IAP Cover Sheet

Incident Name:	Operational Period to be covered by IAP:
Drift River Terminal Flooding	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)

Approved by:

Joe LoSciuto* FOSC :

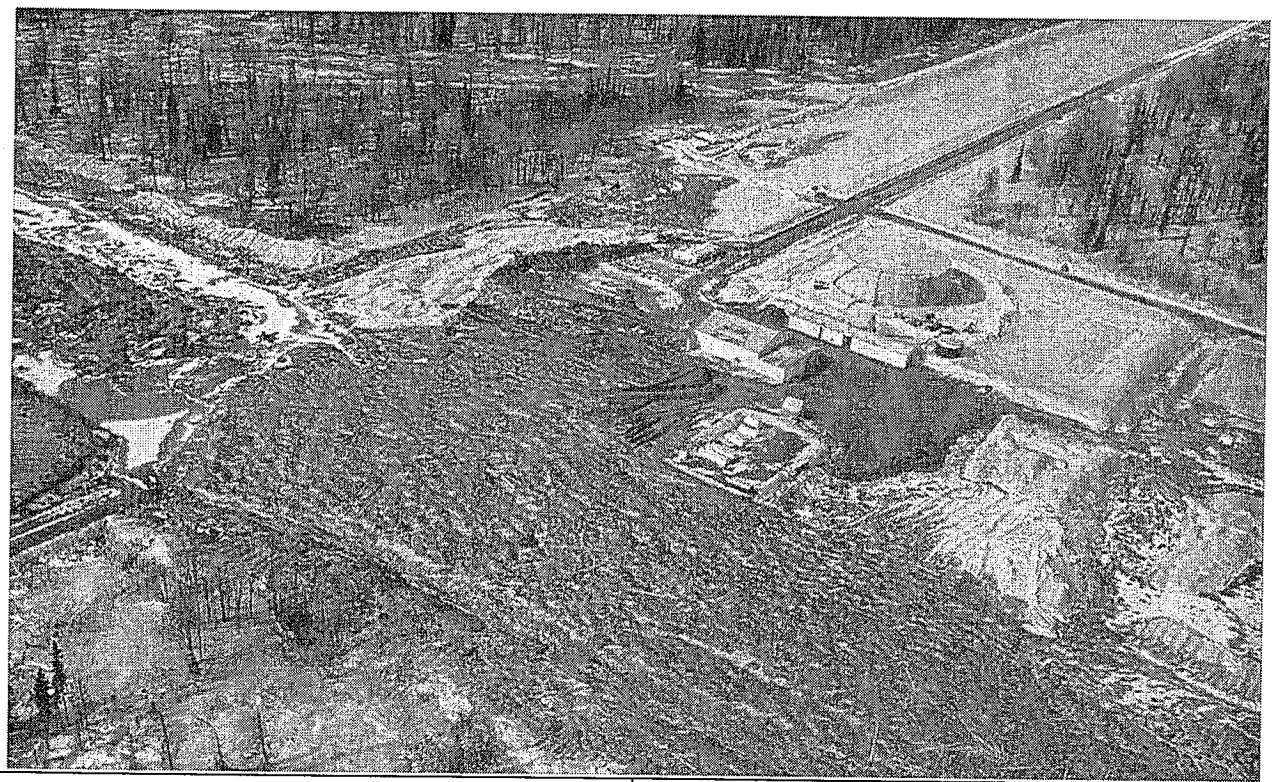
Gary Folley SOSC :

RPIC :

Incident Action Plan

Volcanic eruption/flooding. Mount Redoubt initially erupted at 10:38 PM on March 22, 2009, followed by several other eruptions. The resultant lahars (or volcanic mudflows) caused extensive flooding at the Drift River Terminal. However, no oil or hazardous substance releases have been reported at this time.
* Cdr. Joe LoScuito of the US Coast Guard (FOSC for the Terminal & Maritime)

Drift River Oil Terminal.
Picture Date: March 28, 2009
Image Creator: Russell, Steve;
Image courtesy of ADEC.



Incident Details

Incident:	Drift River Terminal Flooding	**Prepared By:**	Kalyan, Mala	**at** 3/26/2009 12:55
Period:	Period 1 (3/26/2009 16:00 - 3/27/2009 16:00)	**Version Name:**	Default	

Incident Name: Drift River Terminal Flooding

Incident Number: 09239908201 **Drill:** ☐

Incident Date/Time: 3/22/2009 22:38

Time Zone: Alaska-Hawaii Daylight Time

Organizational Structure Type: Oil Spill

Affected Asset Type: Facility

Affected Asset:

Location: Drift River Terminal, West Side Cook Inlet

Latitude: 60.60000000

Longitude: -152.18333333

Person Reporting Incident: None

Person Contact Number(s):

Incident Description: Mt. Redoubt initially erupted on March 22, 2009 at 10:38 PM, and continues to erupt with associated lahars and ashfall. The tank farm at the Drift River Terminal is composed on seven tanks, of which two are operation with each containing 74,000 barrels of crude oil. For an up-to-date assessment of the situation, please review the latest DEC Situation Report (Sitrep) posted at the following website:

http://www.dec.state.ak.us/spar/perp/drot

ICS 201-1 - Incident Briefing Map/Sketch

Incident:	Drift River Terminal Flooding	**Prepared By:**	Petit, Bob	**at** 3/30/2009 10:21
Period:	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Version Name:**	3/27/2009 14:01	

ICS 202 - General Response Objectives

Incident:	Drift River Terminal Flooding	**Prepared By:**	Section, Planning **at** 3/30/2009 10:21
Period:	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Version Name:**	March 29, 2009

Overall and Strategic Objectives

	Assigned To	Status
Ensure the safety of citizens and response personnel. Address the risk posed by actual/potential ashfall to responders. Develop plans for increased monitoring of lahars thru placement of additional instrumentation by AVO.		
• Coordinate with AVO for notification of volcanic eruptions, lahar and flood warnings, plus any potential implications to changes in hydrological conditions.		
Prevent the release of oil, hazardous materials, and refuse/terminal debris to the environment.		
• Identify spill response resources available (CISPRI, NAVSUPSALV, CIPL, and Chevron) - status, deployment times, and location.		
• Continue to determine and update information on Resources at Risk.		
Conduct a risk-based decision process prior to movement of any crude oil product to and from the facility.		
• Monitor the risk to the Drift River Terminal, tanks, pipelines, and cargo transfer facility.		
• Identify oil storage capacity and inventory management of facilities.		
• Coordinate and participate in Overflights. Ash plume and flight safety conditions will be monitored at all times.		
Identify regulatory requirements for facility restart of operations.		
• Monitor plans and timeframe for effecting repairs necessary for resumption of operations.		
Identify and maintain stakeholder communications and engagement.		

