stations at the loading/offloading areas are limited to authorized personnel • Power to the pumps is shut off and valves are closed and secured when facility is unmanned
Surveillance	• Facility is equipped with permanent lighting • Personnel are onsite during normal business hours

2.1.5 Procedures for Loading / Transfer

18 AAC 75.451(b)(5)

DW's procedures for loading or transferring oil to or from a pipeline, facility, oil barge, or storage tank were designed to comply with 18 AAC 75.025. The applicability of each paragraph of 18 AAC 75.025 is shown below along with where it is addressed in this plan.

18 AAC 75.025

Citation	Description	Plan Section
(a)	Spill and overfill prevention	2.1.5.1
(b)	Boom requirements for crude oil, persistent products, and oily ballast water	Not Applicable
(c)	Tank cleaning operations prohibited	2.1.5.2
(d)	Personnel communication	2.1.5.3
(e)	Positive means to stop transfer	2.1.5.4, 1.7
(f)	Areas not protected by secondary containment	2.1.5.5
(g)	Tank cars and tank trucks	2.1.5.6
(h)	Shore-to-vessel transfers	2.1.5.7
(i)	Feasibility of boom deployment under (b)	Not Applicable
(j)	Definition of "transfer"	Not Actionable

2.1.5.1 Spill and Overfill Prevention

18 AAC 75.025(a)

DW takes all appropriate measures to prevent spills or overfilling during a transfer of oil, including, but not limited to:

- Providing adequate training to each person responsible for conducting transfer operations
- Actively manning transfer operations
- Following standard transfer procedures applicable to the type of transfer operation being conducted
- Reducing loading rates at the beginning and end of a transfer
- Installing spill prevention devices, such as high-level alarms, on equipment to be filled where possible
- Routinely testing spill prevention devices

2.1.5.2 Tank Cleaning Operations Prohibited

18 AAC 75.025(c)

DW does not conduct tank cleaning operations during cargo offloading,

2.1.5.3 Personnel Communication

18 AAC 75.025(d)

DW utilizes multiple means of communication during transfers to ensure that each person involved in a transfer is capable of clearly communicating orders to stop a transfer at any time during the transfer. Company policy enables all employees with "stop work authority"[15].

The means of communication that may be utilized during transfers include voice, hand signals, VHF radio, and/or cellular phone. In the unlikely event communication is lost, transfer operations will also cease until such time as communication can be restored.

2.1.5.4 Positive Means to Stop Transfer

18 AAC 75.025(e)

DW's facility is equipped with emergency shut offs, which provide a positive means to stop a transfer in the shortest possible time consistent with the best commercially available technology. Emergency shut offs[16],are shown on the Tank Farm Fire Control Map (Section 1.7, Figure 1-4) and listed below:

- TTLR (east end)
- Stairway access at Tank T-01 SCA
- Access at Tanks T-02 and T-03

The emergency shut offs are red push buttons that are activated by pushing the button. These shut offs are designed to stop transfers immediately, although some lag time may occur. Typically, DW anticipates activation of an emergency shut off would effectively stop a transfer in less than 2 minutes.

In the event valve closure is utilized as the means to stop a transfer in lieu of an emergency shut off, the estimated time is anticipated to be five minutes or less as shown below.

[15] DW defines "stop work authority" as any employee having the ability to stop work at any time for any reason.
[16] Note: if the need arises to shut down a transfer while a cargo offload is in progress, DW will first request that the discharging vessel shut down pumping prior to closing the facility valves.

Dock: Immediately	First valve inside SCA: 3 minutes
TTLR: 2 minutes	Individual tank valve: 5 minutes

2.1.5.5 Areas not Protected by Secondary Containment

18 AAC 75.025(f)

Before beginning a transfer to or from an area not protected by secondary containment, DW personnel conduct the following actions:

- Confirm that all valves in the transfer system are in the correct position
- Verify that any header not being utilized during the transfer is blank flanged or capped
- Inspect all piping and hoses that will be used in the transfer are inspected

Additionally, DW personnel inspect all piping and hoses used in the transfer at least once during transfer operations.

2.1.5.6 Tank Cars and Tank Trucks

18 AAC 75.025(g)

Tank cars are not able to be received by this facility.

Prior to, and after, loading any tank truck, DW transfer personnel visually inspect the lowermost drain and all outlets on the tank truck; DW transfer personnel also visually inspect the associated secondary containment structure prior to initiating loading or unloading. Additionally, before any tank truck departs the facility's TTLR, the tank truck manifolds are blank flanged or capped, and valves are secured.

The TTLR at the DW Ketchikan Bulk Facility is designed for "bottom loading".

2.1.5.7 Shore-to-Vessel Transfers

18 AAC 75.025(h)

All aboveground transfer piping that is used to transfer oil to/from vessels is visually inspected at least monthly. Additionally, DW completes all transfers of oil to/from vessels with an onboard oil storage capacity of 250 barrels or greater in accordance with CG requirements as required by 33 CFR 154.310(a)(17). All CG-regulated transfers are

conducted by a designated Person In Charge (PIC), who has been adequately trained in such operations.

2.1.6 Facility Description and Operational Overview

18 AAC 75.451(b), 18 AAC 75.451(b)(1), 18 AAC 75.451(b)(2)

The Ketchikan Bulk Facility consists of the following infrastructure:

- ASTs
  - FCAST [18 AAC 75.065]
  - SFASTs [18 AAC 75.066]
- Secondary containment structures [18 AAC 75.070]
- Tank truck loading/offloading rack (TTLR)
- International Standard Organization (ISO) tank loading areas
- Facility oil piping [18 AAC 75.080]
- Marine header
- Tank trucks

The primary purpose of the facility is the storage and distribution of oil products. The Ketchikan Bulk Facility receives oil in bulk from barges and ISO tanks.

With respect to aboveground storage tanks, DW has aboveground storage tanks that fall into both of the following categories as shown on Tables 2-2 and 2-3, respectively.

- ASTs >10,000 gallons
- ASTs >1,000 and ≤10,000 gallons

Table 2-2: ASTs >10,000 Gallons

Sub Location	Tank Identifier	Tank (Total Capacity - gal)
Ward Cove	T-01	1,052,000
Ward Cove	T-02	30,000
Ward Cove	T-03	30,000
Ward Cove	T-04	30,000

Table 2-3: ASTs >1,000 and ≤10,000 Gallons

Sub Location	Tank Identifier	Tank (Total Capacity - gal)
Ward Cove	T-05	10,000
Ward Cove	T-31	10,000
Ward Cove	T-32	10,000
Ward Cove	T-33	10,000

How DW meets the applicable requirements of 18 AAC 75.065, 18 AAC 75.066, 18 AAC 75.070, and 18 AAC 75.080 is presented in the following subsections.

2.1.6.1 Field-Constructed Aboveground Oil Storage Tanks (FCASTs)

18 AAC 75.065(h), 18 AAC 75.065(i), 18 AAC 75.065(j), 18 AAC 75.065(p), 18 AAC 75.065(q)

DW's field-constructed aboveground oil storage tanks (FCASTs) were designed and installed to comply with 18 AAC 75.065. The applicability of each paragraph of 18 AAC 75.065 is shown below.

18 AAC 75.065

The following sections of the 18 AAC 75.065 are applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(a)	Maintenance and installation requirements
(b)	Inspection intervals
(d)	Recordkeeping
(e)	Required notifications
(j)	Requirements for installations after 12-30-2008 and before 11-18-21
(k)	Overfill prevention
(l)	Duty to test overfill prevention devices
(o)	Out of service tanks
(p)	Riveted or bolted tanks prohibited
(q)	Requirements for installations on or after 5-17-2022

The following sections of the 18 AAC 75.065 are not applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(c)	Alternative to internal inspections
(f)	Internal steam heating systems
(g)	Internal lining systems
(h)	Requirements for installations placed in service before 5-14-1992
(i)	Requirements for installations on or after 5-14-1992 and before 12-30-2008
(m)	Cathodic protection system requirements
(n)	Duty to maintain cathodic protection test lead wire

As much of the applicability of this section is based on the date the tanks were placed into service, a FCAST summary is provided on the following page in Table 2-4.

Table 2-4: FCAST Summary

Sub Location	Tank Identifier	Tank (Construction Standard)	Tank (Year Installed)	Tank (Upgraded/Reconstructed)	Tank (Base/Foundation Type)	Tank Bottom (Construction)	Tank Wall (Type & Construction)	Tank Roof (Type)	Tank (Cathodic Protection)	Tank (Shell Height/Length)	Tank (Diameter)	Tank (Total Capacity - gal)	Product (Generic)	Tank Status
Ward Cove	T-01	API 650/12C	1993	N/A	Concrete ring wall	Coated bottom with thin film liner, 48" up shell. Annular ring.	Single Walled Steel	Column supported fixed cone	N/A	66'	41'	1,052,000	Gasoline	In Service - Filled

FCAST Inspection Requirements

18 AAC 75.065(a), 18 AAC 75.065(b)

DW maintains and inspects each FCAST tank in accordance with the requirements of API 653. Table 2-5 presents the FCAST inspection schedule; Table 2-5 can be found on the following page.

FCAST Recordkeeping Requirements

18 AAC 75.065(d)

DW maintains the following records with respect to FCAST tanks:

- Formal third-party API inspections for the life of the tank
- Routine in-service inspections, required by Section 6.3.1 of API 653, for five (5) years
- Monthly high liquid level alarms and gauge test documentation for five (5) years
- An Annex L API 650 Storage Tank Data Sheet for the life of the tank

FCAST Notification Requirements

18 AAC 75.065(e)

DW will notify ADEC as follows:

- As soon as practical before a FCAST undergoes a major repair or major alteration
- Before a FCAST resumes service following a major repair or major alteration

For the purposes of this section, a major repair or major alternation is as defined in Section 3.22 of API 653.

Table 2-5: FCAST Inspection Schedule

Sub Location	Tank Identifier	Internal Inspection (Type)	Internal Inspection (Last Conducted)	Internal Inspection (Next Due - Year)	Internal Inspection (interval in years)	Internal Inspection (Interval Basis)	External Inspection (Type)	External Inspection (Last Conducted)	External Inspection (Next Due - Year)	External Inspection (interval in years)	External Inspection (Interval Basis)
Ward Cove	T-01	Formal	08/01/19	2029	10	INSP	Formal	06/06/24	2029	5	INSP

FCAST Discharge Prevention

18 AAC 75.065(j), 18 AAC 75.065(k), 18 AAC 75.065(l)

Originally constructed in 1993, Tank T-01, the Ketchikan Bulk Facility's only FCAST tank, was returned to service in 2020. FCAST construction standards, known, or estimated, are presented in Table 2-4. Tank T-01 is not riveted nor bolted and cathodic protection and corrosion protection are not required[17].

Leak detection is provided by the foundation system of Tank T-01. An impermeable concrete pad underlies the tank, and a tell-tale pipe provides a means for an observer outside of the tank to detect leaks.

Additionally, each FCAST tank is equipped with one or more means of preventing discharges. The types of devices utilized on the FCAST tanks at the Ketchikan Bulk Facility include:

High liquid level alarms	Tank T-01 is equipped with a Pneumercator LC 600 liquid level switch set at 95% of tank capacity. The switch is equipped with an audible and visible alarm that triggers if the pre-set volume level is exceeded.
Means of immediately determining the liquid level in each bulk storage tank	Tank T-01 is equipped with a Pneumercator LC 600 liquid level switch. Liquid levels are sensed through magnetic floats within the unit.

High liquid level alarms are tested monthly by pushing the test button. Alternatively, high liquid level alarms can be manually activated by physically lifting the switch.

FCASTs Removed From Service

18 AAC 75.065(o)

A FCAST "removed from service"[18] for more than one year must be:

- Free of accumulated oil
- Marked with the words "Out of Service" and the date taken out of service
- Secured in a manner that prevents unauthorized use

[17] A copy of the Tank T-01 Corrosion Protection Evaluation is provided in Section 6.2.

[18] As defined above, for the purposes of this section, "removed from service" means not in regular use for the service intended and not included in a regular maintenance and inspection program in accordance with this section.

- Blank flanged or otherwise disconnected from facility piping

In the event a FCAST is removed from service for more than one year, DW will notify the department. The notification will contain an affirmative statement noting that the above actions have been completed.

2.1.6.2 Shop-Fabricated Aboveground Oil Storage Tanks (SFASTs)

18 AAC 75.066(a), 18 AAC 75.066(b), 18 AAC 75.066(j)

DW's shop-fabricated aboveground oil storage tanks (SFASTs) were designed and installed to comply with 18 AAC 75.066. The applicability of each paragraph of 18 AAC 75.066 is shown below.

18 AAC 75.066

The following sections of the 18 AAC 75.066 are applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(a)	Applicability of sub-sections
(b)	Construction and installation requirements
(d)	Self-diked SFAST requirements
(e)	Double-walled SFAST requirements
(f)	Maintenance and inspection
(g)	Discharge prevention
(h)	Duty to test discharge prevention devices
(j)	Construction and installation requirements

The following sections of the 18 AAC 75.066 are not applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(c)	Vaulted SFAST requirements
(i)	Non-elevated SFAST requirements
(k)	SFASTs ≥ 75,000 gallons

As much of the applicability of this section is based on the type of SFASTs and the date the tanks were placed into service, an SFAST summary (Table 2-6) is provided on the following page.

Table 2-6: SFAST Summary

Sub Location	Tank Identifier	Tank (Construction Standard)	Tank (Year Installed)	Tank (Upgraded/Reconstructed)	Tank (Base/Foundation Type)	Tank Wall (Type & Construction)	Tank (Cathodic Protection)	Tank (Shell Height/Length)	Tank (Diameter)	Tank (Total Capacity - gal)	Product (Generic)	Tank Status
Ward Cove	T-02	UL 142	2020	N/A	Steel Skid	Double Walled Steel	N/A	37'6"	12'	30,000	Gasoline	In Service - Filled
Ward Cove	T-03	UL 142	2020	N/A	Steel Skid	Double Walled Steel	N/A	37'6"	12'	30,000	Diesel	In Service - Filled
Ward Cove	T-04	UL 142	2021	N/A	Steel Skid	Double Walled Steel	N/A	57'	11'	30,000	Gasoline	In Service - Filled
Ward Cove	T-05	UL 142	2022	N/A	Steel Skid	Double Walled Steel	N/A	30'	8'	10,000	Diesel	In Service - Filled
Ward Cove	T-31	UL 142	2022	N/A	Steel Skid	Double Walled Steel	N/A	33'	9'	10,000	Diesel	In Service - Filled
Ward Cove	T-32	UL 142	2022	N/A	Steel Skid	Double Walled Steel	N/A	33'	9'	10,000	Diesel	In Service - Filled
Ward Cove	T-33	UL 142	2022	N/A	Steel Skid	Double Walled Steel	N/A	30'	8'	10,000	Diesel	In Service - Filled

Self-Diked SFAST Requirements

18 AAC 75.066(d)

As noted in Table 2-6, the Ketchikan Bulk Facility has one or more self-diked SFAST tanks. These tanks were constructed in compliance with 18 AAC 75.066(d) meaning their construction:

- has access that allows for visual inspection for corrosion or damage to the outer shell of the storage tank and the interior of the secondary containment dike
- has a fixed spill containment at each fill connection
- includes a system for freeing water or spilled fuel from the integral dike
- has an operational interstitial monitoring system to detect leaks from the tank bottom or water accumulation within the secondary containment area

All self-diked SFAST tanks at the Ketchikan Bulk Facility are equipped with a Morrison Figure 724 Leak Indicator, which allows for visual assessment for potential liquid within the integral dike. A visual assessment of each self-diked SFAST tank, including the leak indicator, is conducted monthly.

Double-Walled SFAST Requirements

18 AAC 75.066(e)

As noted in Table 2-6, the Ketchikan Bulk Facility has one or more double-walled SFAST tanks. These tanks were constructed in compliance with 18 AAC 75.066(e) meaning their construction:

- has a fixed spill containment at each fill connection
- includes a system for freeing water or spilled fuel from the integral dike
- has an operational interstitial monitoring system to detect leaks from the tank bottom or water accumulation within the secondary containment area

All double-walled SFAST tanks at the Ketchikan Bulk Facility are equipped with a Morrison Figure 724 Leak Indicator, which allows for visual assessment for potential liquid within the integral dike. A visual assessment of each double-walled SFAST tank, including the leak indicator, is conducted monthly.

SFAST Inspection Requirements

18 AAC 75.066(f)

DW employees the following inspections as required by 18 AAC 75.066(f) for SFAST tanks at the Ketchikan Bulk Facility:

- STI SP001

Table 2-7 presents the SFAST inspection schedule; Table 2-7 can be found on the following page.

Table 2-7: SFAST Inspection Schedule

Sub Location	Tank Identifier	Tank Inspections (API/STI)	STI Category	STI Category (CDRM Basis)	STI Category (Spill Control Basis)	Internal Inspection (Type)	Internal Inspection (Next Due)	External Inspection (Type)	External Inspection (Last Conducted)	External Inspection (Next Due - Year)	External Inspection (interval in years)
Ward Cove	T-02	STI SP001	1	Double Walled	Double Walled with Overfill Prev.	N/A	N/A	Ops Started	10/01/20	2040	20
Ward Cove	T-03	STI SP001	1	Double Walled	Double Walled with Overfill Prev.	N/A	N/A	Ops Started	10/01/20	2040	20
Ward Cove	T-04	STI SP001	1	Double Walled	Double Walled with Overfill Prev.	N/A	N/A	Ops Started	10/01/20	2040	20
Ward Cove	T-05	STI SP001	1	Double Walled	Double Walled with Overfill Prev.	N/A	N/A	Installed	01/01/22	2042	20
Ward Cove	T-31	STI SP001	1	Steel diked	Secondary Containment System	N/A	N/A	Installed	01/01/22	2042	20
Ward Cove	T-32	STI SP001	1	Steel diked	Secondary Containment System	N/A	N/A	Installed	01/01/22	2042	20
Ward Cove	T-33	STI SP001	1	Double Walled	Double Walled with Overfill Prev.	N/A	N/A	Installed	01/01/22	2042	20

SFAST Discharge Prevention

18 AAC 75.066(g), 18 AAC 75.066(h)

Each SFAST tank is equipped with one or more means of preventing discharges. The types of devices utilized on the SFAST tanks at the Ketchikan Bulk Facility include:

High liquid level alarms	Tanks T-02, T-03, T-04, T-05, T-31, T-32, and T-33 are equipped with an OPW Model 61 FSTOP overfill prevention valve. A Morrison Bros. high level alarm system, pre-set to 95% tank capacity, signals an audible and visual alarm when triggered.
Means of immediately determining the liquid level in each bulk storage tank	Tanks T-02, T-03, T-04, T-05, T-31, T-32, and T-33 are equipped with OPW Clock-Style gauges to immediately determine liquid level.