Operational Period Command Emphasis (Safety Message, Priorities, Key Decisions/Directions)

Approved By

: _____

ICS 204 - Assignment List

Incident: Drift River Terminal Flooding	**Prepared By:** Iwamoto, Larry **at** 3/30/2009 16:18
Period: Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Branch:** Lahar & Flood Forecast and Planning
	Division/Group/Staging: Lahar & Flood Forecast and Planning

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Operations Section - State Chief	Neil Huddleston	ADEC	269-7542
DNR, Director - Flood Forecast & P	Bob Swenson	DNR, Director DGGS	451-5001
Division/Group Supervisor/STAM			
		Army Corps of Engineers	
		Cook Inlet Pipeline	
		AVO-DNR	
		USGS	
		NWS River Flood Foreca	

Assignments

Assess the threat of lahars and flooding to the DROT and associated pipelines. Specific areas of focus are as follows:

1. Lahar and flood predictions
2. Lahar and flood warning system
3. Floodplain risk assessment
4. Geologic Hazards
5. Lahar and/or flood impacts on terminal facility
6. Tertiary Containment Integrity

Special Instructions for Division / Group

Conduct overflights of the area specifically to determine the extent of lahars and flooding. Compile the reports and forecasts from other groups, including operational overflight photos, DNR-AVO data, NWS weather and river flood forecasts, Army Corps of Engineers risk assessments, and USGS hydrological information.

Tactical Objective

Conduct overflights of the area specifically to determine the extent of lahars and flooding. Compile the reports and forecasts from other groups, including operational overflight photos, DNR-AVO data, NWS weather and river flood forecasts, Army Corps of Engineers risk assessments, and USGS hydrological information.

Reviewed By Signatures - (PSC): **(OSC):**

ICS 204 - Assignment List

Incident: Drift River Terminal Flooding	**Prepared By:** Brown, John **at** 3/30/2009 10:21
Period: Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Branch:** Planning/ Environmental
	Division/Group/Staging: Planning/ Environmental

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Environmental Unit Leader	Mala Kalyan	ADEC	269-7435
	Young Ha	ADEC	
Environmental Unit	Gayle Martin	Department of Fish and (	
Environmental Unit	Clark Cox	ADNR	
	Dave McMahan	ADNR SHPO	
	Richard Vanderhoek	ADNR SHPO	
	Shannon Miller	ADNR	

Assignments

Determine resources at risk,including wildlife, sensitive habitats, historical properties, and private property.

Location of Work

Anchorage

Reviewed By Signatures - (PSC): **(OSC):**

ICS 204 - Assignment List

Incident: Drift River Terminal Flooding	**Prepared By:** Section, Planning **at** 3/30/2009 16:23
Period: Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Branch:** Production Inventory Management
	Division/Group/Staging: Production Inventory Management

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Planning Section Chief	Larry Iwamoto	ADEC	269-7683
Technical Specialist (T/S)	Shannon Dewandel	ADEC	269-7541
		USCG	271-6700
		CIPL	
		DNR	
Pipeline / Regulator	Tom Johnson	PHMSA	271-4934
Alaska Oil & Gas Consv. Commissi	Cathy Foerster	DOA-AOGCC	793-1221

Assignments

> Work with Cook Inlet Pipeline, USCG, DNR, PHMSA, and AOGCC to determine oil inventory at the Drift River Terminal Facility, which includes all tanks and pipelines.

> Determine operational alternatives and corresponding tank inventory levels until threat is eliminated (including alternative storage possibilities, potential for reverse flow to up-stream storage, water-ballasting oil tanks versus using oil to stabilize tanks).

> Assess potential up-stream effects to production wells in the event that oil platforms are shut-in, including
- What increased risks are there for spills from these platforms?
- What are the potential effects to the oil resevoirs and recovery?
- What are the risks for partial or permanent loss of production?

Location of Work

Anchorage

Special Equipment / Supplies Needed for Assignment

None at this time

Special Site-Specific Safety Considerations

All field work will require appropriate PPE.

Reviewed By Signatures - (PSC): **(OSC):**

ICS 204 - Assignment List

Incident: Drift River Terminal Flooding	**Prepared By:** Brown, John **at** 3/30/2009 10:21
Period: Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Branch:** Operations/ Situation Overflights
	Division/Group/Staging: Operations/ Situation Overflights

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Operations Section Chief	Steve Russell	ADEC	(907-262-5210 ext 222
Air Support Group	Neil Huddleston	ADEC	

Assignments

Participate in facility overflights

Special Instructions for Division / Group

Use digital video and cameras to document overflight information.

Tactical Objective

Monitor and coordinate overflight information.

Location of Work

Anchorage/ Soldotna

Special Equipment / Supplies Needed for Assignment

Digital video camera and regular digital camera

Special Site-Specific Safety Considerations

Monitor reports of volcanic eruptions; no flight if there is any chance of encountering ash while flying.

Reviewed By Signatures - (PSC): **(OSC):**

ICS 204 - Assignment List

Incident: Drift River Terminal Flooding	**Prepared By:** Brown, John **at** 3/30/2009 16:21
Period: Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Branch:** Planning/ Spill Response & Resources Availal
	Division/Group/Staging: Planning/ Spill Response & Resources Availal

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Operations Section - State Chief	Neil Huddleston	ADEC	269-7542
Operations Section - Federal Chief		USCG	271-6700
Facility&Pipeline Mngt / Responsibl		CIPL	
Oil Spill Response Cooperative	Doug Lentsch	CISPRI	776-5129
Pipeline/ Regulator	Matt Carr	EPA	
Federal-Navy spill response equipr	Dave Simmerman	Navy SUPSALV	

Assignments

> Identify possible spill scenarios in light of current conditions.
> Identify spill response resources available at CISPRI, Cook Inlet Pipeline, Chevron, Navy SUPSALV.
- Determine status
- Deployment times, and locations

> Identify Geographic Response Strategies that can be activated to protect sensitive areas that may be impacted by a crude oil release from the terminal area.
> Identify response tactics and resources that would be used to contain and recover oil in the event of a crude oil release.
> Identify non-mechanical response tactics and resources that could be used in the event of a crude oil release.
> Identify predeployment tactics that could enhance response times and capabilities.
> Identify potential safety-related issues to personnel and response equipment in the event of ash fallout

Special Instructions for Division / Group

None

Tactical Objective

Verify which immediate response resources are available, as well as location and availability of vessels and large response equipment in Cook Inlet area.

Location of Work

Soldotna

Special Equipment / Supplies Needed for Assignment

None

Reviewed By Signatures - (PSC): **(OSC):**

ICS 204 - Assignment List

Incident: Drift River Terminal Flooding	**Prepared By:** Brown, John; Gardner, **at** 3/30/2009 16:20
Period: Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Branch:** Planning/ Facility Status & Restart Contingenc
	Division/Group/Staging: Planning/ Facility Status & Restart Contingenc

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Planning Section Chief	Larry Iwamoto	ADEC	269-7683
Facility/ Regulator Requirement As	Roger Burleigh	ADEC	269-7538
Facility&Pipeline Mngt/Responsible	Rod Ficken	CIPL	
Pipeline/ Regulator Requirement A	Jim Robertson	USCG	271-6700
Pipeline/ Regulator Requirement A	Tom Johnson	PHMSA	271-4934
Pipeline/ Regulator Requirement A	Dennis Hinnah	PHMSA	271-4937
Pipeline/ Regulator Requirement A	Matt Carr	EPA	271-3616
Aalska Oil and Gas Conservation C	Cathy Foerster	DOA-AOGCC	793-1221

Assignments

Identify all actions and regulatory requirements for a restart of facility operations. Should include Cook Inlet Pipeline, PHMSA, USCG, EPA and State of Alaska requirements prior to start-up commencing.

>Develop a comprehensive safety plan.
>Continue mud and debris removal.
>Conduct integrity check. Identify any damage and repairs needed to:
- Tertiary dike and secondary containment
- Pipelines to loading berth
- Crude oil transmission pipeline
- Pumping System
- Tanks
- Support infrastructure, safe haven, roads, airstrip, helicopter pad, hangar, other buildings

>Identify a repair schedule, if needed.
>Ensure that all agency permits and approvals have been met.
>Coordinate schedule with facility restaffing, port operations and tanker schedules.

Location of Work

Anchorage

Special Environmental Considerations

Coordination with all State Trustee Agencies, Coast Guard, EPA, and Federal DOT

Special Site-Specific Safety Considerations

None at this time

Reviewed By Signatures - (PSC): **(OSC):**

ICS 206 - Medical Plan

Incident:	Drift River Terminal Flooding	**Prepared By:**	Section, Planning **at** 3/30/2009 10:23
Period:	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Version Name:**	March 28, 2009

Medical Aid Stations

Name	Location	Paramedics (On-Site)	Phone	Radio
AK Air National Guard	Anchorage, AK	Yes	907-428-7230	
Fairweather Inc.	Anchorage, AK	Yes	907-258-3446	

Transportation (Ground and/or Air Ambulances Services)

Name	Location	Paramedics	Phone	Radio
Providence Life Flight	Anchorage, AK		907-243-5433	
Security Aviation	Anchorage, AK	No	(907) 248-2677	N

Hospitals

Name	Location	Helipad	Burn Center	Phone	Radio
Alaska Native Medical Center	Anchorage, AK			(907) 563-2662	
Alaska Regional Hospital	Anchorage, AK	Yes	No	(907) 276-1130/175	
Providence Alaska Medical Center	Anchorage, AK	Yes	Yes	(907) 562-2211	
South Peninsula Hospital	Homer, AK			(907) 235-8101	
Central Peninsula General Hospital	Soldotna, AK			(907) 262-4404 (24	
Peninsula Medical Center	Kenai, AK			907-262-9341	

Special Medical Emergency Procedures

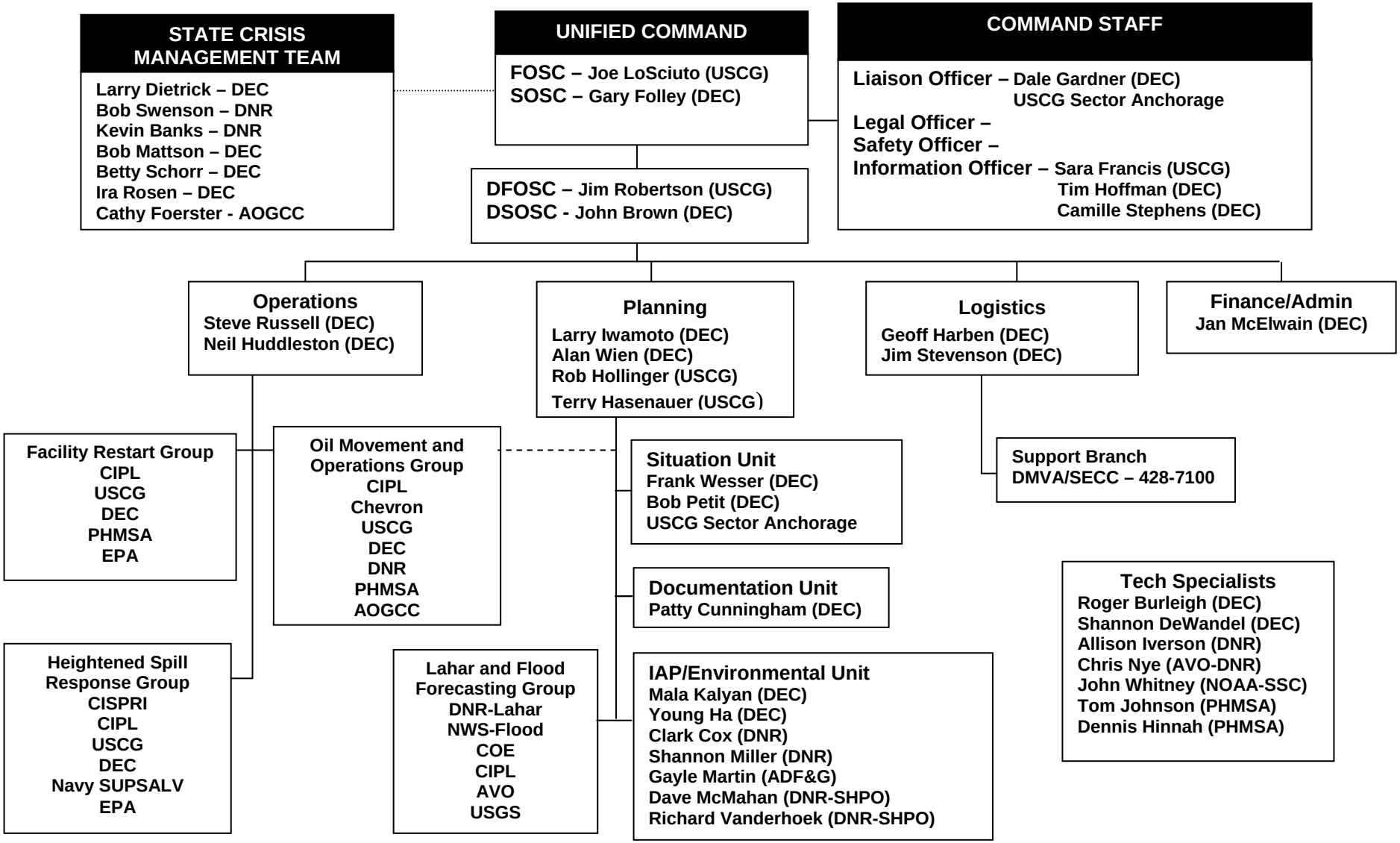
In the Kenai Borough (911) can be used for contacting and mobilization of local police, Alaska State Troopers, Fire, or Ambulance.