Additionally, the following tanks, installed after December 30, 2008, are equipped with a fixed spill containment system designed to prevent a discharge when a transfer hose or pipe is detached from the fill pipe: Tanks T-02, T-03, T-04, T-05, T-31, T-32, T-33

High liquid level alarms are tested monthly by pushing the test button.

2.1.6.3 Secondary Containment Structures

DW's Ketchikan Bulk facility is equipped with one or more secondary containment structures as required by 18 AAC 75.075; to assist in demonstrating DW's conformance to these requirements. The applicability of each paragraph of 18 AAC 75.075 is shown below and on the following page.

18 AAC 75.075

The following sections of the 18 AAC 75.075 are applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(a)	General secondary containment requirements
(c)	Maintenance
(d)	Drainage of accumulated water
(e)	Installations placed in service on or after 5-14-1992
(g)	Rail tank car and tank truck loading / unloading areas
(h)	Vaulted, self-diked, and double-walled tanks

The following sections of the 18 AAC 75.0675 are not applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(b)	Offshore exploration and production facilities
(f)	Department initiated requirements for Installations placed in service before 5-14-1992
(i)	Repealed

A facility secondary containment structures summary table (Table 2-8) is provided on the following page[19].

[19] Note: Table 2-8 only contains details for facility secondary containment structures that are needed per the regulations contained in 18 AAC 75.075; additional tertiary containment areas, or those not required by 18 AAC 75.075 are excluded from this table.

Table 2-8: Facility SCA Summary

Sub Location	Secondary Containment - ID	Secondary Containment - Construction Type	Secondary Containment - Installation Date	Secondary Containment - Volume (gallons)	Secondary Containment - Lining	Secondary Containment - Additional Details	Associated Assets	Largest Asset Volume (gallons)
Ward Cove	Tank-01 Containment	Impermeable Concrete	05/1992	1,197,488	Under Tank	None	T-01	1,052,000
Ward Cove	Shared Containment	Impermeable Concrete	04/2020	3,650	None	350 GPM pump discharges to Tank-01 Containment to provide sufficient containment volume	ISO Totes, TTLR	6,800

Secondary Containment for Aboveground Storage Tanks

18 AAC 75.075(a), 18 AAC 75.075(c), 18 AAC 75.075(d), 18 AAC 75.075(e), 18 AAC 75.075(h)

DW's Ketchikan Bulk Facility is equipped with aboveground storage tanks that require secondary containment. The facility also has tanks that do not require secondary containment. As allowed under 18 AAC 75.075(h), DW is not required to, but may, provide a formal secondary containment structure for tanks that are vaulted, self-diked, and/or double-walled.

Unless exempted as stated above, DW maintains aboveground oil storage tanks within a secondary containment area that has the capacity to hold the volume of the largest tank within the containment area plus enough capacity to account for local precipitation. All secondary containment areas for aboveground storage tanks are constructed to meet the following minimum requirements:

- have berms, dikes, and/or retaining walls to prevent the release of oil from the containment area
- with the exception of under the aboveground oil storage tanks, is constructed and/or lined with materials that are:
    - adequately resistant to damage by the products stored
    - resistant to damage from weather
    - sufficiently impermeable
    - resistant to damage caused by operations
- drains and other penetrations through the secondary containment are minimized consistent with facility operational requirements

The DW Ketchikan Bulk Facility has a single primary secondary containment structure in which Tank T-01 is located. This secondary containment structure is a concrete structure that has been determined to meet the definition of sufficiently impermeable (18 AAC 75.990).[20] The secondary containment structure dimensions and volumetric calculations are provided in Section 6.3 of this Plan.

As required by 18 AAC 75.075(c), DW maintains secondary containment systems such that they do not have excessive amounts of:

- debris
- vegetation
- accumulated water
- other materials or conditions that might interfere with the effectiveness of the system

All aboveground oil storage tank secondary containment areas are visually inspected at least weekly, unless precluded by safety concerns or weather conditions, for the following:

[20] A copy of the Tank T-01 SCA Sufficiently Impermeable Evaluation is provided in Section 6.2.

- debris and vegetation
- proper alignment and operation of drain valves
- visible signs of oil leaks or spills
- defects or failures of the secondary containment structure

These weekly inspections are documented.

When needed, aboveground oil storage tank secondary containment areas are drained of accumulated water; at the DW Ketchikan Facility, this is typically conducted at least once per week, but as frequently may be as frequently as daily. Discharges are directly to land and/or water and require locally initiated actions (i.e., physical opening of a valve, removal of a cap, activation of a pump, etc.)[21]. All discharges are preceded by a visual inspection of accumulated water prior to discharge to ensure no oil will be released. This inspection is documented.

All documented inspections required by this section are kept for five (5) years.

Secondary Containment for Tank Truck Loading/Unloading Areas

18 AAC 75.075(a), 18 AAC 75.075(c), 18 AAC 75.075(d), 18 AAC 75.075(e), 18 AAC 75.075(h)

DW's Ketchikan Bulk Facility is equipped with the following areas subject to 18 AAC 75.075(g):

- Tank truck loading[22] rack
- ISO tank loading area

The tank truck loading/unloading rack is equipped with secondary containment that is designed to contain the maximum capacity of any single compartment of tank trucks that utilize the facility. Additionally, the ISO tank offloading area was designed to contain the maximum capacity of the larges ISO tank that is loaded and/or offloaded at the facility[23].

These areas are paved/surfaced with impermeable materials (i.e., concrete). Like other secondary containment areas, these areas are maintained such that they do not have excessive amounts of:

- debris
- vegetation

[21] With respect to this facility, all SCA drainage is conducted via pump. The water leaves the SCA through a piping system and discharges just outside of the fence.
[22] Offloading is also conducted at tank truck loading rack.
[23] Offloading is also conducted at the ISO tank loading area. The maximum capacity of ISO tank that can be offloaded at the facility is 6,800 gallons.

- accumulated water
- other materials or conditions that might interfere with the effectiveness of the system

DW's internal transfer procedures require the use of tire chocks, which act as a physical barrier, to prevent premature vehicular movement during loading and unloading activities if the area is not equipped with a permanent berm or recession.

As noted in Section 2.1.5.6, DW transfer personnel complete a visual inspection of the above-referenced secondary containment structures prior to initiating loading or unloading.

2.1.6.4 Facility Oil Piping

18 AAC 75.080(a)

DW's facility oil piping was designed and installed to comply with 18 AAC 75.080. The applicability of each paragraph of 18 AAC 75.080 is shown below and on the following page.

18 AAC 75.080

The following sections of the 18 AAC 75.080 are applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(a)	Duty to comply with facility oil piping requirements
(b)	Corrosion control program
(c)	Piping placed in service after 12-30-2008
(d)	Buried piping placed in service between 5-14-1992 and 12-30-2008
(f)	Cathodic protection for piping placed in service after 12-30-2008
(g)	Exposing buried piping
(i)	Supports for aboveground piping
(j)	Inspection of piping
(k)	Operation and maintenance of cathodic protection
(m)	Corrosion protection for aboveground piping
(n)	Valve requirements
(o)	Out of service piping

The following sections of the 18 AAC 75.080 are not applicable to the DW Ketchikan Bulk Facility.

Citation	Description
(e)	Buried piping placed in service after 12-30-2008

(h)	Buried piping without cathodic protection
(l)	Corrosion protection for aboveground piping not covered by (m)
(p)	Section-specific definitions

As much of the applicability of this section is based on the type of piping and the date the piping was placed into service, a facility oil piping summary is provided on the following page in Table 2-9.

Table 2-9: Facility Oil Piping Summary

Associated Facility	Piping Segment	Type of Piping	Date of Installation	Diameter (Inches)	Length (Feet)	Cathodic Protection?	Comments / Description
Ward Cove Facility	T-01 to SCA Wall	Above Ground	1993	12	100	N/A	
Ward Cove Facility	SCA Wall to Dock	Below Ground	1993 / 2020	12 / 8	680	Yes	Approximately 10 feet of 12 inch piping was replaced in 2020
Ward Cove Facility	Dock to Marine Header	Below Ground	1993 / 2020	8	480	Yes	Approximately 25 feet of pre-existing piping was demolished in 2020 due align with new marine header
Ward Cove Facility	T-01 Service Line to TTLR	Above Ground	1993	6	50	N/A	
Ward Cove Facility	T-01 Service Line from TTLR to Arm	Above Ground	1993	4	10	N/A	
Ward Cove Facility	T-02 Service Line to TTLR	Above Ground	2020	6	100	N/A	
Ward Cove Facility	T-02 Service Line from TTLR to Arm	Above Ground	2020	4	10	N/A	
Ward Cove Facility	T-03 Service Line to TTLR	Above Ground	2020	4	70	N/A	
Ward Cove Facility	T-03 Service Line from TTLR to Arm	Above Ground	2020	4	10	N/A	
Ward Cove Facility	T-04 Service Line to TTLR	Above Ground	2021	4	70	N/A	
Ward Cove Facility	T-04 Service Line from TTLR to Arm	Above Ground	2021	4	10	N/A	
Ward Cove Facility	T-05 Service Line to TTLR	Above Ground	2022	4	110	N/A	
Ward Cove Facility	T-31 Service Line to TTLR	Above Ground	2022	4	40	N/A	
Ward Cove Facility	T-32 Service Line to TTLR	Above Ground	2022	4	40	N/A	
Ward Cove Facility	T-33 Service Line to TTLR	Above Ground	2022	4	40	N/A	

General Facility Oil Piping Requirements

18 AAC 75.080(a), 18 AAC 75.080(b), 18 AAC 75.080(c)

DW's maintains metallic facility oil piping containing oil in accordance with a written corrosion control program.

All facility oil piping placed into service after December 30, 2008 was designed and constructed to meet the requirements of the following standard:

- American Society of Mechanical Engineers' Process Piping (ASME B31.3-2004)

Buried Piping Requirements (including Cathodic Protection)

18 AAC 75.080(d), 18 AAC 75.080(f), 18 AAC 75.080(g), 18 AAC 75.080(k)

The Ketchikan Bulk Facility is equipped with buried facility oil piping that was placed in service between May 14, 1992 and December 30, 2008 that is equipped with a cathodic protection system. The cathodic protection system was installed after December 30, 2008.

In the event that a segment of buried facility oil piping is exposed for any reason, DW intends to carefully examine the exposed piping for coating damage and corrosion in accordance with API 570 Section 9.2.6. If during this examination, active corrosion is found DW will:

- Implement actions for control of future corrosion
- Ensure that any significant repairs or replacements are done in compliance with 18 AAC 75.080(c) and 18 AAC 75.080(e).

Buried facility oil piping at the Ketchikan Bulk Facility placed in service between May 14, 1992 and December 30, 2008 is protected from corrosion by a protective coating and a cathodic protection system; this piping is constructed of all welded construction with no clamped, threaded, or similar connections. Cathodic protection is described further in Section 5 of this Addendum.

All buried facility oil piping placed into service after December 30, 2008 was designed and constructed consistent with NACE International's, Standard Recommended Practice-Control of External Corrosion on Underground or Submerged Metallic Piping Systems, 2002 edition (NACE RP0169-2002), designed by a corrosion expert, and installed under the direction of a corrosion expert.

The cathodic protection system at the Ketchikan Bulk Facility was designed and constructed consistent with NACE International's, Standard Recommended Practice-Control of External Corrosion on Underground or Submerged Metallic Piping Systems, 2002 edition (NACE RP0169-2002), included a cathodic protection survey by a corrosion expert and/or qualified

cathodic protection tester, and includes maintenance of the test wires to enable electrical measurements to be taken.

Aboveground Piping Requirements

18 AAC 75.080(i), 18 AAC 75.080(m)

All aboveground facility oil piping is supported consistent with the requirements in ASME B31.3-2004. Additionally, aboveground facility oil piping is protected against corrosion by its protective coating.

Facility Oil Piping Inspection Requirements

18 AAC 75.080(j), 18 AAC 75.080(n)

DW employees the following inspections as required by 18 AAC 75.080(j) and 18 AAC 75.080(n) at the Ketchikan Bulk Facility:

- API 570
- Monthly visual inspection of aboveground facility oil piping:
    - For leaks and/or damage
    - To confirm that all aboveground facility oil piping continues to be protected from damage by vehicles

Table 2-10 is included on the following page to summarize piping inspection schedules.

Table 2-10: Piping Inspection Schedule

Sub-Location	Inspection Type	Frequency	Last (Year)	Next (Year)
Ward Cove Facility	API 570	5 Years	2022	2027
Ward Cove Facility	CP	1 Year	2023	2025
Ward Cove Facility	HYDROTESTING	1 Year	2024	2025

Out of Service Piping Requirements

18 AAC 75.080(o)

In the event facility oil piping is removed from service for more than one year, the piping will be confirmed to be:

- Free of accumulated oil
- Marked on the exterior with the following:
  - "Out of Service"
  - The date taken out of service
  - Information on the origin of piping
- Secured in a manner to prevent unauthorized use (i.e., blank flanged or otherwise isolated)

Additionally, DW will notify ADEC when facility oil piping is removed from service and when the actions described above have been completed.

2.2 Facility Discharge History

18 AAC 75.450(b)(2), 18 AAC 75.020(d)

A list of all known oil discharges greater than 55 gallons that have occurred at the facility are presented in Table 2-11 on the following page.

Table 2-11: Discharge History

Date	Source	Cause	Amount (Gallons)	Product	Corrective Actions	Relationship Analysis	Actions to Prevent a Potential Discharge
6/7/2024	Aboveground Storage Tank	Human error	1200	Diesel	Stopped the transfer; completed cleanup; increased the volume output for the high-level alarm	Single incident Human error	Personnel training

2.3 Potential Discharge Analysis

18 AAC 75.450(b)(3)

An analysis of potential oil discharges is presented in Table 2-12 on the following page.

Table 2-12: Potential Discharge Analysis

Type	Size	Frequency	Cause	Duration	Location	Actions to Prevent a Potential Discharge	Facility Best Practices Identified
Aboveground Storage Tanks - Structural Failure (Catastrophic)	Depends on rate of flow and duration; range is <1 gallon to volume of the largest tank	Very Unlikely (Less than once in 20 years)	Earthquake Equipment failure Physical damage Rupture	A shell rupture may be discovered in minutes and stopped in minutes to hours	Secondary Containment Area	Active monitoring Inspections Maintenance Transfer procedures	N/A
Aboveground Storage Tanks - Structural Failure (Corrosion)	Depends on rate of flow and duration; range is <1 gallon to volume of the largest tank	Unlikely (Once every 5-20 years)	Corrosion Physical damage	A small corrosion hole on the bottom of the tank might endure for weeks or months depending on flow rate	Secondary Containment Area	Inspections Automated Shutoff Secondary Containment Structure	Water settlement mitigation
Aboveground Storage Tanks - Overfill	Depends on rate of flow and duration; range is <1 gallon to 500 gallons	Unlikely (Once every 5-20 years)	Human error Overfill Physical damage	Immediately up to 2 minutes based on design of emergency shut offs	Secondary Containment Area	Active monitoring Inspections Maintenance Personnel training Transfer procedures	Ensure sound output level of high-level alarm is appropriate for the facility
Pipelines	Depends on if actively pumping or not; range is <1 gallon to the entire volume of pipeline plus the duration times pumping rate	Very Unlikely (Less than once in 20 years)	Corrosion Earthquake Equipment failure Overfill Physical damage Rupture	< 1 hour	Along pipeline in downgradient direction	Active monitoring Inspections Maintenance Transfer procedures	N/A
Marine Header	Depends on rate of flow at time of occurance and duration; estimated maximum is 1,000 gallons	Very Unlikely (Less than once in 20 years)	Earthquake Equipment failure Physical damage Rupture	< 5 minutes	Adjacent to marine header, including adjoining water body	Annual pressure testing Inspections Maintenance Transfer procedures	N/A
Transfers at Tank Truck Loading / Offloading Rack and ISO Tank Loading / Offloading Area	Up to 300 gallons	Unlikely (Once every 5-20 years)	Equipment failure Human error	< 3 minutes	Tank Truck Loading / Offloading Rack	Active monitoring Personnel training Transfer procedures	Ensure sound output level of high-level alarm is appropriate for the facility
Valves	<1 gallon	Very Unlikely (Less than once in 20 years)	Equipment failure	< 1 hour	Facility-Wide	Inspections Maintenance	N/A
Camlock Connections	0.25 to 1 gallon	Unlikely (Once every 5-20 years)	Equipment failure	< 1 minute	Fuel Transfer Areas	Active monitoring Personnel training Transfer procedures	N/A
Transfer Hoses	2 to 10 gallons	Very Unlikely (Less than once in 20 years)	Equipment failure Physical damage	< 5 minutes	Fuel Transfer Areas	Annual pressure testing Inspections Maintenance	N/A

2.4 Specific Conditions

18 AAC 75.450(b)(4)

The following conditions specific to the facility apply:

- Physical or navigational hazards
- Traffic patterns
- Other site-specific factors

Each applicable condition and the measures that have been taken to reduce the risk of a discharge are presented in Table 2-13 on the following page.