ICS 205 Communications Plan – Contact Information

MT REDOUBT ERUPTION (DRIFT RIVER TERMINAL) – FEDERAL/STATE IMT/CMT CONTACT LIST (March 30, 2009)				
Name	**Agency**	**Position/Area of Expertise/Function**	**Email Address**	**Office Phone/Cell**
Anne Besser	USCG Sector Anchorage	USCG Situation Unit	Anne.E.Besser@uscg.mil	271-6700
John Brown	DEC-PERP	Deputy SOSC	John.Brown@alaska.gov	269-7688
Matt Carr	EPA	FOSC (Inland)	Carr.matthew@epa.gov	271-3616
Clark Cox	DNR	Environmental Unit	Clark.cox@alaska.gov	269-8565
Patty Cunningham	DEC-IPP	Documentation Unit Leader	Patty.cunningham@alaska.gov	269-7328
Gary Folley	DEC-PERP	SOSC	Gary.Folley@alaska.gov	262-5210, X 234
Allison Ferko	USCG Sector Anchorage		Allison.E.Ferko@uscg.mil	271-6700
Sara Francis	USCG Sector Anchorage	PIO-JIC	Sara.G.Francis@uscg.mil	271-6700
Mike Franklin	USCG MSD Kenai		Michael.R.Franklin@uscg.mil	283-3292
Dale Gardner	DEC-PERP	Liaison	Dale.gardner@alaska.gov	269-7682
Young Ha	DEC-PERP	IAP/Environmental Unit	Young.ha@alaska.gov	269-3064
Geoff Harben	DEC-PERP	Logistics Section Chief	Geoff.harben@alaska.gov	465-5234
Terry Hasenauer	USCG Sector Anchorage		Terry.L.Hasenauer@uscg.mil	271-6700
Tim Hoffman	DEC-Water	PIO-JIC	Timothy.hoffman@alaska.gov	269-0598
Rob Hollinger	USCG Sector Anchorage	Planning Section Lead (CG)	Rob.E.Hollinger@uscg.mil	271-6700
Neil Huddleston	DEC-PERP	Operations	Neil.huddleston@alaska.gov	269-7542
Larry Iwamoto	DEC-PERP	State Planning Section Chief	Larry.iwamoto@alaska.gov	269-7683
Mala Kalyan	DEC-PERP	IAP/Environmental Unit Leader	Mala.kalyan@alaska.gov	269-7435
Doug Lentsch	CISPRI	Technical Support	dlentsch@cispri.com	776-5129
Joe LoSciuto	USCG Sector Anchorage	FOSC	Joseph.J.LoSciuto@uscg.mil	271-6700
Gayle Martin	ADF&G	Environmental Unit	Gayle.martin@alaska.gov	267-2541
Jan McElwain	DEC-RFA	Finance Section	Jan.mcelwain@alaska.gov	465-5290
Dave McMahan	DNR SHPO	Environmental Unit	Dave.mcmahan@alaska.gov	269-8723
Shannon Miller	DNR	Environmental Unit	Shannon.miller@alaska.gov	269-8555
David Morse	USCG Sector Anchorage		David.R.Morse@uscg.mil	271-6700
Colleen Parker	USCG Sector Anchorage		Colleen.M.Parker@uscg.mil	271-6700
Stephen Pearson	USCG Sector Anchorage		Steven.T.Pearson@uscg.mil	271-6700

MT REDOUBT ERUPTION (DRIFT RIVER TERMINAL) – FEDERAL/STATE IMT/CMT CONTACT LIST (March 30, 2009)				
Bob Petit	**DEC-PERP**	**Situation Unit**	Robert.petit@alaska.gov	**262-9210, X236**
Jim Robertson	**USCG**	**Deputy FOSC**	James.B.Robertson@uscg.mil	**(907) 209-7830**
Jennifer Russell	**USCG Sector Anchorage**		Jennifer.P.Russell@uscg.mil	**271-6700**
Steve Russell	**DEC-PERP**	**Operations Section Chief**	Steve.russell@alaska.gov	**262-9210, X222**
SECC	**DMVA-DHSEM**	**Support Branch**	secc@ak-prepared.com	**428-7100**
Bryan Shay	**USCG Sector Anchorage**		Bryan.A.Shay@uscg.mil	**271-6700**
Dave Simonds	**USCG Sector Anchorage**	**USCG Liaison**	david.d.simonds@uscg.mil	**271-6700**
Camille Stephens	**DEC-PERP**	**JIC Website**	Camille.stephens@alaska.gov	**465-5242**
Jim Stevenson	**DEC-PERP**	**Logistics**	Jim.stevenson@alaska.gov	**344-7380**
Richard Vanderhoek	**DNR SHPO**	**Environmental Unit**	Richard.vanderhoek@alaska.gov	**269-8728**
John Whitney	**NOAA**	**Scientific Support Coordinator**	John.whitney@noaa.gov	**271-3139**
Frank Wesser	**DEC-PERP**	**Situation Unit Leader**	Frank.wesser@alaska.gov	**269-3062/**
Alan Wien	**DEC-PERP**	**Dpty Planning Section Chief/Liaison**	Alan.wien@alaska.gov	**376-1865**
Technical Specialists				
Roger Burleigh	**DEC-IPP**	**Tech Specialist-Engineering**	Roger.burleigh@alaska.gov	**269-7538**
Shannon DeWandel	**DEC-IPP**	**Tech Specialist – C-Plans**	Shannon.dewandel@alaska.gov	**269-7541**
Dennis Hinnah	**PHMSA**	**Tech Specialist – Federal C-plans**	Dennis.hinnah@dot.gov	**271-4937/**
Allison Iversen	**DNR-PSIO**	**Tech Specialist**	allison.iversen@alaska.gov	**269-8806**
Tom Johnson	**PHMSA**	**Primary contact**	Donald.t.johnson@dot.gov	**271-4934**
Chris Nye	**DNR**	**Div of Geological and Geophysical Surveys**	cnye@giseis.alaska.edu	**474-7430**
STATE CMT				
Larry Dietrick	**DEC-SPAR**	**CMT Lead**	Larry.dietrick@alaska.gov	**465-5255**
Cathy Foerster	**DOA-AOGCC**	**Agency Representative**	Cathy.foerster@alaska.gov	**793-1221**
Bob Mattson	**DEC PERP**	**DEC CMT – Response Advisor**	Bob.mattson@alaska.gov	**465-5349**
Kevin Banks	**DNR**	**Director, Div of Oil and Gas**	Kevin.banks@alaska.gov	**269-8781**
Ira Rosen	**DEC-IPP**	**Alaska Risk Assessment**	Ira.rosen@alaska.gov	**465-6219**
Betty Schorr	**DEC-IPP**	**DEC CMT – C-Plan Advisor**	betty.schorr@alaska.gov	**269-7566**
Bob Swenson	**DNR**	**Director, Div of Geological and Geophysical Surveys (CMT)**	Bob.swenson@alaska.gov	**451-5001**

Drift River Terminal – Potential Spill Incident
Federal/State Incident Management Team/Crisis Management Team (as of: March 30, 2009)



ICS 208 - Site Safety Plan

Incident:	Drift River Terminal Flooding	**Prepared By:**	Kalyan, Mala	**at** 3/30/2009 13:32
Period:	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Version Name:**	3/28/09	

Applies To Site: Drift River Terminal

Products: Volcanic Ash, Crude Oil (Attach MSDS)

SITE CHARACTERIZATION

Water: Cook Inlet

Wave Height: 5 ft

Wave Direction: Southwest

Current Speed:

Current Direction:

Land: Brushland

Use: Industrial

Weather: Snowy

Temp: Mid 30s Fahrenheit

Wind Speed: knots

Wind Direction: Northeast

Pathways for Dispersion: Air

Site Hazards

- [x] Boat safety
- [ ] Chemical hazards
- [ ] Cold Stress
- [ ] Confined Spaces
- [ ] Drum handling
- [ ] Equipment operations
- [x] Electrical operations
- [ ] Fatigue
- [x] Other
  Volcanic Ash
- [ ] Fire, explosion, in-situ burning
- [ ] Heat stress
- [x] Helicopter operations
- [ ] Lifting
- [ ] Motor vehicles
- [x] Noise
- [ ] Overhead/buried utilities
- [ ] Plants/wildlife
- [ ] Other
- [ ] Pump hose
- [x] Slips, trips, and falls
- [ ] Steam and hot water
- [ ] Trenching/Excavation
- [ ] UV Radiation
- [ ] Visibility
- [x] Weather
- [ ] Work near water
- [x] Other