Table 2-13: Specific Conditions

Condition Type	Specific Condition	Description	Mitigation Measures
Physical or Navigational Hazard	Strong winds	Facility is located in an area with the potential for high winds.	Aboveground storage tanks are anchored. Piping is braced.
Physical or Navigational Hazard	Earthquake / Tsunami	Facility is located in an area with periodic seismic events, including earthquakes and tsunamis.	Tank farm was designed and constructed to meet or exceed adopted versions of the International Building Code (IBC), International Fire Code (IFC), and the National Fire Protection Agency (NFPA) codes at the time of installation. Tanks and piping are inspected after any seismic event to ensure no damage or leaks have occurred. All tanks and piping are kept closed and/or locked when not in use.
Traffic Patterns	Vessel traffic patterns	Vessel impacts to the dock at or near marine headers.	Valving at marine header would be immediately closed.
Other Site Specific Factor	Vandalism / Sabatoge	Inherent potential for vandalism and/or sabotage exists as a marine facility.	Security and surveillance measures are in place at the facility. Refer to Section 2.1.4.

2.5 Discharge Detection

18 AAC 75.450(b)(5)

The following existing means of discharge detection apply to this facility:

- Normal business hours: operational personnel visually monitor the facility
- Monthly: formal inspections of key facility infrastructure (tanks and piping) that include specific line items for discharge detection
- Prior to product receipt via any means: transfer equipment is visually inspected
- During product receipt via barge: at least two operational personnel are onsite with at least one of them stationed at the tank farm

In addition, each AST is elevated above grade, which allows for visual assessment of leaks from the tank bottom, and equipped with overfill protection and a liquid level gauge.

3 Supplemental Information

18 AAC 75.451(a)

The Supplemental Information which comprises Section 3 of this plan is designed to provide the background and verification of information identified in 18 AAC 75.451(b) through 18 AAC 75.451(m). In some cases as noted on the Cross Reference Table, the information required by 18 AAC 75.451(b) through 18 AAC 75.451(m) has been located elsewhere in the plan for ease of use and to avoid unnecessary duplication.

3.1 Receiving Environment

18 AAC 75.451(c)

This section contains the analysis of the amount and location of oil from the RPS, which might realistically be expected to reach open water within the applicable time limit. This analysis cross references the site drainage diagram, contained in the Section 1.7 (Figure 1-3), the response scenario[24], and the facility's adjusted RPS, which is presented in Section 5.

The RPS assumes a catastrophic failure of tank T-01 and the associated secondary containment area. In this case, the most likely route to open water would be in a southwest, downgradient direction towards Ward Cove.

The relative location of tank T-01 to Ward Cove is as follows:

Straight Line Distance	400 feet[25]
Elevation Distance	50 feet[26]
Approximate Gradient	8%

Native soils are not known to occur at the site. The ground surface is comprised of exposed bedrock, rock from the shoreline or blasted rock, fill derived from the underlying bedrock, or imported fill material (E&E, 1998).

[24] As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference in Section 1.6 of this plan.
[25] Derived from Google Map measurement
[26] Derived from Alaska Department of Natural Resources (ADNR) mapping for 50 ft. contour lines

Released product is anticipated to pool in low spots and follow the topography of the land. A portion of the released product will be absorbed into the vegetation and soil.

Taking into account the relative location of the tank, soil type, low spots, and level of vegetation, it is estimated that no more than 90% of the adjusted RPS could reach open water.

A mathematical depiction of how DW derived this estimate is presented in Table 3-1.

DW's initial action steps focus on initial containment and control as close as possible to the source to prevent a discharge from entering open water. Probable actions that may be taken are described in the response scenario[27].

The response equipment required by 18 AAC 75.451(g) is presented in the response scenarios. As shown in the response scenario, the response equipment required has been determined to be sufficient to clean up the RPS discharge volume that is anticipated to enter open water within the applicable time limit.

[27] [27] As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference in Section 1.6 of this plan.

Table 3-1: Percentage of Adj RPS Remaining on Land

Category	Percentage of RPS	Comments / Rationale
Absorption	9	Based on distance and soil type
Pooling	1	Based on topography and limited areas that are topographically lower and would pool water; based on the drainages downgradient of the facility, there is little opportunity for pooling, although some may occur based on the exact flow path
Total	10	

3.2 Command System

18 AAC 75.451(d)

DW intends to utilize the ICS, which is part of the National Incident Management System (NIMS). NIMS provides a consistent nationwide framework and approach to enable government at all levels, the private sector, and non-governmental organizations to work together to prepare for, prevent, respond to, recover from, and/or mitigate the effects of emergency incidents/events. The ICS integrates a combination of facilities, equipment, personnel, procedures, and communications operating within a common organization structure. The structure is flexible and scalable to meet the level of incident complexity (NIMS, 2017). Key parts of the ICS include:

IMTs	Rostered groups of ICS-qualified personnel
ICS Forms	Templated forms to document all aspects/stages of the incident response
The Operational Planning Period Cycle (Planning P)	A systematic cycle outlines the steps and sequence of which to execute them

With responses that involve multi-agency or multi-jurisdictional approaches, the incident command leadership may form into a Unified Command (UC) verses having a single IC. The UC is a structure that brings together ICs of the major organizations involved to coordinate an effective response and allow each organization to carry out their own jurisdictional, legal, and functional responsibilities. For example, a UC for an oil spill in Alaska may include the Responsible Party's IC, the State on Scene Commander, and the Federal on Scene Commander.

Incidents are categorized based on their complexity based on factors such as duration, resource requirements, etc., on a scale from one (1) to five (5) with type one (1) representing the most complex. Since not all incidents require standing up an IMT/SMT, DW utilizes incident typing to assist in determining if IMT/SMT standup is warranted for each incident. This assessment is typically completed as a mental exercise by DW's QI in consultation with others within the organization, as needed.

An ICS diagram (Figure 3-1) is provided at the end of this section (3.2). As required, DW is prepared to fill the following functions: command staff (IC, liaison officer, public information officer, and safety officer), financial, operations, planning, logistics, and environmental[28].

For DW, the goal of incident response operations is the restoration of normal operations as soon as feasible, while minimizing impacts to people, property, and the environment. As such, DW recognizes the need to organize initial oil spill response management in a manner that allows for efficient ramping up of response activity if the size or complexity dictates. DW envisions using a two-phase approach, as shown below.

Emergency Phase	Utilizes primarily local DW personnel relying on the QI and IOSC supported by facility spill response personnel. Expected to manage an incident until relieved; typically the first 8 to 12 hours.
Response Phase	Includes all of the above, but transitions from IOSC to designated IC. May include the standup of additional ICS command and general staff positions, as needed, which may include a combination of DW personnel, parent company personnel, and/or contacted personnel[29]. Assume control of the incident upon arrival; typically from hour 8 to 12, but not to exceed 24 hours.

Detailed personnel contact information for DW's designated QIs is provided in Table 1-1(Section 1.2).

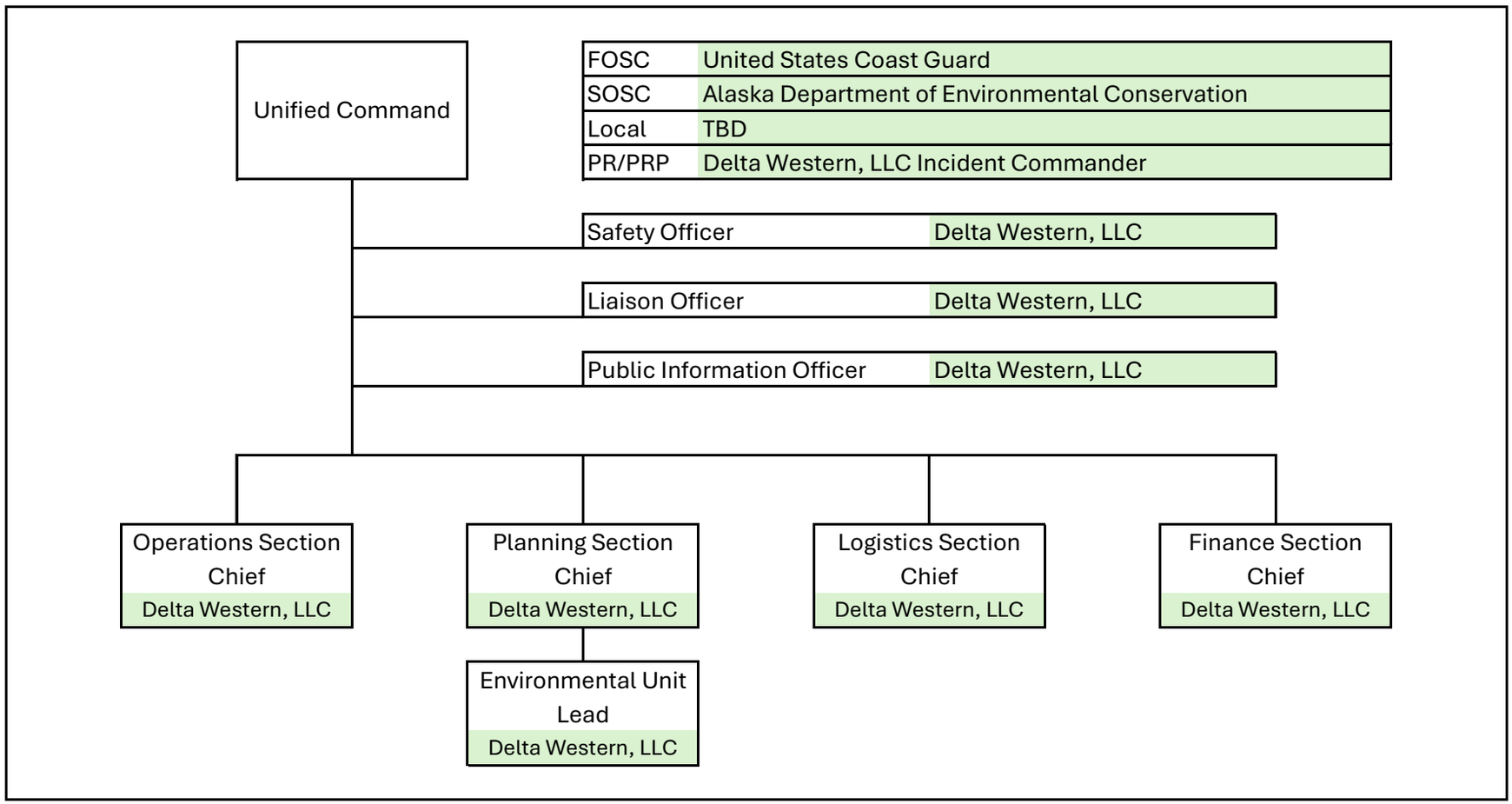
The names and detailed contact information for persons filling positions in DW's ICS is maintained in a separate document[30], as allowed by 18 AAC 75.451(d). This document is incorporated by reference here and was submitted in conjunction with the original plan application package. However, as allowed by 18 AAC 75.451(d), this document is maintained as confidential and not available for public review. DW has committed to maintain and update this document in real time and provide updates to the Department at least once a quarter, if changes occur.

[28] Environmental falls under the Planning Section and will be fulfilled by the Planning Section Chief, unless a designed Environmental Unit Leader is activated; if an Environmental Unit Leader is activated, they will work under the general direction of the Planning Section Chief.

[29] Contracted personnel may integrate into the ICS at the request of DW with specific ICS roles filled by OSRO/PRAC, IMT/SMT providers, and/or other contractors dependent upon the size and complexity of the incident. DW does not anticipate relinquishing control of the management of a response, but rather maintains the right supplement their IMT/SMT as needed.

[30] This document is titled: YYYY_MM_XXX - 18 AAC 75.451(d) ICS Names & Detailed Contact Information where YYYY represents the year and MM represents the month in which the document was printed.

Organizational Chart



3.3 Realistic Maximum Response Operating Limitation Summary

18 AAC 75.451(e)

Ketchikan has a mild maritime climate. The coldest month of the year is January with an average high of 40 °F and an average low of 30 °F while the warmest month of the year is August with an average high of 64 °F and an average low of 52 °F. The average annual precipitation is 141 inches with October receiving the most rain at an average of 19.22 inches, and with July receiving the least rain at an average of 6.57 inches (U.S. Climate Data, 2024). The wind speed varies by month with January being the windiest month at an average wind speed of 7.7 knots and July being the calmest month at an average wind speed of 4.4 knots. Ketchikan has two predominant wind directions, from the northwest and southeast. (Weather Spark, 2024)

Table 3-2 describes the realistic maximum response operating limitations, including severe weather and environmental limitations, that might be encountered at the facility and contains the analysis of the frequency and duration of limitations that would render mechanical response methods ineffective[31]. The estimate provided in Table 3-2 was derived using a 5-year compilation of the Ketchikan Internation Airport max windspeed records (Weather Underground, 2025)The data set was converted from miles per hour to knots and days affected by maximum windspeeds of greater than 20 knots were summed and divided by 5 to reach an annual estimate.

The table also includes additional specific temporary prevention or response measures that may be taken to reduce the environmental consequences of a discharge. DW does not propose nonmechanical response.

[31] This analysis accounts for environmental and safety considerations and is expressed as a percentage of time.

Table 3-2: Realistic Max Response Operating Limits

Condition Type	Environmental Condition Precluding Response	Estimated Number of Days Affected per Year	Estimated Amount of Year Affected (Percentage)	Temporary Prevention or Response Measures	Discussion
Wind	Greater than 20 knots	38	10%	Cease fueling activities during extreme winds.	
Visibility	Less than 1/4 mile	5	1%	Additional employees during transfers. Focus response efforts on land based recovery.	
Precipitation	Heavy; greater than 0.30 inches per hour	1	0%	Adapt as necessary to prevent spills. Maintain vigilance as spills are more difficult to detect during periods of heavy precipitation.	While Ketchikan receives a lot of rainfall, it is rare to have heavy precipitation for an extended period with no ebbs in intensity.
Temperature	Below -20 degrees Fahrenheit with wind chill	0	0%	N/A	
Sea States	Greater than Beaufort scale 3	5	1%	Cease fuel transfers at dock when conditions are unsafe and secure valves. Focus response efforts on land based recovery.	Many skimmers require less than 3 ft waves to operate. While there are some available skimmers that can operate during larger swell, safe deployment and vessel operation may be an additional concern.
Tides	Extreme low or high; storm tides	0	0%	N/A	Response effectiveness is likely to be diminished during times of extreme tides but unless other factors (such as wind) are happening concurrently, the extreme tides alone would not preclude mechanical response for an extended period.
Currents	Greater than 1 knot	0	0%	Cease fuel transfers at dock when conditions are unsafe and secure valves. Focus response efforts on land based recovery.	Response effectiveness is likely to be diminished during times of extreme currents, but as nearshore currents are most likely to be affected by wind and tide, the combined effect of wind and tide on the current would be considered.
Hours of Daylight	Winter - 17 hours of darkness Spring - 12 hours of darkness Summer - 7 hours of darkness Fall - 12 hours of darkness	0	0%	N/A	Response efforts are likely to be halted during the night as water operations can be dangerous in the dark. All days of the year have some level of light.
Other Conditions	Extreme ice and debris	0	0%	N/A	Response efforts are likely to be halted or diminished during times of extreme ice or debris. However, this is unlikely to occur at this latitude.

3.4 Logistical Support

18 AAC 75.451(f)

DW has identified aircraft, vessels, and other means that may be used to transport equipment and personnel during a discharge response. This information, including ownership and availability, is presented on Table 3-3.

Table 3-3: Logistical Support

Resource Type	Company Name	Availability	City	Phone	Website	Additional Details
Ground Transportation	Alaska Car Rental	Commercially Available	Ketchikan	907-225-5000	www.akcarrental.com	
Ground Transportation	Budget Car Rental	Commercially Available	Ketchikan	907-225-6003	www.budget.com	
Ground Transportation	Ketchikan Car Rentals	Commercially Available	Ketchikan	907-821-0798	www.ketchikancars.com	
Air Transportation & Services	Ketchikan Helicopter	Commercially Available	Ketchikan	855-858-4354	www.helicopterairalaska.com	Same as Helicopter Air Alaska
Air Transportation & Services	Helicopter Air Alaska	Commercially Available	Ketchikan	907-225-4354	www.helicopterairalaska.com	
Air Transportation & Services	Temsco Helicopters Inc.	Commercially Available	Ketchikan	907-225-5141	www.temscoair.com	email: ktn_dis[patch@temscoair.com
Air Transportation & Services	Taquan Air Service Inc.	Commercially Available	Ketchikan	907-225-8800	www.taquanair.com	
Air Transportation & Services	Alaska Airlines	Commercially Available	Anchorage	1-800-252-7522	www.alaskaair.com	
Air Transportation & Services	Lynden Air Cargo	Commercially Available	Anchorage	907-243-7248	www.lynden.com	
Air Transportation & Services	Lynden Air Cargo	Commercially Available	Anchorage	1-877-243-7248	www.lynden.com	
Air Transportation & Services	Grant Aviation	Commercially Available	Anchorage	907-644-4307	www.flygrant.com	
Air Transportation & Services	Northern Air Cargo	Commercially Available	Anchorage	1-800-727-2414	www.nac.aero	
Air Transportation & Services	Northern Air Cargo	Commercially Available	Anchorage	907-450-7241	www.nac.aero	
Marine Transportation & Services	Kirby Tansportation	Commercially Available	State-Wide	206-443-9418	www.kirbycorp.com	Tugs and barges
Marine Transportation & Services	Alaska Marine Highway	Commercially Available	State-Wide	1-800-382-9229	https://dot.alaska.gov/amhs/index.shtml	
Marine Transportation & Services	Amak Towing	Commercially Available	Ketchikan	907-617-8890	www.amaktowing.com	
Marine Transportation & Services	Amak Towing	Commercially Available	Ketchikan	907-225-8847	www.amaktowing.com	
Marine Transportation & Services	Cook Inlet Tug & Barge	Commercially Available	Anchorage	907-248-0087	www.cookinlettug.com	
Marine Transportation & Services	Northland Services	Commercially Available	State-Wide	1-800-426-3113	www.northlandservices.com	Terminals, tugs, and barges
Marine Transportation & Services	Crowley Marine Services	Commercially Available	State-Wide	1-800-248-8632	www.crowley.com	Terminals, tugs, and barges
Marine Transportation & Services	Crowley Marine Services	Commercially Available	State-Wide	907-777-5505	www.crowley.com	Terminals, tugs, and barges
Marine Transportation & Services	Samson Tug & Barge Co.	Commercially Available	State-Wide	855-907-8559	www.samsontug.com	

3.5 Response Equipment

18 AAC 75.451(g)

As demonstrated in the response scenario required by 18 AAC 75.449(a)(6), DW has ready access to enough equipment to meet the applicable RPS using mechanical methods of control, containment, and cleanup. This equipment is considered to reflect the best available technology (BAT) at the time this plan was renewed. The complete list of contracted or other response equipment to meet the applicable RPS, to protect and recover wildlife, and to protect environmentally sensitive areas (ESAs) and areas of public concern that may be reasonably expected to be impacted by a spill of the RPS volume before oil reaches them is contained on the ICS-201 Page 4 form provided in the Response Scenario[32].

In addition to the response equipment listed in the response scenario (described above), DW maintains a supply of personal protective equipment, hand tools, and other consumable supplies that can be used in the event of a spill.

DW owned equipment is stored at the Ketchikan Bulk Facility[33] and maintained in "ready" status in secured and marked locations. Routine maintenance is performed, as required by the manufacturer, where applicable. Spill response equipment is inventoried and inspected twice a year. Facility personnel also deploy a subset of their spill response equipment twice a year to periodically test it and ensure proper operation.

3.6 Response Equipment Specifications

18 AAC 75.451(h)

The response equipment identified in this plan was chosen to meet the requirements of 18 AAC 75.451(h); demonstration of this can be seen in the response scenario[34].

[32] As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference in Section 1.6 of this plan; in the Response Scenario refer to Sections 2.1 and 2.2 (ICS-201 Page 4) on pages 2-7 and 2-24.
[33] The spill response skiff is not stored at the Ketchikan Bulk Facility, but rather at a local marina where it is stationed in water for quicker deployment.
[34] As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference in Section 1.6 of this plan; in the Response Scenario refer to specific scenarios in Sections 2.1 and 2.2.

3.7 Primary Response Action Contractor

18 AAC 75.451(i)

DW proposes to utilize the services of a PRAC/OSRO to meet the requirements of AS 46.04.030 or 18 AAC 75.432 – 18 AAC 75.442. The information required to be provided is shown below.

Name	Southeast Alaska Petroleum Response Organization (SEAPRO)
Address	540 Water Street, Suite 201 Ketchikan, Alaska 99901
Telephone Number	907-225-7002
Affiliation by Company	Same as name above
Description of Response Equipment and Services Provided	PRAC/OSRO https://seapro.org/

A Statement of Contractual Terms between DW and the above-referenced PRAC/OSRO is provided on the following page.

Southeast Alaska Petroleum Response Organization, Inc.

540 Water Street, Suite 201 Ketchikan, Alaska 99901
(907) 225-7002 Fax (907) 247-1117
www.seapro.org

As required by Alaska Statute and Regulations in fulfillment of a requirement for registration as a Primary Response Action Contractor and for approval of an Oil Discharge and Contingency Plan.

PLAN TITLE: Oil Discharge Prevention and Contingency Plan and/or Facility Response Plan
PLAN HOLDER: Delta Western, LLC

This statement is a certification to Alaska Department of Environmental Conservation summarizing the contract between Delta Western, LLC, the oil discharge and contingency plan holder, (hereinafter "PLAN HOLDER"), and Southeast Alaska Petroleum Response Organization, Inc., (SEAPRO), the Primary Response Action Contractor, (hereinafter "CONTRACTOR"), executed on December 20, 2018, the original of which is located at 540 Water Street, Ketchikan, Alaska, as evidence of the PLAN HOLDER's access to the containment, control and /or cleanup resources required under standards at AS 46.04.030 and 18 AAC 75.400 - 18 AAC 75.495. PLAN HOLDER and CONTRACTOR attest to the Department that the provisions of this written contract clearly obligate CONTRACTOR to:

(A) provide the response services and equipment listed for the CONTRACTOR in the contingency plan;

(B) respond if a discharge occurs;

(C) notify the PLAN HOLDER immediately if the CONTRACTOR cannot carry out the response actions specified in this contract or the contingency plan;

(D) given written notice at least 30 days before terminating this contract with the PLAN HOLDER;

(E) respond to a Department conducted discharge exercise required of the PLAN HOLDER;

(F) continuously maintain in a state of readiness, in accordance with industry standards, the equipment and other spill response resources to be provided by the CONTRACTOR under the contingency plan.

I hereby certify that, as the representative of the PLAN HOLDER, I have the legal authority to bind the PLAN HOLDER in this matter. I am aware that false statements, representations, or certifications may be punishable as civil or criminal violations of law.

Date January 6, 2020

Print Name Christina Bentz

Title Environmental Manager

Signature 

For: Delta Western, LLC
Plan Holder

I hereby certify that, as the representative of the CONTRACTOR, I have the legal authority to bind the CONTRACTOR in this matter. I am aware that false statements, representations, or certifications may be punishable as civil or criminal violations of law.

Date January 6, 2020

Print Name David Owings

Title General Manager

Signature Dave Owings Digitally signed by Dave Owings DN: cn=Dave Owings, o=SEAPRO, ou=General Manager, email=dave@seapro.org, c=US Date: 2020.01.06 13:22:19 -09'00'

For: Southeast Alaska Petroleum Response Organization, Inc.
CONTRACTOR

3.8 Training for Discharge Response Personnel

18 AAC 75.451(j)

DW's training program for discharge response personnel is described in Section 2.1.1 of this plan.

3.9 Environmentally Sensitive Areas and Areas of Public Concern

18 AAC 75.451(k)

The Ketchikan Bulk Facility is located within the Southeast Alaska Area Contingency Plan (SEAK ACP) which serves as guidance for a coordinated and cooperative pollution response within the Southeast Alaska Captain of the Port Zone. The United States Coast Guard (CG) and ADEC provide references and tools throughout the SEAK ACP with information used to support a response to a discharge that can supplement the information below.

ESAs and areas of public concern that might be impacted by a RPS discharge were evaluated based on modeled spill trajectory predictions of movement and spreading as developed and presented in the response scenarios[35] and through the following cited resources.

- ADEC Alaska Sensitive Areas Compendium
- ADEC Geographic Response Strategies – Southeast Alaska
- National Oceanic and Atmospheric Administration (NOAA)
    - Environmental Sensitivity Index - Maps and Sensitive Biological Resources
- Alaska Department of Fish and Game (ADF&G)
    - Anadromous Water Maps
- NOAA Environmental Response Management Application
    - (ERMA) Arctic Mapping

The Ketchikan Bulk Facility is located in a pre-identified geographic response strategy (GRS) zone for Refuge and Ward Cove (site# SE01-19-01) and will be given priority using pre-planned strategic use of response resources. A copy of this GRS is provided on Pages 3-16 and 3-17.

Immediate shoreline habitats, known wildlife critical habitats, and endangered species that overlap with the potential trajectories of a RPS spill are presented in Table 3-4 (Page 3-18).

[35]As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference in Section 1.6 of this plan; in the Response Scenario refer to Section 1.5, and the two Aerial Surveillance ICS-204a forms in Section 2.1 (TF-5, page 2-13) and 2.2 (TF-6, page 2-31) for information and depiction of modeled trajectories.

Additional potential sites, based on concern level, that should be considered by an on-scene coordinator during a response are also identified in the table.

Additional anadromous streams that should be evaluated for response activities based on potential spill trajectories are identified in Table 3-5 (Page 3-19) and a copy of the anadromous water atlas map for Ketchikan is provided on Page 3-20.

Products that can potentially be stored at the Ketchikan Bulk Facility and their toxicity category defined by 18 AAC 75.640, .650, and .660 are identified in Table 3-6 (Page 3-21). In general, the products at the Ketchikan Bulk Facility that could result in an RPS release are moderately persistent in the environment as lighter end oils.

Seasonal conditions of resources specific to biological sensitivity and human-use in the Ketchikan geographic area are presented as a subset from the Environmental Sensitivity Index on Page 3-22. This resource can be utilized quickly to determine resource concerns as it relates to the time of year. The Environmental Sensitivity Index map is provided on Page 3-23.

The response scenarios describe the specific actions taken to protect probable immediate points of contact with ESA's and areas of public concern utilizing the resources from this section[36].

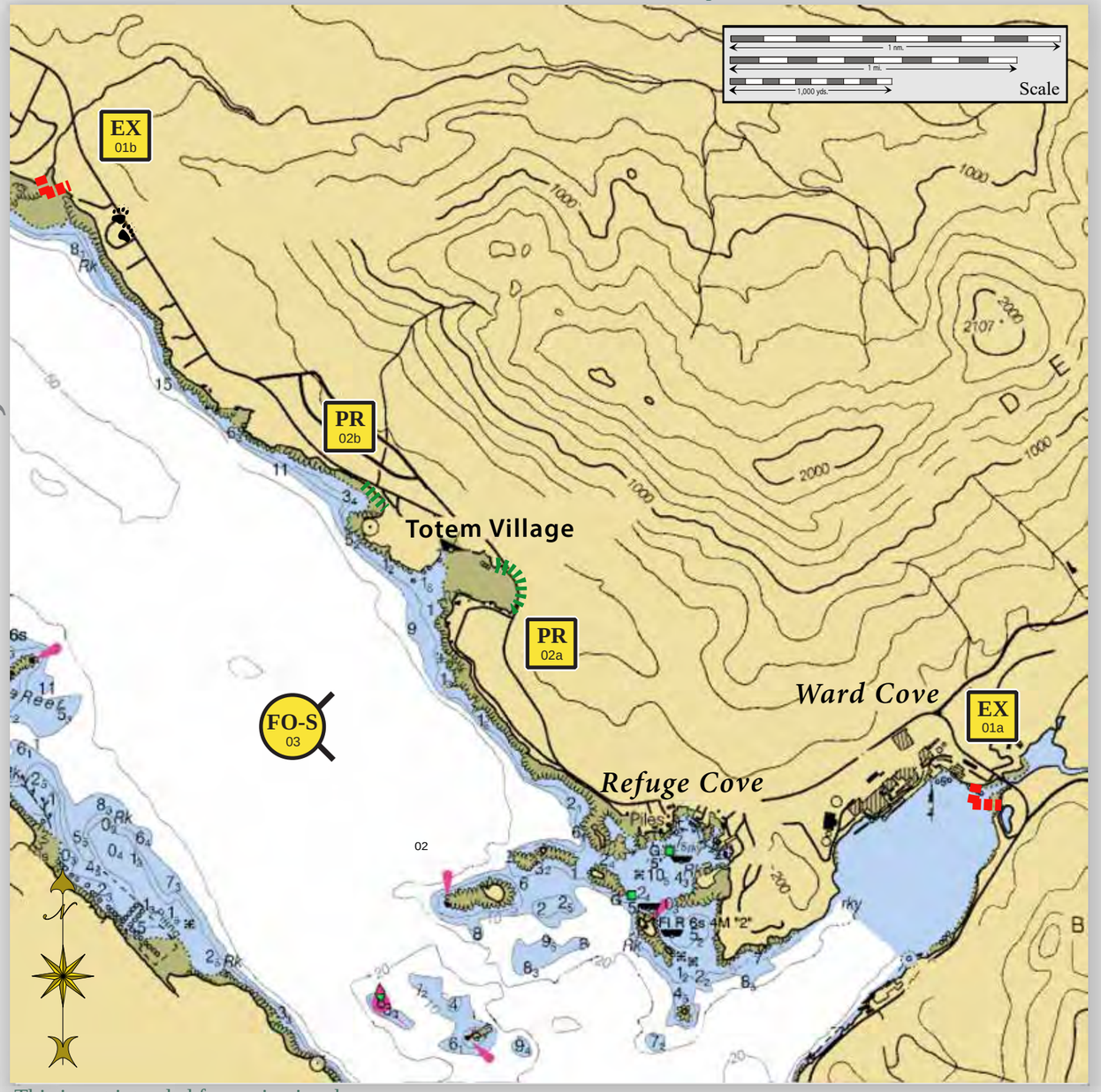
[36]As allowed by 18 AAC 75.449(a)(6), DW has prepared the response scenario as a separate document, which is incorporated by reference in Section 1.6 of this plan; in the Response Scenario refer to Section 1.6, the ICS-204a forms for TF-3 (ESA Protective Booming) in Sections 2.1 (page 2-11) and 2.2 (2-28), and the ICS-232 forms in Sections 2.1 (page 2-17) and 2.2 (page 2-35).

Geographic Response Strategies for Southeast Alaska Subarea, Zone 1

Refuge & Ward Coves, SE01-19

The back of Ward Cove viewed from the east.

Center of map at 55˚ 24.18' N Lat., 131˚ 44.88' W Lon.



This is not intended for navigational use.

Map Legend

- FO-S — Free-oil Recovery
- EX — Exclusion Booming
- PR — Passive Recovery
- Protected-water Boom
- Snare or Sorbent Boom
- Bears in Area, Guards Recommended

NUKA Research & Planning Group, LLC.

ID	Location and Description	Response Strategy	Implementation	Response Resources	Staging Area	Site Access	Resources Protected	Special Considerations
SE01-19-01 **EX**	**Refuge & Ward Coves** **Ward Creek** a. Lat. 55° 24.42'N Lon. 131°43.11'W **Whipple Creek** b. Lat. 55° 05.95'N Lon. 132°32.04'W	**Exclusion** Exclude oil from impacting Ward Creek and Whipple Creek.	Deploy anchors and boom with skiffs (class 6). Place protected-water boom in a chevron pattern in front of the entrance to Ward Creek and Whipple Creek. At Ward Creek place boom on the sloping beach at the base of the bridge. Tend throughout the tide. Boom Lengths: a. 500 ft. b. 400 ft.	**Deployment** **Equipment** 900 ft. protected-water boom 5 ea. anchor systems 8 ea. anchor stakes **Vessels** 2 ea. class 6 **Personnel/Shift** 4 ea. vessel crew **Tending** **Vessels** 1 ea. class 6 **Personnel/Shift** 2 ea. vessel crew	Ward Cove	Road access available via road system to Ward Creek. Whipple Creek maybe accessed via trail system from the road. Or Via marine waters Chart 17428_1	Fish: chum, sockeye, dolly varden, coho, pink Birds: waterfowl concentration Habitat: sheltered rocky shore, gravel beach, sheltered tidal flats Human Uses: high recreational use, subsistence, commercial fishing, sport fishing	Vessel master should have local knowledge. Consult with Incident Command to ensure ADFG-Title 16 and ADNR-Title 41 permits have been obtained. Consult the Site Selection Matrix for cultural resources designation. Consult the ADEC "Spill Tactics for Alaska Responders" manual for additional information on the deployment of these tactics. Bear are present in the area. Bear guards required. Survey: 5/27/13 Tested: not yet
SE01-19-02 **PR**	**Mudd Bay & Totem Bight** **Mudd Bay** a. Lat. 55° 25.01'N Lon. 131°45.85'W **Totem Bight** b. Lat. 55° 25.02'N Lon. 131°46.27'W	**Passive Recovery** Deploy passive recovery across the channels of the streams in Mudd Bay & Totem Bight	Place and anchor snare line or sorbent boom at locations likey to be impacted in Mudd Bay & Totem Bight . Replace as necessary to maximize the recovery. Boom Lengths: a. 600 ft. b. 500 ft.	**Deployment** **Equipment** 1100 ft. snare line or sorbent boom 2 ea. anchor systems 8 ea. anchor stakes **Vessels/Personnel/Shift** Same as SE01-19-01 **Tending** **Vessels/Personnel/Shift** Same as SE01-19-01	Ward Cove	Road access available via road system Via marine waters Chart 17428_1	Same as SE01-19-01	Vessel master should have local knowledge.
SE01-19-03 **FO-S**	**Refuge & Ward Coves** Nearshore waters in the general area of: Lat. 55° 24.85'N Lon. 131°46.50'W	**Free-oil Recovery** Maximize free-oil recovery in the offshore & nearshore environment of Refuge & Ward Coves depending on spill location and trajectory.	Deploy free-oil recovery strike teams upwind and up current of Refuge & Ward Coves. Use aerial surveillance to locate incoming slicks.	Deploy multiple free-oil recovery strike teams as required to maximize interception of oil before it impacts sensitive areas.	Wards Cove	Via marine waters Chart 17428_1	Same as SE01-19-01	Vessel master should have local knowledge. Use extreme caution, shoal waters with numerous reefs and rocks.

NOTE: Sensitive resource information can be found on other maps which can be accessed through the sensitive area section of the SE AK Sub-Area Contingency Plan: http://www.dec.state.ak.us/spar/perp/plans/scp_se.htm.