Air Monitoring

%O2: NA **%LEL:** NA **ppm Benzene:** NA

ppm H2S: [x] **Other (Specify):** Volcanic As Particles

CONTROL MEASURES

Engineering Controls

- [ ] Source of release secured
- [x] Site secured
- [x] Valve(s) closed
- [x] Facility shut down
- [ ] Energy sources locked/tagged out
- [ ] Other

Personal Protective Equipment

- [ ] Impervious suit
- [ ] Inner gloves
- [x] Outer gloves
- [x] Flame resistance clothing
- [x] Hard hats
- [x] Respirators
- [x] Eye protection
- [x] Personal floatation
- [x] Boots
- [ ] Other

Additional Control Measures

- [ ] Decontamination stations established
- [ ] Sanitation facilities provided
- [ ] Illumination provided
- [ ] Medical surveillance provided

ICS 208 - Site Safety Plan

Incident:	Drift River Terminal Flooding	**Prepared By:**	Kalyan, Mala	**at** 3/30/2009 13:32
Period:	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Version Name:**	3/28/09	

WORK PLAN

- ☐ Booming ☐ Skimming ☐ Vac trucks ☐ Pumping ☐ Excavation
- ☐ Heavy equipment ☐ Sorbent pads ☐ Patching ☐ Hot work ☐ Appropriate permits used
- ☑ Other Assessment of Drift River Facility

TRAINING

- ☑ Verified site workers trained per regulations

ORGANIZATION

Title	Name	Telephone/Radio
Incident Commander:		
Deputy Incident Commander:		
Safety Officer:		
Public Affairs Officer:		
Other:		

EMERGENCY PLAN

- ☑ Alarm system — Horn or Siren on Site
- ☑ Evacuation plan
- ☑ First aid location

Notified

☐ Hospital	Central Peninsula Hospital	Phone: 262-4404
☐ Ambulance	Kenai Penninsula Emergency Services	Phone: 911
☐ Air ambulance	Kenai Penninsula Emergency Services	Phone: 911
☐ Fire	Kenai Peninsula Emergency Services	Phone: 911
☐ Law enforcement	Alaska State Troopers	Phone: 911
☐ Emergency response/rescue	USCG Sector Anchorage	Phone: 271-6700

PRE-ENTRY BRIEFING

- ☑ Initial briefing prepared for each site

Attachments / Appendices

- Aircraft Travel
- Safe Work Practices for Working in Volcanic Ash
- Safe Work Practices for Boats
- Personnel Tracking System

Aircraft Travel:

The following safety guidelines are intended for SPAR personnel that are passengers in light aircraft. SPAR employees piloting aircraft must adhere to all FAA regulations and the flight safety manual used by the Alaska Department of Public Safety.

I GENERAL

This section contains information that describes the proper attire for winter and summer flying, survival kits, forced landings, and passenger/pilot relationships.

A. Safety Rules

Most of the procedures listed below apply to SPAR employees flying in small planes or helicopters.

Dry suits must be worn on all helicopter flights over water. Mustang suits or float coats should be worn on flights over water in small fixed-wing aircraft.

Seatbelts and shoulder harnesses (if so equipped) must be worn snugly on all flights.

Passengers should not move about the aircraft without permission of the pilot.

4. Passengers should pay close attention to all pre-flight safety briefings given by the pilot(s).
5. Passengers should wear clothing appropriate to the current climatic conditions - during winter months thermal underwear and suitable cold weather outer clothing should be worn. Spare clothing should be taken.
6. Care must be taken when leaving aircraft as ground/aircraft surfaces can be slippery - when deplaning a float plane, the water depth may be deceiving.
7. Supervisors must insure the pilot is given a briefing on the mission so he/she can prepare a concise flight plan.
8. No person shall leave an aircraft until given approval by the pilot (no person should exit or board a fixed-wing aircraft until the propeller has stopped).
9. Hearing protection should be worn on all aircraft.
10. If forced to land on water, passengers should remain inside the aircraft unless it begins to sink or tip. Take emergency kits and life rafts when exiting the aircraft.
11. Know the location and use of fire extinguishers and emergency equipment and kits (including the emergency locator transmitter (ELT) and how to activate it), and the location of all exits.
12. Passengers have the right to reject a flight that they feel is unsafe. Employees should have the training and knowledge to assess aviation weather information and make an informed "go/no-go" decision. (Also see "Icing and Small Aircraft" below.)

13. Passengers who feel that they have been put in danger during a flight should contact the local FAA Flight Standards District Office (FSDO) to discuss the matter. This could save someone's life. This is particularly important if, during a flight in a single-engine commercial aircraft, the plane entered the clouds, a situation prohibited for most single-engine commercial operations.
14. Special considerations: Helicopter
    a. Do not approach a helicopter until given approval by the pilot.
    b. Always approach a helicopter in crouched position.
    c. Don't walk up slope when under the arc of the rotor.
    d. Approach a helicopter from the front (45' angle), always in full view of the pilot.
    e. REMAIN CLEAR OF THE REAR OF THE HELICOPTER. NEVER WALK NEAR OR UNDER THE TAIL BOOM OR TAIL ROTOR.
    f. Do not carry any objects above head level when entering/leaving a helicopter.
    g. Remove hats and secure glasses and other loose objects when entering/leaving a helicopter.

h. If you must load or unload material while the rotors are moving, be conscious of your position at all times.
i. While in flight, never open doors or throw objects from the aircraft.
j. All loose gear within 100 feet of the landing area should be secured due to rotor downwash.
k. Keep clear of landing zone until helicopter has landed.

15. Special Considerations: Fixed-wing Aircraft

a. Stay away from the propeller on parked aircraft. A magneto may not be properly grounded and may cause the engine to start or kick back

ATTACHMENT: SAFE WORK PRACTICES FOR BOATS

ATTACHMENT: SAFE WORK PRACTICES FOR BOATS

Ensure that all boats and operators comply with the appropriate state and federal regulations. In addition to the items discussed below, certain types of vessels will require such items as USCG approved fire extinguishers, backfire flame control, powered ventilation, sound signaling devices (different from emergency signals), navigation lights/signals, pollution placards, and marine sanitation devices.