Table 3-4: Potential Areas of Concern

Immediate Shoreline Habitat(s)	Critical Habitat Area(s)	Endangered Species	Areas of Major Concern	Areas of Moderate Concern	Areas of Lesser Concern	Areas of Local Concern
6A - Gravel Beaches	None	Short-Tailed Albatross	Historic properties	Recreational sites and facilities	Log storage area	None
7 - Exposed Tidal Flats		Fin Whale	Subsistence and personal use harvests	Public use cabins	Sport fishing and hunting	
8A - Sheltered Rocky Shores (impermeable)		Humpback Whale	Commercial fishing			
		Stellar Sea Lion	Fish processing			
			Fish hatcheries			
			Aquaculture sites			
			Marinas			
			Boat ramps			
			Airport/heliport			
			Commercial tourism			
			Anadromous fish streams			
			State parks			

Table 3-5: Anadromous Streams & Species

Stream Name	AWC Stream Code	Species Present	Species Spawning/Rearing
Whipple Creek	101-47-10090	Pink	--
Ward Creek	101-47-10150	Pink Chum Coho Sockeye Steelhead	--
Hoadley Creek	101-47-10200	Coho	Pink
Government Creek	101-47-10400	--	Pink
East RoCreek Point Creek	101-47-10650	Pink	--
Carlanna Creek	101-47-10180	Pink Chum Coho	--
Unnamed	101-47-10165		Pink
Unnamed	101-47-10450	Pink Coho	--
Unnamed	101-47-10490	Pink Coho	Pink
Unnamed	101-47-10550	Pink Coho	--
Unnamed	101-47-10600	Pink Coho	--
Unnamed	101-47-10700	Pink Coho	--
Unnamed	101-47-10120	Pink	Coho
Unnamed	101-47-10116	Pink	--
Unnamed	101-47-10111	--	Pink
Unnamed	101-47-10145	--	Pink Coho
Unnamed	101-47-10124	--	Coho

Base map created with TOPO!, ©2006 National Geographic Maps, All Rights Reserved.

The geographical base map data are based on USGS topographic maps, USGS elevation data, and the USGS Geographic Names Information System. Please consider carefully the fact that the geographic data may not be adequate for purposes requiring precision in depiction of geographic features, exact measurement of direction or distance, or for similar purposes including but not limited to navigation, tracking, or emergency response.

Access this map on the web at
http://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=maps.maps

SCALE 1:63,360

0 0.5 1 2 3 4 Miles

0 5,000 10,000 20,000 30,000 Feet

0 1 2 4 6 8 Kilometers

Universal Transverse Mercator projection, Zone , 1983 North American datum.

Location Map

ALASKA

- Lower/Upper Point of Stream
- Midstream Species Begin/End Point
- Short Stream (Under 660 feet)
- Lake
- Barrier
- Anadromous Streams
- Anadromous Areas
- AWC Stat Area
- Regional Boundary

Waters Important to Anadromous Fish are listed pursuant to AS 16.05.871. Specified species distribution and life functions reflect known data. Actual distribution and use may extend beyond specified limits. Migration upstream and/or downstream is assumed for specified stream reaches.

SPECIES CODES

CO coho salmon
CH chum salmon
K chinook salmon (king)
P pink salmon
S sockeye salmon

LIFESTAGE CODES

p Present
m Migration
r Rearing
s Spawning

AC	Arctic char	LV	river lamprey
AL	Arctic lamprey	OL	longfin smelt
AW	Arctic cisco	OM	rainbow smelt
BC	broad whitefish	OP	pond smelt
BW	Bering cisco	OU	eulachon
CT	cutthroat trout	PC	Pacific lamprey
DV	Dolly Varden	SF	inconnu (sheefish)
GS	green sturgeon	SH	steelhead trout
HW	humpback whitefish	SM	smelt, undifferentiated
LC	least cisco	ST	sturgeon, undifferentiated
LP	lamprey, undifferentiated	W	whitefish, undifferentiated
		WS	white sturgeon

Produced By State of Alaska Department of Fish and Game

Anadromous Waters Atlas

Quad No. 004 (KET)

Ketchikan
B-6

Revision Date 2/8/2024

Table 3-6: Product Toxicity Summary

Site	Product Type	Toxicity	Degradability	Dispersibility
Ketchikan Bulk Facility	Gasoline	High	High	High
Ketchikan Bulk Facility	#1 & #2 Diesel	High	High	High

KETCHIKAN – Sensitive Biological Resources

BIOLOGICAL RESOURCES:

BIRD:

Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
Shorebirds							X	X			X	X	X			-	-	-
Trumpeter swan																-	-	-
Waterfowl				X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-

FISH:

Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
Chinook salmon						X	X	X	X	X	X	X	X	X		-	MAR-SEP	-	-	-
Chum salmon (dog)						X	X	X	X	X	X	X	X	X	X	AUG-DEC	MAR-SEP	-	-	-
Coho salmon (silver)						X	X	X	X	X	X	X	X	X		-	MAR-SEP	-	-	-
Eulachon						X	X	X								MAR-MAY	-	-	-	-
Pacific herring						X	X	X								MAR-MAY	-	-	-	-
Sockeye salmon (red)						X	X	X	X	X	X	X	X	X		-	MAR-SEP	-	-	-

INVERTEBRATE

Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
Geoduck				X	X	X	X	X	X	X	X	X	X	X	X	-	JUN-OCT	-	-	-

MARINE MAMMAL:

Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Molting	Pupping
Harbor seal				X	X	X	X	X	X	X	X	X	X	X	X	-	-	AUG-SEP	MAY-JUN

TERRESTRIAL MAMMAL:

Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
Brown bear							X	X	X						
Black bear							X	X	X						

KETCHIKAN – Human-Use of Biological Resources

BIOLOGICAL RESOURCES:

FISH:

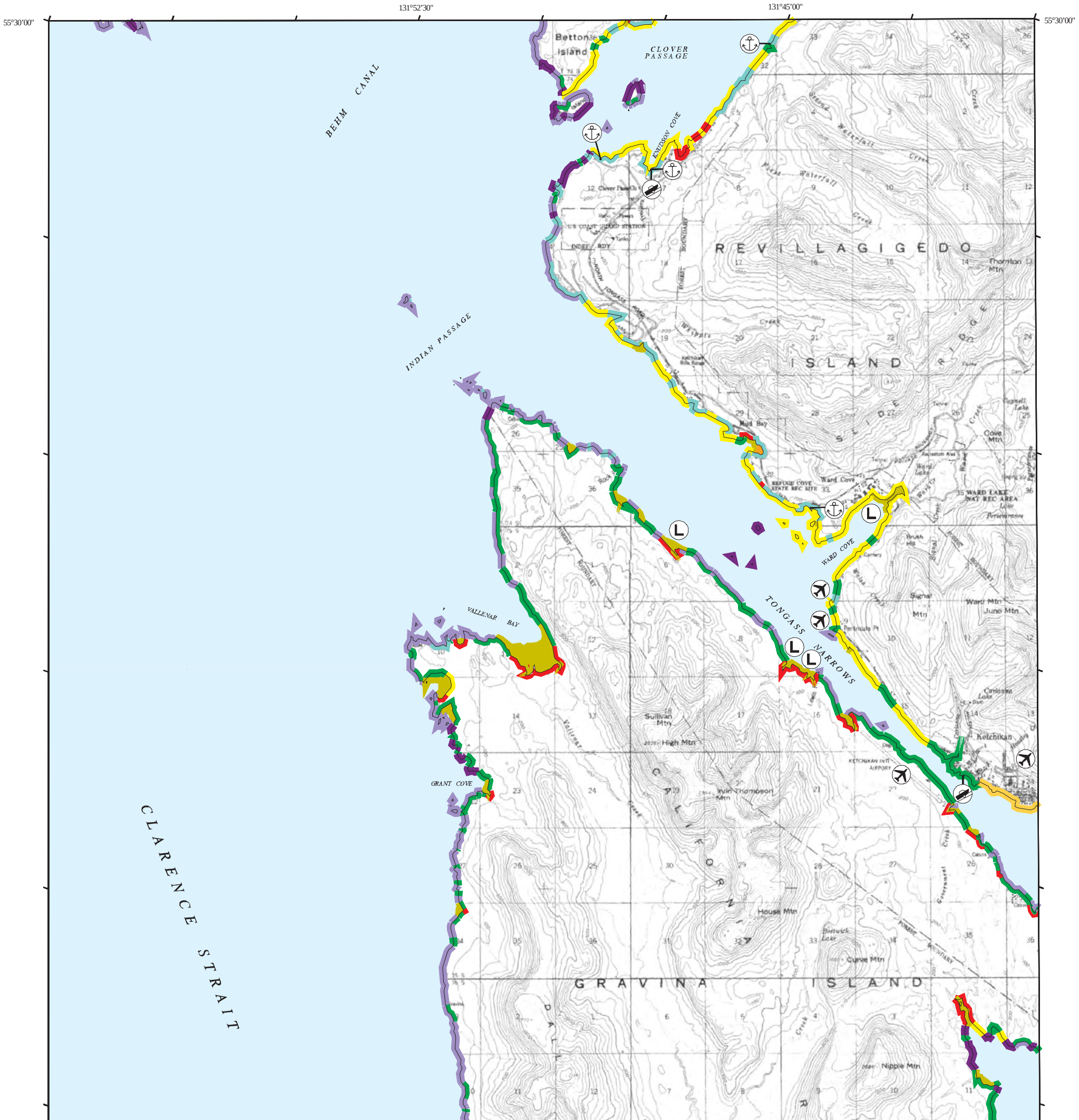
Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
Coastal Cutthroat trout				X	X	X	X						X	X	X	-	-	-	-	-
Pacific halibut																-	-	-	-	-
Pacific herring																-	-	-	-	-
Rockfish			Y	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
Sablefish (blackcod)			Y	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
Salmon			HIGH													-	-	-	-	-

INVERTEBRATE

Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
Dock shrimp				X	X	X	X	X	X	X	X	X	X	X	X	JUL-MAR	OCT-AUG	-	-	-
Dungeness crab				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	OCT-JUN	-	-	-
Geoduck				X	X	X	X	X	X	X	X	X	X	X	X	-	JUN-OCT	-	-	-
Humpy shrimp				X	X	X	X	X	X	X	X	X	X	X	X	JUL-MAR	OCT-AUG	-	-	-
Ocean pink shrimp				X	X	X	X	X	X	X	X	X	X	X	X	JUL-MAR	JAN-DEC	-	-	-
Red sea urchin			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
Spot shrimp				X	X	X	X	X	X	X	X	X	X	X	X	JUL-MAR	OCT-AUG	-	-	-
Tanner crab				X	X	X	X	X	X	X	X	X	X	X	X	AUG-OCT	OCT-JUN	-	-	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE HABITATS (ESI)

- 1A EXPOSED ROCKY SHORES
- 1B EXPOSED, SOLID MAN–MADE STRUCTURES
- 2A EXPOSED WAVE–CUT PLATFORMS IN BEDROCK
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE–TO MEDIUM–GRAINED SAND BEACHES
- 4 COARSE–GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES (GRANULES & PEBBLES)
- 6B GRAVEL BEACHES (COBBLES & BOULDERS)
- 6C RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES (IMPERMEABLE)
- 8B SHELTERED ROCKY SHORES (PERMEABLE)
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 10A SALT–AND BRACKISH–WATER MARSHES

HUMAN–USE FEATURES

- AIRPORT/HELIPORT
- AQUACULTURE
- BOAT RAMP
- LOG STORAGE AREA
- MARINA

N W E S

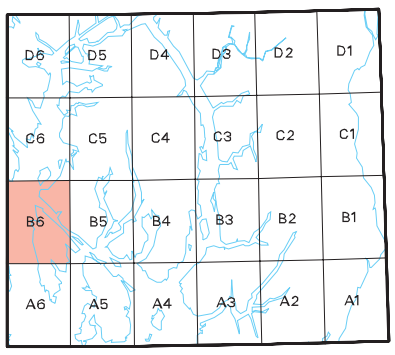
SCALE 1:90000

1 .5 0 1KILOMETER

1 .5 0 1MILE

Not For Navigation

Published: NOVEMBER 2001



KETCHIKAN (B-6)

3.10 List of Resources for Greatest Possible Discharge

18 AAC 75.451(l)

Resources available to DW are listed throughout this plan. In the event of GPD, DW may also look to the following sources for additional resources, as needed[37]:

- ADEC spill response equipment staged across Alaska
- Contractors, cooperative groups, and equipment providers within the local community that do not have a PRAC/OSRO designation
- Resources of other PRAC/OSROs outside the one(s) listed in this plan for whom DW has existing contracts

Review information presented in Section 1.8 for additional discussion.

3.11 Additional Information

18 AAC 75.451(m)

The following resources were utilized in the development of this plan:

State of Alaska Resources:

Alaska Regional Contingency Plan	https://dec.alaska.gov/spar/ppr/contingency-plans/response-plans/regional-contingency-plan/
ADEC Spill Tactics for Alaska Responders Manual (ADEC, 2014)	https://dec.alaska.gov/spar/ppr/response-resources/star-manual/
ADEC Spill Response Permits and Tools Page	https://dec.alaska.gov/spar/ppr/response-resources/permits-tool/
Area Plan References and Tools	https://dec.alaska.gov/spar/ppr/contingency-plans/response-plans/tools/
Report a Spill	https://dec.alaska.gov/spar/ppr/spill-information/reporting

[37] Note: this is not an exhaustive list of potential sources for additional resources, as that list would be extensive, but rather those that are most likely to be mobilized and which can be easily listed.

PRAC/OSRO Technical Manuals:

SEAPRO	https://www.seapro.org/techMan/SEAPRO_TechManHome.html

3.12 Bibliography

18 AAC 75.451(n)

ADEC, 2019	Compendium of Alaska Sensitive Areas, August 2019; Southeast Alaska, last revision, August 2012
ADEC, 2014	Spill Tactics for Alaska Responders, March 2014. https://dec.alaska.gov/spar/ppr/response-resources/star-manual/ [accessed July 18, 2024]
ADEC, 2024	Southeast Alaska: Geographic Response Strategies: Zone One – SE01-19 Refuge/Ward Coves/Totem Bight https://dec.alaska.gov/spar/ppr/response-resources/grs/southeast/zone-one/ [accessed September 11, 2024]
ADEC, 2024	Alaska Department of Environmental Conservation 18 AAC 75 – Oil and Other Hazardous Substances Pollution Control - Article 6 [accessed March 24, 2025]
ARRT, 2023	Wildlife Protection Guidelines for Oil Spill Response in Alaska, Version 2020.02, dated September 30, 2023 https://nrt.org/sites/176/files/Alaska_RRT_Wildlife_Protection_Guidlines_2020.2-FINAL.pdf [access October 3, 2024]
ADF&G, 2024	Anadromous Waters Atlas: rev 2/8/2024 https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=maps.display [accessed September 18, 2024]
ADNR, 2024	50 ft. contours for the state of Alaska https://www.arcgis.com/apps/mapviewer/index.html?layers=a2030b55e5d949c6b47e44cc4f3bef9b [accessed September 10, 2024]
ADNR, 2024	Fact Sheet: Generally Allowed Uses https://dnr.alaska.gov/mlw/cdn/pdf/factsheets/generally-allowed-uses.pdf [accessed March 26, 2025]

E&E, 1998	Remedial Investigation Ketchikan Pump Company Site, Volume I Remedial Investigation Report; October 1998.
NIMS, 2017	National Incident Management System, Third Edition, October 2017, FEMA. 106 p
NOAA, 2001	ESI Index Map https://response.restoration.noaa.gov/esi_download#Alaska [accessed September 18, 2024]
National Weather Service (NWS), 2025	Beaufort Scale- printable https://www.weather.gov/pqr/beaufort [accessed 3/26/2025]
Weather Undergro und, 2025	Ketchikan International Airport Station, historical data https://www.wunderground.com/history/monthly/us/ak/ketchikan/PAKT [accessed March 10, 2025]

4 Best Available Technology Review

18 AAC 75.452(a), 18 AAC 75.452(b), 18 AAC 75.452(c), 18 AAC 75.452(d)

This section of the plan constitutes the BAT analysis required under 18 AAC 75.452. For ease of review, the sections of 18 AAC 75.452 are presented here along with a statement or reference regarding applicability.

18 AAC 75.452

Citation	Description	Reference
(a)(1)	All plans	
(a)(1)(A)	Communications	See Table 4-1
(a)(1)(B)	Source control	See Table 4-2
(a)(1)(C)	Trajectory analyses and forecasts	See Table 4-3
(a)(1)(D)	Wildlife capture, treatment, and release	See Table 4-4
(a)(2)	Oil terminal, crude oil transmission pipeline, and exploration or production facility plans	
(a)(2)(A)	Tank leak detection system	See Table 4-5
(a)(2)(B)	Another leak detection system	Not Applicable
(a)(2)(C)	Means of immediately determining liquid level	See Table 4-6
(a)(2)(D)	Oil terminal protective coating	See Table 4-7
(a)(3)	Tank vessel plans	Not Applicable
(a)(4)	Crude oil transmission pipeline plan	Not Applicable
(a)(5)	Barge plans	Not Applicable

All BAT analysis tables follow the same format presenting the following information shown on the following page from left to right. Where two questions or criteria appeared in the same regulatory section, two columns were provided to more effectively demonstrate completion of the BAT analysis. For example, 18 AAC 75.452(c)(3)(A) requires evaluation of (1) if the technology is the best in use in other similar situations **and** (2) is available for use by the applicant. As such, these two criteria are presented separately, but together comprise a comprehensive evaluation to meet the requirements set forth in 18 AAC 75.452(c)(3)(A).

Each applicable BAT analysis table can be found in the corresponding section.

Heading	Description
Primary	Name of technology being evaluated
Description	Narrative description of technology being evaluated including any key facts
Type	Denotes whether the technology is an existing method or alternative method[38]
Regulatory Evaluation Criteria	The applicable regulatory criteria the technology is being evaluated against; refers to 18 AAC 75.452(c)...
(3)(A) – Best in use in other similar situations?	Identifies whether the technology is the best in use in other similar situations; typically a 'yes' or 'no' answer with a brief explanation [Part 1 of 2 with respect to 18 AAC 75.452(c)(3)(A)]
(3)(A) – Available for use by DW?	Identifies if the technology is available for use by DW; typically a 'yes' or 'no' answer with a brief explanation surrounding if it is currently owned or used by DW [Part 2 of 2 with respect to 18 AAC 75.452(c)(3)(A)]
(3)(B) – Provides increases spill protection?	Identifies if the technology is expected to provide increases spill protection; provided as a 'yes' or 'no' answer [Part 1 of 2 with respect to 18 AAC 75.452(c)(3)(B)]
(3)(B) – Offers other environmental benefits?	Identifies if the technology is expected to provide or other environmental benefits [Part 2 of 2 with respect to 18 AAC 75.452(c)(3)(B)]
(3)(C) – Cost to achieve BAT?	Identified the cost to achieve BAT; typically presented as a narrative description of value ranging from free to moderate to high; may be presented as variable if insufficient information is available to evaluate or if it varies. In cases where DW already owns or operates the technology and it is considered BAT, the response is simply 'N/A' to indicate not applicable
(3)(D) – Age?	Identifies the condition of the technology in use by the applicant; only applicable to existing methods; all alternatives are denoted as 'N/A' to indicate not applicable [Part 1 of 2 with respect to 18 AAC 75.452(c)(3)(D)]

[38] In this case, an existing method is considered a technology that is in use or utilized by DW whereas an alternative method is not in use or utilized by DW. In some cases more than one method is currently in use/utilized by DW. The number of technologies will vary by type.

(3)(D) – Condition?	Identifies the age of the technology in use by the applicant; only applicable to existing methods; all alternatives are denoted as 'N/A' to indicate not applicable [Part 1 of 2 with respect to 18 AAC 75.452(c)(3)(D)]
(3)(E) – Practical feasibility?	Identifies the practical feasibility of the technology with respect to engineering and other operational aspects; typically 'yes' for all technologies currently in use by DW and 'yes', 'no', or 'maybe' with brief explanation for those that are not
BAT	Check box field where a check mark indicates the technology is considered BAT

In all cases, under the evaluation required by 18 AAC 75.452(c)(3)(F), regarding environmental impacts of technology related to the benefits, there was no significant difference and therefore this information has been intentionally excluded from the tables.

For each applicable technology category a brief statement is also included under each subheading.

4.1 BAT Analysis - Communications

VHF radios and cell phones are considered BAT within the oil industry. Both are currently owned and in use by DW at the Ketchikan Bulk Facility.

The full BAT analysis, following the layout described in Section 4, is provided in Table 4-1 on the following page.

Table 4-1: BAT Analysis - Communications

Primary	Description	Type	(3)(A) - Best in use in other similar situations?	(3)(A) - Available for use by DW?	(3)(B) - Provides increased spill protection?	(3)(B) - Offers other environmental benefits?	(3)(C) - Cost to achieve BAT?	(3)(D) - Age?	(3)(D) - Condition?	(3)(E) - Practical feasibility?	BAT
VHF Radios + Cell Phones	Use of VHF handheld radios and cellular phones	Existing Method 1	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	N/A	5-10 years	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
OSRO/PRAC Equipment	Use of OSRO/PRAC VHF radios and satellite phones	Existing Method 2	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or operates technology	Yes - Expected to increase spill prevention effectiveness	Yes	Variable - Depends on incident location & duration	N/A	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☐
Sophisticated Video Units	Use of video cameras with emergency response base unit	Alternate Method 1	Maybe - Would need substantial infrastructure upgrades	No - Technology is not used or unavailable	No - Not Available to DW	No	High - Cost of installation & maintenance	N/A	N/A	No - Cost prohibitive	☐

4.2 BAT Analysis – Source Control

Equipment shutdown by actions to stop flow, close valves, and isolate discharge are considered BAT. DW is currently capable of utilizing equipment shutdown along with two other methods (equipment repair and OSRO/PRAC response) to achieve source control.

The full BAT analysis, following the layout described in Section 4, is provided in Table 4-2 on the following page.

Table 4-2: BAT Analysis - Source Control

Primary	Description	Type	(3)(A) - Best in use in other similar situations?	(3)(A) - Available for use by DW?	(3)(B) - Provides increased spill protection?	(3)(B) - Offers other environmental benefits?	(3)(C) - Cost to achieve BAT?	(3)(D) - Age?	(3)(D) - Condition?	(3)(E) - Practical feasibility?	BAT
Equipment Shutdown	Actions to stop flow; shut valves; and isolate discharge	Existing Method 1	Yes - Technology is readily available and widely used in the industry	Yes - DW uses applicable actions	Yes - Expected to increase spill prevention effectiveness	Yes	N/A	N/A	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Equipment Repair	Actions to patch pipes; tanks.	Existing Method 2	Yes - Technology is readily available and widely used in the industry	Yes - DW uses applicable actions	Yes - Expected to increase spill prevention effectiveness	Yes	Minimal	N/A	N/A	Yes - DW has a dedicated projects team	☐
OSRO/PRAC Response	Initiate OSRO/PRAC Response	Existing Method 3	Yes - Technology is readily available and widely used in the industry	Yes - DW uses applicable actions	Yes - Expected to increase spill prevention effectiveness	Yes	Free	N/A	N/A	Yes - DW holds contracts	☐
Electric Valves	Use of Electric Valves	Alternate Method 1	Yes - Technology is readily available and widely used in the industry	No - Technology is not used or unavailable	No - Effectiveness is outweighed by constraints	Maybe	High - Cost of installation & maintenance	N/A	N/A	No - Cost prohibitive	☐

4.3 BAT Analysis - Trajectories

Current technologies are readily available and used exclusively in oil spill response meeting BAT. While aerial tracking via helicopter was previously considered BAT, it has been overtaken by the use of drone technology as a much quicker and less expensive means of tracking.

The full BAT analysis, following the layout described in Section 4, is provided in Table 4-3 on the following page.

Table 4-3: BAT Analysis - Trajectories

Primary	Description	Type	(3)(A) - Best in use in other similar situations?	(3)(A) - Available for use by DW?	(3)(B) - Provides increased spill protection?	(3)(B) - Offers other environmental benefits?	(3)(C) - Cost to achieve BAT?	(3)(D) - Age?	(3)(D) - Condition?	(3)(E) - Practical feasibility?	BAT
Visual via boat/beach	Utilize boat/beach for visual tracking	Existing Method 1	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	N/A	5-10 years	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Visual via helicopter	Utilize helicopter for visual tracking	Existing Method 2	Yes - Technology is available	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	Moderate	N/A	N/A	Yes - Helicopters are readily available in Southeast Alaska	☐
Visual via drone	Utilize drone for visual tracking	Existing Method 3	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	N/A	N/A	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Spill Modeling Software	Utilize Spill Modeling Software	Existing Method 4	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	Free	N/A	N/A	Yes - Software is readily available	☑

4.4 BAT Analysis - Wildlife

In all cases, the BAT for wildlife relies on the use of trained personnel and service providers. DW has access to wildlife response organizations through its contract with SEAPRO. SEAPRO maintains contracts to respond to birds and marine mammals.

The full BAT analysis, following the layout described in Section 4, is provided in Table 4-4 on the following page.

Table 4-4: BAT Analysis - Wildlife

Primary	Description	Type	(3)(A) - Best in use in other similar situations?	(3)(A) - Available for use by DW?	(3)(B) - Provides increased spill protection?	(3)(B) - Offers other environmental benefits?	(3)(C) - Cost to achieve BAT?	(3)(D) - Age?	(3)(D) - Condition?	(3)(E) - Practical feasibility?	BAT
OSRO/PRAC Contract	Initiate OSRO/PRAC Response	Existing Method 1	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	N/A	N/A	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Additional Wildlife Organizations	OSRO/PRAC initiate subcontract with additional wildlife organizations	Existing Method 2	Yes - Technology is available	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	Variable - Depends on incident location & duration	N/A	N/A	Yes - OSRO/PRAC already holds contracts with resources	☐

4.5 BAT Analysis - Tank Leak Detection

For this facility, leak diversion to SCA observation is considered BAT. This method is currently in use by DW.

The full BAT analysis, following the layout described in Section 4, is provided in Table 4-5 on the following page.

Table 4-5: BAT Analysis - Tank Leak Detection

Primary	Description	Type	(3)(A) - Available for use by DW?	(3)(A) - Best in use in other similar situations?	(3)(B) - Offers other environmental benefits?	(3)(B) - Provides increased spill protection?	(3)(C) - Cost to achieve BAT?	(3)(D) - Age?	(3)(E) - Practical feasibility?	(3)(D) - Condition?	BAT
Leak Diversion to SCA Observation	Visual observations of leak via impermeable liner beneath tank to SCA via drainage pipe.	Existing Method 1	Yes - DW owns and/or uses technology	Yes - Technology is readily available and widely used in the industry	Yes	Yes - Expected to increase spill prevention effectiveness	N/A	5-10 years	Yes	Excellent - Fully operational, well-maintained, meets industry standards	☑
Double Bottom Tank	Double bottom with leak detection ports	Alternate Method 1	No - Technology is not used or unavailable	Maybe - Would need substantial infrastructure upgrades	Yes	No - Effectiveness is outweighed by constraints	Very High - Cost of initial installation	N/A	N/A	N/A	☐

4.6 BAT Analysis - Determining Liquid Levels

There are several means to achieve BAT with respect to determining liquid level within bulk storage tanks. DW is currently capable of utilizing two of these methods. Other methods, while good technology, are not feasible at the Ketchikan Bulk Facility.

The full BAT analysis, following the layout described in Section 4, is provided in Table 4-6 on the following page.

Table 4-6: BAT Analysis - Determining Liquid Level

Primary	Description	Type	(3)(A) - Best in use in other similar situations?	(3)(A) - Available for use by DW?	(3)(B) - Provides increased spill protection?	(3)(B) - Offers other environmental benefits?	(3)(C) - Cost to achieve BAT?	(3)(D) - Age?	(3)(D) - Condition?	(3)(E) - Practical feasibility?	BAT
Mechanical Level Gauges (FCAST)	Pneumercator LC600 liquid level switch with audible and visible high-level alarm	Existing Method 1	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	N/A	5-10 years	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Mechanical Level Gauges (SFAST)	Mechanical OPW clock-style level gauge & Morrison Bros high-level alarm set @ 95%	Existing Method 2	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	Yes	N/A	5-10 years	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Digitial/Radar Level Gauges	Digital/Radar Liquid Level Gauges	Alternate Method 1	Yes - Technology is available	No - Technology is not used or unavailable	No - Effectiveness is outweighed by constraints	No	High - Cost of installation & maintenance	N/A	N/A	No - Cost prohibitive	☐

4.7 BAT Analysis - Protective Coating

There are several means to achieve BAT with respect to protective coatings. DW is currently capable of utilizing two of these methods. Other methods, while good technology, are not feasible at the Ketchikan Bulk Facility.

The full BAT analysis, following the layout described in Section 4, is provided in Table 4-7 on the following page.

Table 4-7: BAT Analysis - Protective Coating

Primary	Description	Type	(3)(A) - Best in use in other similar situations?	(3)(A) - Available for use by DW?	(3)(B) - Provides increased spill protection?	(3)(B) - Offers other environmental benefits?	(3)(C) - Cost to achieve BAT?	(3)(D) - Age?	(3)(D) - Condition?	(3)(E) - Practical feasibility?	BAT
Corrosion Control Program - Quinquennial Inspection	API 570 Piping Inspection	Existing Method 1	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	No	N/A	N/A	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Corrosion Control Program - Annual Inspection	NACE SP0169 Annual Cathodic Protection Inspection	Existing Method 2	Yes - Technology is readily available and widely used in the industry	Yes - DW owns and/or uses technology	Yes - Expected to increase spill prevention effectiveness	No	N/A	N/A	Excellent - Fully operational, well-maintained, meets industry standards	Yes	☑
Impressed Current CP	Impressed Current Cathodic Protection System with anode	Alternate Method 1	Yes - Technology is available	No - Technology is not used or unavailable	No - Effectiveness is outweighed by constraints	No	High - Cost of installation & maintenance	5-10 years	N/A	No - Due to facility layout	☐

5 Response Planning Standard

18 AAC 75.453

Table 5-1 provides the mathematical calculation of the applicable response planning standard as set out in 18 AAC 75.432, taking credit for the prevention measures described in Section 2 of this plan. Table 5-1 is provided on the following page.

Table 5-1: Calculation of Response Planning Standard

Response Planning Standards - Alaska

Oil Terminal Facilities 18 AAC 75.432

Volume of Largest Tank (gallons)
1,052,000

Prevention Measure	**Possible Reduction**	**Realized Reduction**	**Discussion/Reference**	**Volume Reduction** (gallons)	**Adjusted Volume** (gallons)	
Alcohol and drug testing of key personnel	5%	5%	18 AAC 75.432(d)(1)	52,600	999,400	
Operations training program with a professional organization or federal certification or licensing of program participants	5%	0%	18 AAC 75.432(d)(2)	-	999,400	
On-line leak detection systems that automatically alarm at a facility control room that is continuously monitored, for tanks and piping	5%	0%	18 AAC 75.432(d)(3)	-	999,400	
A sufficiently impermeable secondary containment area with a dike capable of holding the contents of the largest tank, or all potentially affected tanks in the case of increased risk, and precipitation	60%	60%	18 AAC 75.432(d)(4)	599,640	399,760	
Cathodic protection for aboveground oil storage tanks and belowground facility piping within secondary containment	10%	0%	18 AAC 75.432(d)(5)(A)	-	399,760	
Fail-safe valves on piping systems	15%	0%	18 AAC 75.432(d)(5)(B)	-	399,760	
Impervious containment area extending under the full area of each storage tank or double bottoms with leak detection	25%	0%	18 AAC 75.432(d)(5)(C)	-	399,760	
Containment outside the secondary containment area	10%	0%	18 AAC 75.432(d)(6)	-	399,760	
			Total Adjusted RPS Volume (gallons)		**399,760**	**9,518** bbls

Estimated of RPS to Remain On Land (refer to Section 3.2)
10%

Total Adjusted RPS to Remain on Land (gallons)	**39,976**	**952** bbls
Total Adjusted RPS to Reach Water (gallons)	**359,784**	**8,566** bbls

6 Plan Appendix

The following documents are provided in the overall Plan Appendix:

Other

- Acronym List
- Other Supporting Documentation
  - FCAST: Tank T-01 Corrosion Protection Evaluation
  - FCAST: Tank T-01 SCA Sufficiently Impermeable Evaluation
  - Secondary Containment Calculations
  - ADNR Fact Sheet – Generally Allowed Uses (ADNR, 2024)
  - Beaufort Scale (NWS, 2025)
- Revision Log
- Approval Letters

6.1 Acronym List

The acronyms, in alphabetical order, used in this plan are defined below.

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
API	American Petroleum Institute
AS	Alaska Statute
AST	Aboveground Storage Tank
BAT	Best Available Technology
CG	United States Coast Guard
CPLAN	Oil Discharge Prevention and Contingency Plan
DW	Delta Western, LLC
ERMA	Environmental Response Management Application
ESA	Environmentally Sensitive Area
FCAST	Field Constructed Aboveground Storage Tank
GPD	Greatest Possible Discharge
GRS	Geographic Response Strategy
IBC	International Building Code
IC	Incident Commander
ICS	Incident Command System
IFC	International Fire Code
IMT	Incident Management Team
IOSC	Initial On Scene Coordinator
ISO	International Standard Organization
NFPA	National Fire Protection Agency
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration

NWS	National Weather Service
OSRO	Oil Spill Response Organization
PRAC	Primary Response Action Contractor
QI	Qualified Individual
RPS	Response Planning Standard
SFAST	Shop Fabricated Aboveground Storage Tank
SEAK ACP	Southeast Alaska Area Contingency Plan
SEAPRO	Southeast Alaska Petroleum Response Organization
SMT	Spill Management Team
STI	Steel Tank Institute
TTLR	Tank Truck Loading/Offloading Rack
UC	Unified Command
VHF	Very High Frequency

6.2 Other Supporting Documentation

NORTON CORROSION LIMITED

8820 222nd Street SE, Woodinville, WA 98077
Phone (425) 483-1616 • Fax (425) 485-1754
E-mail: sales@nortoncorrosion.com
www.nortoncorrosion.com

February 13, 2020

Attention: Dave Korpi
Great Northern Engineering
dkorpi@gne-ak.com

Subject: **ABOVE GROUND STORAGE TANKS**
SOLID CONCRETE PAD
CATHODIC PROTECTION REQUIREMENTS

Dear Mr. Korpi:

The question of whether cathodic protection is required to protect the external surface of an above-ground storage tank (AST) that is placed upon a continuous concrete pad has arisen. I have reviewed the documentation provided to me by your firm for Tank #1 at the Ward Cove Facility near Ketchikan, Alaska. Per NACE International SP0193 "Application of Cathodic Protection to Control External Corrosion of Carbon Steel On-Grade Storage Tank Bottoms" and API 651 "Cathodic Protection of Aboveground Petroleum Storage Tanks" cathodic protection would not effective for this tank based on the construction of the tank, which is upon a continuous concrete foundation pad.

If you have any questions or additional concerns, please give us a call.

Sincerely,

Tye Ritz
CP Specialist #9745

January 7, 2020
GNE #309113.001

Delta Western Petroleum
509 W 3rd Avenue Suite 101
Anchorage, Alaska 99501

Attention: Mr. Garret Lyons, Project Manager

Subject: Ward Cove Bulk Storage Tank Existing Containment Evaluation
Ketchikan, Alaska

Dear Mr. Lyons:

Great Northern Engineering, LLC (GNE) recently provided a site evaluation of an existing out of service bulk fuel storage facility located at Ward Cove in Ketchikan, Alaska. The purpose of this site visit was to evaluate the property and develop a design for a new bulk fuel loading facility including a single position Truck Loading Rack, 2ea new 30,000 gallon UL-142 double wall tanks, and utilization of an existing 1 million gallon API 650 bulk fuel storage tank. The existing secondary containment for the 1 million gallon bulk fuel storage tank is constructed of high quality cast in place concrete. The secondary containment walls are 11' tall and 12" thick. The thickness of the concrete containment floor is 18", based on consultations with the owner of the facility.