1. Boat operators must familiarize themselves and passengers with safety features and equipment on their boats.
2. Boats must be operated by qualified individuals.
3. Life jackets, work vests, cold water immersion suits, or other appropriate USCG approved Personal Floatation Devices (PFDs) must be worn by personnel in boats.
   a. Use of cold water immersion suits is particularly critical under conditions of cold stress.
   b. Types of PFDs:
      - Type I Off-shore life jacket provides the most buoyancy. It is effective for all waters and intended specifically for open, rough, or remote waters where rescue may be delayed.
      - Type II Near-shore buoyancy vests are intended for calm, inland water, or where there is a good chance of quick rescue.
      - Type III Floatation aids are good for calm, inland water, or where there is a good chance of quick rescue. Examples: float coats, fishing vests, and ski vests.
      - Type IV These are throwable devices, not intended to be worn or to replace those that are worn.
      - Type V Special Use. These are intended for specific activities (according to the conditions on the labels). Some examples: deck suits, cold water immersion suits, work vests, and hybrid PFDs below.
      - Type VI Hybrid Inflatables. These PFDs contain a small amount of inherent buoyancy and an inflatable chamber. Performance equals that of a Type I, II, or III PFD (as noted on the label) when inflated.
4. Boats should generally not be operated for oil recovery after sunset. If this is required or poses minimal risk, areas of operation should be carefully prescribed, and individual boat operators should maintain a communication schedule with a shore base. Each boat should be fully equipped with appropriate running lights and emergency signaling devices, and personnel onboard should be wearing emergency night signaling devices.
5. Distress signals (three or more for day and three or more for night) should be carried on board all vessels. These devices may be required by regulation. They may be stored on board or issued to individuals. If stored on board, they should be in a sealed, watertight, orange container marked "DISTRESS SIGNALS".
   a. USCG-approved pyrotechnic visual distress signals include red flares (hand-held or aerial), range smoke (hand-held or floating), and launchers (for aerial red meteors or parachute flares). Pyrotechnic devices should not be used near flammable product spills.
   b. Non-pyrotechnic distress signals are not approved individually, but must meet certain requirements. They should be in serviceable condition, readily accessible, and certified by the manufacturer as complying with USCG requirements. These devices include orange distress flags, and electric distress lights.
   c. Distress flags are day signals only. They must be at least 3x3 feet with a black square and ball on an orange background.
      i. Electric distress lights are for night use only. These devices automatically flash the international SOS code (...- - -...) so a flashlight IS NOT considered a distress signal. Under inland navigation rules, a high intensity strobe light is considered a distress signal.
      ii. It is illegal to display visual distress signals on the water, except when assistance is required.
6. Boat operators must keep their supervisors informed of their area of operations, especially when they change their work area (if plans call for a boat to move to another location during a shift, the operator should advise the supervisor of his actual time of departure).
7. Boat operators should never anchor their boats by the stern. This is typically the lowest point on the boat due to design and/or loading, and is often squared off, making it vulnerable to swamping.
8. Portable fuel tanks should be filled outside of the boat. All sources of ignition in the area of fueling (e.g., engines,

stoves, or heat-producing equipment, and electrical equipment) must be removed while fueling.

9. Strict adherence to the buddy system must be observed in boats; and all boats should be in direct visual or radio contact with the shore base at all times.
10. To avoid slipping on wet decks or falling in boats, personnel should remain seated while boat is underway. Horseplay and speeding are strictly prohibited. Personnel should keep their center of gravity as low as possible while working in boats.
11. Boat operators must also ensure that boats are not overloaded. The capacity should be marked on a label on the boat; if not, a general rule of thumb is: Length x Width / 15 = People (150 lbs). Since equipment adds to the weight, it should be considered as well. Weight should be distributed evenly.
12. Personnel working in or operating boats should wear appropriate shoes/boots designed to help maintain traction on wet surfaces.
13. Safety sunglasses or hearing protection should be worn by personnel working in, or operating,boats where appropriate.
14. Fixed ladders or other substantial access/egress should be provided at boat transfer locations from low water line to platform.
15. Depending on the specific nature of the operations (e.g., work in remote areas), other emergency equipment that should be considered includes: anchors, radios, bailers, first aid kits, and additional means of propulsion (e.g., paddles).
16. Workers should be cautioned about using their legs or arms to fend off during docking, or getting their hands, arms, or legs between vessels and docks or fixed structures.

APPENDIX: PERSONNEL TRACKING SYSTEM

Anyone entering or departing a work area, shall report to the site supervisor or designated representative.

Please complete upon entering or departing the site:

NAME	LOCATION	TIME - ENTRY/EXIT

Material Safety Data Sheet

BENTONITE USA - Product No: 1763

volcanic ash

NATURAL SOURCE

Liberty Natural Home	Terms & Definitions

Info	Identification
FEMA No	
CAS No.	70131-50-9.
Chemical Name	
Health	Hazardous.
Flammability	Will ignite if overheated.
Reactivity	Stable and not reative with water.
Info	**Fire, Explosion & Reactivity**
Flash Point	N/A
Extinguishing Media	FOG-Yes | CO2-Yes | FOAM-Yes | DRY-Yes |
Dot Classification	
Stability	STABLE
NFPA Classification	
Fire Fighting	SMOTHER TO EXCLUDE AIR. DO NOT USE WATER. CLASS B FORE PROCEDURES. FIREFIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING APARATUS.
Unusual Fire Hazard	KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
Hazardous Combustable Decomposition Products	
Info	**Physical Data**
Color & Odor	Cream Powder
Boiling Point	N/A
Melting Point	APPROX. 1450 C
Vapor Pressure	N/A
Vapor Density	N/A
Water Solubility	INSOLUBLE, FORMS COLLOIDAL SUSPENSION
Info	**Protection Data**
Respiratory	Mechanical exhaust required. In confined or poorlyûventilated areas, the use of an appropriate respiratory protection may beûrequired.

Ventilation	
Skin	Compatible chemical-resistant gloves are recommended. Wash contaminatedûgloves before reuse
Eye	Chemical safety goggles are recommended. Wash contaminated goggles beforeûreuse.
Other	Avoid inhalation and contact with skin and eyes. Good personal hygiene practices should be used. Wash after any contact, before breaks and meals, and at the end of the work period. Safety shower and eye bath recommended.
Info	Occupational Exposure Limit
Threshold Limit	N/A
OSHA Permissible Limit	N/A
Carcinogen	NO
NTP Limit	N/A
IARC Limit	N/A
OSHA Limit	N/A
Carcinogen Notes	
Info	Health Hazards
Material Type	
Health Hazard	Causes respiratory tract irritation. May cause digestive tract irritation. Irritant. Hygroscopic. The toxicological properties of this material have not been fully investigated. Causes eye and skin irritation.
Primary Entry Routes	INHALATION-SKIN-EYE
Health Hazard Notes	
Info	Emergency First Aid
Inhalation	REMOVE PERSON TO VENTALATED AREA. IF SYMPTOMS PERSIST SEEK-MEDICAL ATTENTION.
Eye Contact	REMOVE CONTACTS IMMEDIATLY. FLUSH WITH WATER FOR AT LEAST 15-MINUTES. IFIRRITATION PERSISTS, SEEK A PHYSCIAN.
Skin Contact	WASH AFFECTED AREA WITH COPIUS AMOUNTS OF SOAP AND WATER. CALL- A DOCTOR IF IRRITATION DEVELOPES. COMPLETELY DECONTAMINATE- CLOTHING, SHOES, AND LEATHER GOODS BEFORE RE-USE OR DISCARD.
Ingestion	IF SWALLOWED, RINSE MOUTH WITH WATER (ONLY IF PERSON IS CONCIOUS).-OBTAIN MEDICAL ADVICE.
First Aid Notes	
Info	Spill, Leakage & Disposal Procedures

Spill Procedures	VACUUM OR SWEEP UP MATERIAL AND PLACE INTO A SUITABLE DISPOSAL CONTAINER. CLEAN UP SPILLS IMMEDIATELY, OBSERVING PRECAUTIONS IN THE PROTECTIVE EQUIPMENT SECTION. AVOID GENERATING DUSTY CONDITIONS
Waste Disposal	--INCINERATE OR DISPOSE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL-REGULATIONS.
Info	Handling & Shipping Procedures
Handling & Shipping Procedures	1. Measures should be taken to prevent materials from being splashed into the eyes or on the skin. Wear eye shields and protective clothing. Smoking should not be permitted in work areas. 2. Provide suitable air extraction ventilation in the work areas. Vapors may form explosive mixtures with air. Keep material away from sources of ignition (e.g. hot surfaces, sparks, flame and static discharges. 3. To be stored in tightly sealed and preferably full containers in cool, dry and ventilated area. Protect from heat/overheating and light sources and Keep in glass, suitable plastic, aluminum or lacquer-lined containers.
Info	SARA 313 Chemical Breakdown
SARA Chemical Name	
SARA Concentration	