Alaska Administrative Code 75.075 requires the secondary containment for bulk fuel storage tanks to be "sufficiently impermeable". AAC 75.075 defines "sufficiently impermeable" as using a layer of natural or manufactured material of sufficient thickness, density, and composition to produce a maximum permeability for the substance being contained of 1×10^{-6} cm/sec at a maximum anticipated hydrostatic pressure. We have taken core samples of the existing containment walls, and have had these core samples laboratory tested in accordance with Test Method, ASTM D5084. The existing concrete secondary containment walls meet the sufficiently impermeable requirement. Refer to the attached concrete testing results.

Alaska Administrative Code 75.075 also requires the secondary containment under a bulk fuel storage tanks to be "impermeable". AAC 75.075 defines "impermeable" as using a layer of material that is of sufficient thickness, density, and composition to produce a maximum permeability for the substance being contained of 1 x 10-7 centimeters per second at the maximum anticipated hydrostatic pressure, and that is sufficient to contain a discharge or release until it is detected and cleaned up. We have also taken core samples of the existing containment floor and have had these core samples laboratory tested in accordance with Test Method, ASTM D5084. The existing concrete secondary containment floor meets requirements the AAC 75.075 impermeable requirement. Refer to the attached concrete testing results.

AAC 75.075 also states that the tank and under tank prevention barrier must be designed and installed, in accordance with Annex I of Welded Steel Tanks for Oil Storage (API 650). *Note: API supports a general position of installation of a Release Prevention Barrier (RPB) under new tanks during initial construction. An RPB includes steel bottoms, synthetic materials, clay liners, and all other barriers or combination of barriers placed in the bottom of or under an aboveground storage tank, which have the following functions: (a) preventing the escape of contaminated material, and (b) containing or channeling released material for leak detection.*

The performance requirements that must be met in Annex I, and apply to this facility, include the following:

- Leaks through the tank bottom shall be detectable by observation at the tank perimeter. If a leak is detected, it shall be collected.
- The materials of construction shall be chemically resistant to the range of products to be stored at the temperature range expected in service.
- The permeability of the leak detection barrier shall not exceed 1×10^{-7} cm/s.
- The material in contact with the subgrade shall be suitable for below-grade service or be protected against degradation.
- The leak barrier shall be of one-piece construction, or the joints shall satisfy the leak tightness, permeability, and chemical resistance requirements for the base leak-barrier material. The Manufacturer and a complete description of the leak barrier material shall be identified to the tank owner.
- The installation of sumps and pipes below the tank bottom is acceptable; however, the required leak detection and leak tightness shall be maintained.

In summary, we believe the current design for the Ward Cove Bulk Fuel Storage Facility secondary containment and under tank floor meets the intent of API 650 Annex I, in addition to the 18 AAC 75.075 requirements. As such, we feel that it is appropriate to propose a plan for the facility that relies on the existing containment and leak detection system to meet the regulatory requirements. The Testing Report Summary for the Concrete Permeability testing is attached to this letter for reference. Sample 1 in the report was taken from the containment wall and Sample 2 was taken from the containment floor. Applicable portions of the applicable governing regulation follows below:

Applicable Regulatory Sections:

18 AAC 75.075. Secondary containment requirements for aboveground oil storage tanks.

(a) Onshore aboveground oil storage tanks must be located within a secondary containment area that has the capacity to hold the volume of the largest tank within the containment area, plus enough additional capacity to allow for local precipitation. Minimum secondary containment system requirements include

(1) berms, dikes, or retaining walls that are constructed to prevent the release of spilled oil from within the containment area; and

(2) with the exception of the area under a tank, components constructed of, or lined with, materials that are

(A) adequately resistant to damage by the products stored to maintain sufficient impermeability;
(B) resistant to damage from prevailing weather conditions; and
(C) sufficiently impermeable; and
(D) resistant to operational damage.

(3) Repealed 12/30/2006.

(b) In locations where physically feasible, aboveground oil storage tank areas at an offshore exploration or production facility must incorporate a secondary containment method to prevent oil spills from entering the water.

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

(1) debris and vegetation,
(2) proper alignment and operation of drain valves,
(3) visible signs of oil leaks or spills; and
(4) defects or failures of the secondary containment system.

(d) Drainage of water accumulations from secondary containment areas that discharge directly to the land or waters of the state must be controlled by locally operated, positive close failsafe valves or other positive means to prevent a discharge. Valves must be kept closed and locked when not in use. The owner or operator shall inspect accumulated water before discharging it from a secondary containment area to ensure that no oil will be discharged and shall keep for five years a written record of each drainage operation and whether a sheen was present or not. A discharge of water to land is subject to a cleanup plan approved under 18 AAC 75.360, a corrective action plan approval under 18 AAC 78.260, or a wastewater discharge permit issued under 18 AAC 72. If the discharge of water from a secondary containment area is to surface waters or wetlands, either a permit under 18 AAC 72, a permit under 18 AAC 83, or a certified NPDES permit under 18 AAC 15.120 may be required.

(e) An installation placed in service on or after May 14, 1992 is subject to the following:

(1) impermeable liners or double bottoms that are chemically resistant to damage by the product being stored in the tank must be installed under all tanks, except for tanks containing viscous products exceeding 400 SUS (Saybolt Universal System) at storage temperatures; (truncated)

18 AAC 75.065. Field-constructed aboveground oil storage tank requirements.

(a) Unless the owner or operator must comply with a more stringent requirement set out in this section, the owner or operator of an oil terminal, crude oil pipeline, exploration, or production facility shall maintain and inspect each field-constructed aboveground oil storage tank consistent with the requirements, as appropriate, of American Petroleum Institute's (API)

(4) each field-constructed aboveground oil storage tank must be equipped with

(A) a leak detection system that

(i) an observer from outside the tank can use to detect leaks in the bottom of the tank; and
(ii) is designed and installed, in accordance with Appendix I of *Welded Steel Tanks for Oil Storage* (API 650), adopted by reference in (1) of this subsection; or

(B) another leak detection system approved by the department.

18 AAC 75.990. Definitions. Unless the context indicates otherwise, in this chapter

(51) “impermeable” means using a layer of material that is of sufficient thickness, density, and composition to produce a maximum permeability for the substance being contained of 1×10^{-7} centimeters per second at the maximum anticipated hydrostatic pressure, and that is sufficient to contain a discharge or release until it is detected and cleaned up;

(124) “sufficiently impermeable” means, for a secondary containment system, that its design and construction has the impermeability necessary to protect groundwater from contamination and to contain a discharge or release until it can be detected and cleaned up; for design purposes for tanks constructed after May 1992, “sufficiently impermeable” means using a layer of natural or manufactured material of sufficient thickness, density, and composition to produce a maximum permeability for the substance being contained of 1×10^{-6} cm per second at a maximum anticipated hydrostatic pressure, unless the department determines that an alternate design standard protects groundwater from contamination and contains a discharge or release until detection and cleanup;

API 650 APPENDIX I-UNDERTANK LEAK DETECTION AND SUBGRADE PROTECTION

I.1 Scope and Background

I.1.1 This appendix provides acceptable construction details for the detection of product leaks through the bottoms of aboveground storage tanks, and provides guidelines for tanks supported by grillage.
Note: API supports a general position of installation of a Release Prevention Barrier (RPB) under new tanks during initial construction. An RPB includes steel bottoms, synthetic materials, clay liners, and all other barriers or combination of barriers placed in the bottom of or under an aboveground storage tank, which have the following functions: (a) preventing the escape of contaminated material, and (b) containing or channeling released material for leak detection.
I.1.2 Several acceptable construction details are provided for detection of leaks through the tank bottom and details for tanks supported by grillage (see Figures I-1 through I-11). Alternative details or methods may be used if agreed upon by the tank owner and Manufacturer, provided the details or methods satisfy the requirements of I.2.
I.1.3 The tank owner shall determine whether the undertank area is to be constructed for leak detection. If leak detection is required, the owner shall specify the method or methods to be employed.
I.1.4 The bottoms of aboveground storage tanks may leak as a result of product side corrosion, soil side corrosion, or a combination of both. The extent of product side corrosion can be detected using standard inspection techniques during an internal inspection, but determining the nature and extent of soil side corrosion is more difficult. Therefore, in certain services and tank locations, it may be desirable to provide for undertank monitoring of leakage through the tank bottom plates.
I.1.5 For additional information on the use of internal linings to prevent internal bottom corrosion, see API RP 652. Similarly, see API RP 651 for guidelines and requirements relating to preventing corrosion from the soil side of the bottom plate.
I.1.6 When the appropriate tank foundation design is being selected, it is important to consider the environmental and safety regulatory implications of leakage of tank contents into the containment space below the tank bottom. Specifically, the contamination of permeable material such as sand used as a floor support may constitute the generation of a hazardous waste. The treatment or disposal costs of such contaminated material must be determined.
I.1.7 The requirements for secondary containment as it relates to diked areas and impoundments are not within the scope of this appendix.

I.2 Performance Requirements

The following general requirements shall be satisfied for all leak detection systems:

a. Leaks through the tank bottom shall be detectable by observation at the tank perimeter. If a leak is detected, it shall be collected.

b. The use of electronic sensors for the detection of vapors and liquids is acceptable; however, the requirements of Item a above shall be satisfied. Any such sensor shall be fail-safe or have provision for calibration.

c. The materials of construction shall be chemically resistant to the range of products to be stored at the temperature range expected in service. Other physical properties shall be specified by the tank owner.

d. The permeability of the leak detection barrier shall not exceed 1×10^{-7} cm (4×10^{-5} mils) per second.

e. The material in contact with the subgrade shall be suitable for below-grade service or be protected against degradation.

f. The leak barrier shall be of one-piece construction, or the joints shall satisfy the leak tightness, permeability, and chemical resistance requirements for the base leak-barrier material. The Manufacturer and a complete description of the leak barrier material shall be identified to the tank owner.

g. The installation of sumps and pipes below the tank bottom is acceptable; however, the required leak detection and leak tightness shall be maintained. See Figures I-8 and I-9 for typical details.

If you have any questions regarding this letter, or need any additional information, feel free to contact me at (907)745-6991 at your convenience.

Sincerely,

Dave Korpi
Engineering Manager
API 653 #25965
API 570 #72673

Testing Report Summary

		Date Sample Recv'd	12/19/2019
Client	Delta Western Petroleum	W.O. #	717
Project	Ward Cove	Lab #	See Below
Location	See Below		

All results will be posted to the website for your access and convenience. Samples will be kept for 30 days before being disposed. Please contact us if you would like the remaining material returned.

Sample ID	Test Performed	Test Method	Results	
Sample 1 (Lab No. 1458)	Permeability	ASTM D5084	Dry Density (pcf)	152.9
			Average k (cm/sec)	1.0E-06

Sample ID	Test Performed	Test Method	Results	
Sample 2 (Lab No. 1459)	Permeability	ASTM D5084	Dry Density (pcf)	151.8
			Average k (cm/sec)	1.2E-08

If you have questions regarding this summary report or the test procedures, please contact us.

Oscar
Oscar Lage
Laboratory Supervisor

MECHANICAL DESIGN CALCULATIONS

FOR

Ketchikan Facility

Secondary Containment Calculations

Tank-01 and ISO Tank

FOR

DELTA WESTERN

KETCHIKAN, ALASKA

3.02.2025

March 02, 2025
PAE Project No. 25022

Prepared by:
Randy Downing, P.E.

Precision Alaska Engineering LLC

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Wasilla, AK 99654
(907) 232-8290 Phone
rdowning@precisionalaskaeng.com Email

Precision Alaska Engineering LLC

By	Downing
Date	2/25/2025
PAE Job	25-022
Rev	A

Tank Farm Secondary Containment Calculations

Tank T-01 RUL

Problem:

Determine the secondary containment volume requirements for RUL Fuel Storage Tank T-01. Determine if the existing secondary containment meets the minimum requirements per NFPA 30.

Given: Largest Tank Vol. 1,052,000 gal tanks (ea)

25,047.6 bbl tanks (ea) 42 gallons per bbl

Tank Dimensions

Shoulder Height	41	feet
Diameter	66	feet
Max Fill Height	40.5	feet

Find: Volume Rq'd Volume Total **1,052,000** gallons

140,631.4 ft^3

Additional Volume per Code Requirements: add 12% Volume Containment **126,240** gallons

VOLUME REQUIRED FOR CONTAINMENT: 1,178,240 gallons

157,099 ft^3

Containment Dimensions Proposed

Containment Volume Calc	Area (sqft)	Height (ft)	Volume ft^3	Total gallons
	14505.837	11.25	163,191	**1,220,756**

	Area (sf)	Quantity	Height (ft)	Volume ft^3	Total gallons
Subtract Tank Displacements	0	0	0	0	**0**
	Dia (ft)	Quantity	Height (ft)	Volume ft^3	Total gallons
Subtract Tank Maintenance Pad	67	1	1	3,526	**26,450**

	Volume ft^3	Total gallons
TOTAL CONTAINMENT	**159,665**	**1,197,488**

Check Containment Size "OK = passes", "Failed = recalculate" **OK**

Additional Capacity (%) 1.63%

Summary: The calculations show that the current size of secondary containment will hold 113.6% of Tank T-01.

Precision Alaska Engineering LLC

CONSULTING ENGINEERS
3135 N MARCOS CIR
WASILLA, ALASKA 99654

MAIN (907) 232-8290

CALCULATION RECORD
Date: 03/02/2025
PAE Job: 25022

Ketchikan Facility
Delta Western
Facility Tanker Truck Loading Rack (TTLR) & Isotank Secondary Containment Calculations

Secondary containment for tank truck offloading must meet the requirements given in 18 AAC 75.075(g)(1),

> "The owner or operator of rail tank car and tank truck loading areas and permanent unloading areas must ensure that those loading and unloading areas have a secondary containment system designed to contain the maximum capacity of any single compartment of the tank car or tank truck, including containment curbing and a trenching system or drains with drainage to a collection tank or device designed to handle a discharge;"

Known Variables

Tanker Largest Compartment Size

$VOLtank := 6600\ gal$ — Largest single wall tank to be utilized within the TTLR Lane Per Client

Secondary Containment TTLR Lane Capacity Requirements

$Add_{Capacity} := 12\%$ — Additional capacity to account for local precipitation amounts, %

$TTLR_{Required} := VOLtank \cdot (1 + Add_{Capacity})$ — TTLR Required Volume, gal.

$TTLR_{Required} = 7392\ gal$

Secondary Containment TTLR Lane Capacity

$TTLR_{Area} := 617.5\ ft^2$ — TTLR Lane Area (Per AutoCAD), sqft (Note: rollover curb not included.)

$Adjacent_{Area} := 481\ ft^2$ — TTLR Lane - Adjacent area - Area (Per AutoCAD), sqft/ (Note: rollover curb not included)

$TTLR_{Height} := 5.5\ in$ — TTLR Curb Height, inches.

$TTLR_{Vol} := TTLR_{Height} \cdot (TTLR_{Area} + Adjacent_{Area})$

$TTLR_{Vol} = 3766.286\ gal$ — TTLR Combined Containment, gal.

$TTLRTrench_{Drain} := 37\ ft \cdot 1\ ft \cdot 1\ ft$ Volume of Trench Drain from AutoCAD, (37ft Length, 1ft Wide, x 1ft Deep.)

$TTLRTrench_{Drain} = 276.779\ gal$

$Sump_{Vol} := 48\ in \cdot 48\ in \cdot 48\ in$ Sump Size, per Plans, Nominal, 4'x4'x4'.

$Sump_{Vol} = 478.753\ gal$ Sump Capacity, per Plans, gal.

$TTLR_{Containment} := TTLR_{Vol} + TTLRTrench_{Drain} + Sump_{Vol}$

TTLR Provided Volume, gal.

$TTLR_{Containment} = 4521.818\ gal$

Note: Containment is **not adequate** for Iso-Container containment. Per the drawings completed by others (dated 01/17/2020), the TTLR Lane is to flow into the 4'x4' Sump provided with a lift station pump capable of 350 gpm nominal flow. This pump is to automatically start upon predetermined level and pump into the larger containment area (T-01) per plans.

Determine Average Flow Rate From Iso Tank Half Full To Empty

The following is to determine the average discharge flowrate of an Iso Container due to a catastrophic rupture of the 4-inch fuel discharge line (half full). This rate will be used to validate the design flowrate of the lift station pump.

$f_{4in} := 0.017$ 4-inch Pipe friction factor 0.015 (Crane Flow of Fluids page A-26)

$L_{4in} := 2$ Length of Iso Container Piping from Transfer Point, in Feet.

$d_{4in} := 4.026$ Internal Diameter of 4-inch Pipe in inches.

$D_{4in} := \frac{4.026}{12}$ Internal Diameter of 4-inch Pipe in Feet.

$K_{Iso} := f_{4in} \cdot \frac{L_{4in}}{D_{4in}} + 0.5 + 8 \cdot f_{4in} + 0.5$ Straight Pipe K-Factor, entrance, gate valve, exit, (Crane Flow of Fluids page 3-4)

$h_{Liso} := 4$ Head of Water above Pipe Centerline (Assume Iso-Container Half Full), feet.

$Q_{Iso} := 19.65 \cdot d_{4in} \sqrt{\frac{h_{Liso}}{K_{Iso}}}$ Gravity Flowrate Equation (Crane Flow of Fluids page 3-4)

$Q_{Iso} = 142.24$ Gravity Flowrate from Iso Container, gpm.

Determine Flow Rate From TTLR to Sump Area through a 6-inch HDPE Pipe, per Plans

$f := 0.015$ 6-inch Pipe friction factor 0.015 (Crane Flow of Fluids page A-26) Note: Steel Pipe friction factor utilized.

$L := 7$ Length of Piping in Feet.

$d_{6in} := 6.0$ Internal Diameter of 6-inch Pipe in inches.

$D := \frac{6.0}{12}$ Internal Diameter of 6-inch Pipe in Feet.

$K := f \cdot \frac{L}{D} + 0.5 + 0.5$ Straight Pipe K-Factor, entrance, exit(Crane Flow of Fluids page 3-4)

$h_l := 3$ Head of Water above Pipe Centerline, feet.

$Q_{drain} := 19.65 \cdot d_{6in} \sqrt{\frac{h_l}{K}}$ Gravity Flowrate Equation (Crane Flow of Fluids page 3-4)

$Q_{drain} = 185.644$ Gravity Flowrate from TTLR Lane to Tank Farm Containment, gpm.

Secondary Containment TTLR Lane Capacity Summary

Since the required capacity of the TTLR lane is $TTLR_{Required} = 7392$ ***gal*** which is less than the provided capacity of $TTLR_{Containment} = 4521.818$ ***gal*** the containment lane is not acceptable for secondary containment for Iso Containers.

The TTLR lane is provided with a sump and a lift station pump that is routed to the neighboring tank (T-01_ containment area. The discharge flowrate from the Iso Container is sized for a full breach and rupture of the piping with the iso tank half-full. The expected flowrate from the Iso Container to the TTLR lane is $Q_{Iso} = 142.24$ gallons per minute (gpm).

The outfall capacity from the 6-inch piping with the assumptions above is expected to be $Q_{drain} = 185.644$ gpm when the containment is near full; therefore, the anticipated drainage rate is more than the anticipated fill rate which is acceptable.

The design flowrate of the Lift Station pump provided within the sump is 350gpm at 40ft of discharge head per plans which will outpace the design spill flowrate from the Iso Tank Container, which is acceptable.

End of Calculation

Department of Natural Resources
Division of Mining, Land and Water

Fact Sheet: Generally Allowed Uses

As provided in 11 AAC 96.020, the following uses and activities are generally allowed on state land managed by the Division of Mining, Land and Water (these uses and activities may be restricted in legislatively designated areas, or special management category or status as listed in 11 AAC 96.014[1]). Uses listed as "Generally allowed" do not require a permit from the Division of Mining, Land and Water. Note that this list does not apply to state parks, nor to land owned or managed by other state agencies such as the University of Alaska, Alaska Mental Health Trust, Department of Transportation and Public Facilities, or the Alaska Railroad. You may need other state, federal or borough permits for these uses or activities. Permits can be required from the Army Corps of Engineers, Department of Environmental Conservation, the Environmental Protection Agency, Alaska Department of Fish and Game Habitat Division (ADF&G-Habitat). Before beginning an activity on state land, the user should check to be sure it is generally allowed in that particular area.

Travel Across State Land
Hiking, backpacking, skiing, climbing, and other foot travel; bicycling; traveling by horse or dogsled or with pack animals.

Using a highway vehicle with a curb weight of up to 10,000 pounds, including a four-wheel-drive vehicle and a pickup truck, **or using a recreational-type vehicle** off-road or all-terrain vehicle with a curb weight of up to 1,500 pounds, including a snowmobile(or other tracked vehicle), motorcycle or ATV, on or off an established road easement, if use off the road easement does not cause or contribute to water quality degradation, alteration of drainage systems, significant rutting, ground disturbance, or thermal erosion. (Curb weight means the weight of a vehicle with a full tank of fuel and all fluids topped off, but with no one sitting inside or on the vehicle and no cargo loaded. Most highway rated sport utility vehicles are within the weight limit as are most small ATVs, including a basic Argo.) Use of larger off-road vehicles over 1,500 pounds curb weight, and the off-road travel of construction and mining equipment requires a permit from DNR. An authorization may be required from the ADF&G-Habitat for any motorized travel in fish bearing streams.

Landing an aircraft (such as a single-engine airplane or a helicopter), or using watercraft (such as a boat, jet-ski, raft, or canoe), without damaging the land, including shoreland, tideland, and submerged land.

Driving livestock, including any number of reindeer or up to 100 horses1 cattle, or other domesticated animals.

Access Improvements on State Land
Brushing or cutting a trail less than five feet wide using only hand-held tools such as a chainsaw (making a trail does not create a property right or interest in the trail).

Anchoring a mooring buoy in a lake, river, or marine waters, or **placing a float, dock, boat haulout, floating breakwater, or boathouse** in a lake, river, or in marine waters, for the personal, noncommercial use of the upland owner, if the use does not interfere with public access or another public use, and if the improvement is placed within the projected sidelines of the contiguous upland owner's parcel or otherwise has the consent of the affected upland owner. A float or dock means an open structure without walls or roof that is designed and used for access to and from the water rather than for storage, residential use, or other purposes. A boat haulout means either a rail system (at ground level or elevated with pilings) or a line attached from the uplands to an anchor or mooring buoy. A floating breakwater means a structure, such as a log bundle, designed to dissipate wave or swell action. A boathouse means a structure designed and used to protect a boat from the weather rather than for other storage, residential use or other purposes.

1 These special use areas are listed in 11 AAC 96.014 and on the last page of this fact sheet. Maps of the areas are available online at: http://dnr.alaska.gov/mlw/sua/

Removing or Using State Resources
Hunting, fishing, or trapping, or placement of a crab pot, shrimp pot, herring pound or fishwheel, that complies with applicable state and federal statutes and regulations on the taking of fish and game.

Harvesting a small number of **wild plants, mushrooms, berries, and other plant material** for personal, noncommercial use. The cutting of trees is not a generally allowed use except as it relates to brushing or cutting a trail as provided above. Commercial harvest of non-timber forest products requires a permit (11 AAC 96.035) and harvest practices must conform to the Alaska Non-Timber Forest Products Harvest Manual for Commercial Harvest on state-owned Lands. https://dnr.alaska.gov/mlw/lands/permitting/ntfp-commercial-harvest-permit/

Using dead and down wood for a cooking or warming fire, unless the department has closed the area to fires during the fire season.

Grazing no more than five domesticated animals.

Recreational gold panning; hard-rock mineral prospecting or mining using light portable field equipment, such as a hand-operated pick, shovel, pan, earth auger, or a backpack power drill or auger; or suction dredging using a suction dredge with a nozzle intake of six inches or less, powered by an engine of 18 horsepower or less, and pumping no more than 30,000 gallons of water per day. An authorization is required from ADF&G-Habitat prior to dredging in fish bearing streams.

Other Improvements and Structures on State Land
Setting up and using a camp for personal, noncommercial recreational purposes, or for any non-recreational purpose (such as a support camp during mineral exploration), for no more than 14 days at one site, using a tent platform or other temporary structure that can readily be dismantled and removed, or a floathouse that can readily be moved. Moving the entire camp at least two miles starts a new 14-day period. Cabins or other permanent improvements are not allowed, even if they are on skids or another non-permanent foundation. The camp must be removed immediately if the department determines that it interferes with public access or other public uses or interests.

Brushing or cutting a survey line less than five feet wide using only hand-held tools (such as a chainsaw), or setting a survey marker (setting a survey monument—a permanent, official marker—requires written survey instructions issued by the Division of Mining, Land and Water under 11 AAC 53).

Placing a residential **sewer outfall** into marine waters from a contiguous privately owned upland parcel, with the consent of the affected parcel owners, if the outfall is within the projected sidelines of the contiguous upland parcel and is buried to the extent possible or, where it crosses bedrock, is secured and covered with rocks to prevent damage. Any placement of a sewer outfall line must comply with state and federal statutes and regulations applicable to residential sewer outfalls.

Placing riprap or other suitable bank stabilization material to prevent erosion of a contiguous privately owned upland parcel if no more than one cubic yard of material per running foot is placed onto state shoreland and the project is otherwise within the scope of the U.S. Army Corps of Engineers nationwide permit on bank stabilization.

Miscellaneous Uses of State Land
An event or assembly of 50 people or less, including events sponsored by non-profit organizations or a commercial event. Entry for **commercial recreation** purposes **on a day-use basis** with no overnight camps or unoccupied facilities that remain overnight, as long as the use has been registered as required by 11 AAC 96.018.

Recreational or other use not listed above may occur on state land as long as that use

- is not a commercial recreational camp or facility, (whether occupied or unoccupied) that remains overnight;
- does not involve explosives or explosive devices (except firearms);
- is not prospecting or mining using hydraulic equipment methods (i.e. the use of pumped or flowing water to remove overburden or move gravels);
- does not include drilling in excess of 300 feet deep (including exploratory drilling or stratigraphic test wells on state land not under oil or gas lease);
- is not for geophysical exploration for minerals subject to lease or an oil and gas exploration license or for seismic surveys involving the use of explosives;

- does not cause or contribute to significant disturbance of vegetation, drainage, or soil stability;
- does not interfere with public access or other public uses or interests; and
- does not continue for more than 14 consecutive days at any site. Moving the use to another site at least two miles away starts a new 14-day period.
- *does not include exploration for coal (a notice of intent to conduct exploration for coal must be filed with the DNR)

Check for special conditions and exceptions!

All activities on state land must be conducted in a responsible manner that will minimize or prevent disturbance to land and water resources, and must comply with all applicable federal, state, and local laws and regulations. **By acting under the authority of this list, the user agrees to the conditions set out in 11 AAC 96.025** (a copy of these conditions are attached to this fact sheet). A person who violates these conditions is subject to any action available to the department for enforcement and remedies, including civil action for forcible entry and detainer, ejectment, trespass, damages, and associated costs, or arrest and prosecution for criminal trespass in the second degree. The department may seek damages available under a civil action, including restoration damages, compensatory damages, and treble damages under AS 09.45.730 or AS 09.45.735 for violations involving injuring or removing trees or shrubs, gathering technical data, or taking mineral resources. (11 AAC 96.145)

Remember that this list does not apply to state parks, University of Alaska lands, or Alaska Mental Health Trust lands. In addition, some other areas managed by the Division of Mining, Land and Water are not subject to the full list of generally allowed uses. Exceptions may occur because of special conditions in a state land use plan or management plan for example, a management plan may reduce the number of days that people can camp at a specific site), or by a "special use land" designation (for instance, a special use land designation for the North Slope requires a permit for off-road vehicle use). Special Use Areas are listed in 11 AAC 96.014; more information is available on the department's website at https://dnr.alaska.gov/mlw/lands/special-use-areas/. GAU's have also been modified for the Knik River Public Use Area.

Also, be aware that this list does not exempt users from the permit requirements of other state, federal, or local agencies. For example, the ADF&G - Habitat may require a permit for a stream crossing or if the use will take place in a state game refuge.

Finally, this list does not authorize a use if another person has already acquired an exclusive property right for that use. For instance, it does not give people permission to graze livestock on someone else's state grazing lease, to build a trail on a private right-of-way that the Division of Mining, Land and Water has granted to another person, or to pan for gold on somebody else's state mining location.

Department staff can help users determine the land status of state-owned land and whether it is subject to any special exceptions or to private property rights.

For additional information, contact the Department of Natural Resources:

Anchorage/Southcentral
Public Information Center
550 West 7th Avenue, Suite 1360
Anchorage, AK 99501-3561
Phone: (907) 269-8400
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Juneau/Southeast
Regional Land Office
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400 Willoughby Avenue, 4th Floor
Juneau, AK 99801
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Fairbanks/Northern
Public Information Center
3700 Airport Way
Fairbanks, AK 99709-4699
Phone: (907) 451-2705
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Statewide TTY: 711 for Alaska Relay or 1-800-770-8973

CONDITIONS FOR GENERALLY ALLOWED USES
(11 AAC 96.025)

A generally allowed use listed in 11 AAC 96.020 is subject to the following conditions:

(1) activities employing wheeled or tracked vehicles must be conducted in a manner that minimizes surface damage;

(2) vehicles must use existing roads and trails whenever possible;

(3) activities must be conducted in a manner that minimizes

(A) disturbance of vegetation, soil stability, or drainage systems;

(B) changing the character of, polluting, or introducing silt and sediment into streams, lakes, ponds, water holes, seeps, and marshes; and

(C) disturbance of fish and wildlife resources;

(4) cuts, fills, and other activities causing a disturbance listed in (3)(A)–(C) must be repaired immediately, and corrective action must be undertaken as may be required by the department;

(5) trails and campsites must be kept clean; garbage and foreign debris must be removed; combustibles may be burned on site unless the department has closed the area to fires during the fire season;

(6) survey monuments, witness corners, reference monuments, mining location posts, homestead entry corner posts, and bearing trees must be protected against destruction, obliteration, and damage; any damaged or obliterated markers must be reestablished as required by the department under AS 34.65.020 and AS 34.65.040;

(7) every reasonable effort must be made to prevent, control, and suppress any fire in the operating area; uncontrolled fires must be immediately reported;

(8) holes, pits, and excavations must be repaired as soon as possible; holes, pits, and excavations necessary to verify discovery on prospecting sites, mining claims, or mining leasehold locations may be left open but must be maintained in a manner that protects public safety;

(9) on lands subject to a mineral or land estate property interest, entry by a person other than the holder of a property interest, or the holder's authorized representative, must be made in a manner that prevents unnecessary or unreasonable interference with the rights of the holder of the property interest.

List of Special Use Land Designations Excluded from Generally Allowed Uses

- Alyeska Ski Resort
- Baranof Lake Trail
- Caribou Hills
- Exit Glacier Road
- Glacier/Winner Creek
- Hatcher Pass Special Use Area
- Haines State Forest
- Indian Cove
- Kamishak Special Use Area
- Kenai Fjords Coastline
- Kenai River Special Management Area Proposed Additions
- Lake Clark Coastline
- Lower Goodnews River
- Lower Talarik Creek
- Marmot Island Special Use Area
- Nenana River Gorge and McKinley Village Subd.
- North Slope Area
- Northern Southeast Area, Tidelands
- Nushagak
- Poker Flat North
- Poker Flat South
- Resurrection Bay
- Tangle Lakes Archaeological District
- Thompson Pass
- Togiak National Wildlife Refuge Shorelands
- Knik River Special Use Area

BEAUFORT SCALE

Estimating Wind Speed and Sea State with Visual Clues				
Beaufort number	Wind Description	Wind Speed	Wave Height	Visual Clues
0	Calm	0 knots	0 feet	Sea is like a mirror. Smoke rises vertically.
1	Light Air	1-3 kts	< 1/2	Ripples with the appearance of scales are formed, but without foam crests. Smoke drifts from funnel.
2	Light breeze	4-6 kts	1/2 ft (max 1)	Small wavelets, still short but more pronounced, crests have glassy appearance and do not break. Wind felt on face. Smoke rises at about 80 degrees.
3	Gentle Breeze	7-10 kts	2 ft (max 3)	Large wavelets, crests begin to break. Foam of glassy appearance. Perhaps scattered white horses (white caps). Wind extends light flag and pennants. Smoke rises at about 70 deg.
4	Moderate Breeze	11-16 kts	3 ft (max 5)	Small waves, becoming longer. Fairly frequent white horses (white caps). Wind raises dust and loose paper on deck. Smoke rises at about 50 deg. No noticeable sound in the rigging. Slack halyards curve and sway. Heavy flag flaps limply.
5	Fresh Breeze	17-21kts	6 ft (max 8)	Moderate waves, taking more pronounced long form. Many white horses (white caps) are formed (chance of some spray). Wind felt strongly on face. Smoke rises at about 30 deg. Slack halyards whip while bending continuously to leeward. Taut halyards maintain slightly bent position. Low whistle in the rigging. Heavy flag doesn't extended but flaps over entire length.
6	Strong Breeze	22-27 kts	9 ft (max 12)	Large waves begin to form. White foam crests are more extensive everywhere (probably some spray). Wind stings face in temperatures below 35 deg F (2C). Slight effort in maintaining balance against wind. Smoke rises at about 15 deg. Both slack and taut halyards whip slightly in bent position. Low moaning, rather than whistle, in the rigging. Heavy flag extends and flaps more vigorous.
7	Near Gale	28-33 kts	13 ft (max 19)	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of wind. Necessary to lean slightly into the wind to maintain balance. Smoke rises at about 5 to 10 deg. Higher pitched moaning and whistling heard from rigging. Halyards still whip slightly. Heavy flag extends fully and flaps only at the end. Oilskins and loose clothing inflate and pull against the body.
8	Gale	34-40 kts	18 ft (max 25)	Moderately high waves of greater length. Edges of crests begin to break into the spindrift. The foam is blown in well-marked streaks along the direction of the wind. Head pushed back by the force of the wind if allowed to relax. Oilskins and loose clothing inflate and pull strongly. Halyards rigidly bent. Loud whistle from rigging. Heavy flag straight out and whipping.
9	Strong Gale	41-47 kts	23 ft (max 32)	High waves. Dense streaks of foam along direction of wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.
10	Storm	48-55 kts	29 ft (max 41)	Very high waves with long overhanging crests. The resulting foam, in great patches is blown in dense streaks along the direction of the wind. On the whole, the sea takes on a whitish appearance. Tumbling of the sea becomes heavy and shock-like. Visibility affected.
11	Violent Storm	56-63 kts	37 ft (max 52)	Exceptionally high waves (small and medium-sized ships might be for time lost to view behind the waves). The sea is completely covered with long white patches of foam lying along the direction of the wind. Everywhere, the edges of the wave crests are blown into froth. Visibility greatly affected.
12	Hurricane	64+ kts	45+ ft	The air is filled with foam and spray. The sea is completely white with driving spray. Visibility is seriously affected.

6.3 Revision Log

The table below is used to document amendments to this CPLAN.

Revision Number	Month-Year	Affected Pages	Changes Made	Type of Update [39]
0	March 2025	All	Plan Renewal	Plan Renewal

[39] Refers to DW's interpretation of the type of update. The types of updates are as follows: Plan Renewal, Routine Plan Update, Minor Amendment, or Major Amendment.

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6.4 Approval Letters