Home Page

MATERIAL SAFETY DATA SHEET
CHEMICAL I.D: 025150 MSDS ID: 025150
PRODUCT NAME: Crude Oils, Sweet

CRUDE OILS, SWEET

Material Safety Data Sheet

October 31, 1997

PHILLIPS 66 COMPANY
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
General MSDS Information: (918) 661-8327
For Additional MSDSs: (918) 661-5952

A. PRODUCT IDENTIFICATION

Synonyms: Separator Crude; Field Crude
Chemical Name: Mixture
Chemical Family: Hydrocarbons
Chemical Formula: Mixture
CAS Reg. No.: 8002-05-9
Product No.: Not Established

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product has been commercially introduced into U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals in Commerce; hence, it is subject to all applicable provisions and restrictions under TSCA 40 CFR, section 721 and 723.250.

B. HAZARDOUS COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
n-Butane and lighter	NA	0-7.7	800 ppm*	800 ppm*
Gasoline, including	8006-61-9	10.8-80	300 ppm	300 ppm
Toluene	108-88-3	< 10	100 ppm	100 ppm
Ethyl Benzene	100-41-4	< 2	100 ppm	100 ppm
p-Xylene	106-42-3	< 3	100 ppm	100 ppm
m-Xylene	108-38-3	< 6	100 ppm	100 ppm
o-Xylene	95-47-6	< 3	100 ppm	100 ppm
1,2,4-Trimethyl Benzene	95-63-6	< 3	25 ppm	25 ppm
Kerosene	8008-20-6	3.9-23.4	NE	NE
Gas Oil	Various	5.8-35.6	NE	NE
Topped Crude	Various	5.6-61.8	NE	NE
Benzene	71-43-2	0-1.0	1 ppm**	10 ppm
PNA (Polynuclear Aromatics)	Various	0.3-4.1	0.2 mg/m3***	0.2 mg/m3***
Hydrogen Sulfide	7783-06-4	< 0.9	10 ppm	10 ppm

PRINTED: 1998-04-24 PAGE: 1

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* For n-Butane
** Operations exempted by the Benzene Standard, 24 CFR 1910.1028, will have a 10 ppm 8 hour TWA.
*** As coal tar pitch volatiles

C. PERSONAL PROTECTION INFORMATION

Ventilation: Use adequate ventilation to control below recommended exposure levels. Monitoring of hydrogen sulfide air concentrations should be maintained.

Respiratory Protection: For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator. In case of spill or leak resulting in unknown concentration, use NIOSH/MSHA approved supplied air respirator. If conditions immediately dangerous to life or health (IDLH) exist, use NIOSH/MSHA approved self-contained breathing apparatus (SCBA).

Eye Protection: Use safety glasses with side shields.

Skin Protection: Wear polyvinyl alcohol or Buna-N gloves. Use full-body, long sleeved garments to prevent excessive skin contact.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Do not get in eyes, on skin, or on clothing. Do not swallow, may be aspirated into lungs. Do not breathe vapor or mist. May be fatal. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Wash thoroughly after handling. Immediately remove and launder contaminated clothing before reuse. Use only with adequate ventilation.

Store in well-ventilated area away from sources of ignition. Bond and ground during liquid transfer. Provide means of controlling leaks and spills. Keep containers closed.

E. REACTIVITY DATA

Stability: Stable
Conditions to Avoid: Not Applicable
Incompatibility (Materials to Avoid): Oxygen and strong oxidizing agents

Hazardous Polymerization: Will Not Occur
Conditions to Avoid: Not Applicable
Hazardous Decomposition Products: Carbon and sulfur oxides and hydrogen sulfide formed when burned.

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

See Section B.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: May cause irritation of the eyes.

Skin: Prolonged contact may result in dermal irritation.

Inhalation: May cause irritation to the nose, throat and upper respiratory tract. Headache, nausea, weakness, sedation, unconsciousness and chemical pneumonitis are possible with high vapor concentrations.

Ingestion: May cause gastrointestinal upset, nausea, vomiting and narcosis. May be aspirated into the lungs if swallowed resulting in pulmonary edema and chemical pneumonitis.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

Skin painting studies in mice have indicated a moderate carcinogenic potential for crude oil.

Benzene has been designated as a carcinogen by NTP, IARC, and OSHA. Benzene may produce blood changes which include reduced platelets, reduced red blood cells, reduced white blood cells, aplastic anemia, leukemia and erythroleukemia. Fetal death has been produced in laboratory animals. Chromosome changes were produced in humans and mutation changes occurred in cells of other organisms.

PNA's are designated carcinogens by IARC, NTP and OSHA. Kidney and lung tumors have been reported in animals and man with repeated PNA exposures. Stillbirths, mutagenesis and liver damage have been reported in laboratory animals exposed to PNA's.

OTHER HEALTH EFFECTS:

Sublethal concentrations of crude oil have been shown to be reversibly toxic to marine organisms.

Hydrogen sulfide may accumulate in concentrations sufficient to produce mucous membrane irritation, pulmonary edema, or even respiratory arrest. The odor of hydrogen sulfide may not be recognized after prolonged inhalation due to paralysis of the sense of smell. Effects from inhaling the fumes may lead to chronic bronchitis, respiratory irritation, increased loss of pulmonary function, and tearing of the eyes.

HEALTH HAZARD CATEGORIES:

	Animal	Human
Known Carcinogen	_X_	_X_
Suspect Carcinogen	___	___
Mutagen	_X_	___
Teratogen	_X_	___
Allergic Sensitizer	___	___
Highly Toxic	___	___

	Animal	Human
Toxic	_X_	___
Corrosive	___	___
Irritant	___	___
Target Organ Toxin	_X_	_X_

Specify - Lungs-Aspiration Hazard; Blood Toxin; Reproductive & Liver Toxin-Animal; Kidney & Lung Toxin; Nerve Toxin

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FIRST AID AND EMERGENCY PROCEDURES:

Eye: Flush eyes with running water for at least fifteen minutes. If irritation develops, seek medical attention.

Skin: Wash with soap and water. If irritation develops, seek medical attention.

Inhalation: Promptly remove from exposure. If breathing becomes shallow, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. If illness or adverse symptoms develop, seek medical attention.

Ingestion: Do not induce vomiting. Seek immediate medical attention.

Note to Physician: Gastric lavage using a cuffed endotracheal tube may be performed at your discretion.

G. PHYSICAL DATA

Appearance:	Tan to black liquid
Odor:	Mild to Pungent
Boiling Point:	IBP is 0F; EP is 1100F (-18 to 593C)
Vapor Pressure:	Range 1 to 10 Reid Vapor Pressure
Vapor Density (Air = 1):	2.1 is typical
Solubility in Water:	Slight
Specific Gravity (H2O = 1):	0.8 to 1; 0.86 is typical
Percent Volatile by Volume:	<1 to 50; 15-25 is typical
Evaporation Rate (Butyl Acetate = 1):	<1
Viscosity:	Not Established

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	<100F to >300F (<38C to >149C)(Estimated)
Flammable Limits (% by Volume in Air):	LEL - Not Established UEL - Not Established
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Evacuate area of all unnecessary personnel. Wear appropriate safety equipment for fire conditions including NIOSH/MSHA approved self-contained breathing apparatus (SCBA). Water fog or spray may be used to cool exposed equipment and containers. Shut off source if possible.
Fire and Explosion Hazards:	Carbon oxides, hydrogen sulfide, and sulfur oxides formed when burned. Highly flammable vapors which are heavier than air may accumulate in low areas and/or spread along ground away from handling site. Flash back along vapor trail is possible.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source, if possible and contain spill. Protect from ignition. Keep out of water sources and sewers. Absorb in a dry, inert material (sand, clay, etc). Transfer to disposal drums using non-sparking equipment.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or place in permitted waste management facility.

J. DOT TRANSPORTATION

Shipping Name: Petroleum crude oil
Hazard Class: 3
ID Number: UN 1267
Packing Group: I
Marking: Petroleum crude oil, , UN 1267
Label: Flammable liquid
Placard: Flammable/1267
Hazardous Substance/RQ: Not Applicable
Shipping Description: Petroleum crude oil, , 3, UN 1267, PG I
Packaging References: 49 CFR 173., 173.201, 173.243

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Ignitable (D001)

Prior to disposal, consult your environmental contact to determine if the TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant.

M. HAZARD CLASSIFICATION

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

_X_ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
___ Compressed Gas	___ Explosive	___ Pyrophoric
___ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
_X_ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

SARA 313

This product contains the following chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. (See Section B).

Benzene
Toluene
Ethylbenzene
p-Xylene
m-Xylene
o-Xylene
1,2,4-Trimethylbenzene

NFPA 704 Hazard Codes - - - - - - - - Signals

Health : 1	Least - 0
Flammability: 3	Slight - 1
Reactivity : 0	Moderate - 2
Special Haz.: -	High - 3
	Extreme - 4

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Crude Oils, Sweet (US025150)

**** END OF MATERIAL SAFETY DATA SHEET FOR: Crude Oils, Sweet ****

ICS 224 - Environmental Unit Summary

Incident:	Drift River Terminal Flooding	**Prepared By:**	Ha, Young	**at** 3/30/2009 13:16
Period:	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Version Name:**	3/30/2009 13:16	

Area Environmental Data

Land status map is now available from ADNR. The map status map is attached and is titled Drift River. Following is more detailed description of the map's content (Provided by ADNR):

Orange spotted areas - Redoubt Bay Critical Habitat Area
Blue areas just across the river - Cook Inlet Pipeline Company (CIPC) land
Purple adjacent areas - Leased to CIPC by the state
Vertical blue striped area - Leased to CIPC by the Kenai Peninsula Borough
Red area - federal public land order issued in 1960 revoking the bombing and gunnery range of the area

ADFG provided the summary of Resourses at Risk on March 26, 2009 and an updated version on March 27, 2009. The updated version is included as ICS 232.

NOAA provided Resources at Risk analysis on March 28, 2009 and is included as an attachment to ICS 232.

Additional Resources at Risk summary received from DIO on March 29, 2009 is also included as an attachment to ICS 232.

Priorities for Mitigating Environment and Cultural Impacts

Following is a list of Greographical Response Strategies within 10 miles of the Drift River Terminal. The link to the GRS is also included.

Little Jack Slough GRS - http://www.dec.state.ak.us/spar/perp/grs/ci/cic/cic14littlejackslough.pdf
Drift River GRS - http://www.dec.state.ak.us/spar/perp/grs/ci/cic/cic15driftriver.pdf
Big River GRS - http://www.dec.state.ak.us/spar/perp/grs/ci/cic/cic16bigriver.pdf
Kustatan River GRS - http://www.dec.state.ak.us/spar/perp/grs/ci/cic/cic17kustatanriver.pdf
Swamp Creek GRS - http://www.dec.state.ak.us/spar/perp/grs/ci/cic/cic20swampcreek.pdf

Wildlife Assessments and Rehabilitation

No impacts to wildlife has been observed to date.

Permits (Dispersants, Burning, and/or Other

No permits are required at this time.

Waste Management

No Waste Management Plan is required at this time.

Other Environmental Concerns

Logistical Support Needs

RESOURCES AT RISK SUMMARY
Substitute ICS 232-OS form

1. Incident Name: Drift River Facility Flooding
2. Operational Period: from March 27, 2009, 1:00 pm, until revised
3. Environmentally-Sensitive Areas and Wildlife Issues

Site No.	Priority	Site Name / Physical Location	Site Issues
1	HIGH	Redoubt Bay Critical Habitat Area, located north of the Drift River Facility (see attached map)	• Waterfowl concentrations in spring and fall, throughout the critical habitat area, and south to Harriet Point, inclusive of the Drift River Facility. • Waterfowl molting concentrations, throughout the critical habitat area, and south to Katchin Creek, inclusive of the Drift River Facility. • Anadromous fish in streams and lakes, including in Drift River • Shorebird concentrations in spring and fall, throughout the critical habitat area, and south, inclusive of the Drift River Facility. • Harbor seal haulout concentrations, at least 1 site within the critical habitat area. • Brown bear concentrations in summer and fall, throughout the critical habitat area, and south, inclusive of the Drift River Facility. • Black bear concentrations in spring, throughout the critical habitat area, and south, inclusive of the Drift River Facility. • Beluga whale feeding in nearshore waters.
2	HIGH	Kalgin Island and Kalgin Island Critical Habitat Area, located southeast of the Drift River Facility in Cook Inlet	• Harbor seal haulout concentrations, at least two sites • Streams and lakes with anadromous fish • Waterfowl concentrations in spring and fall

3	HIGH	Trading Bay State Game Refuge, located north of Redoubt Bay Critical Habitat Area	• Waterfowl concentrations in spring, along the coast and up to three miles inland • Waterfowl concentrations in fall, throughout the refuge. • Waterfowl concentrations during molting, throughout the refuge. • Bear concentrations in spring, throughout the refuge • Streams and lakes with anadromous fish • Shorebird concentrations in spring and fall, throughout the refuge. • Beluga whales feeding in nearshore waters. • Seabird concentrations, McArthur Flats.
4	HIGH	Clam Gulch Critical Habitat Area, located across Cook Inlet from the Drift River Facility to the east	• Waterfowl concentrations in spring, in area between Clam Gulch and Kasilof. • Waterfowl concentrations in fall, in area north and west of Kasilof. • Waterfowl concentrations in winter, near Cape Starichkof • Streams and lakes with anadromous fish • Razor clam concentrations, along coast from Cape Kasilof south to Cape Starichkof. • Seabird concentrations near mouth of Kasilof River.
5	HIGH	Mouth of the Kenai River, located across Cook Inlet from the Drift River Facility to the east	• Waterfowl concentrations in spring and summer • Beluga whale concentrations in spring, summer and fall, at the mouth of the Kenai River and in the marine environment outside of the mouth. • Anadromous fish streams. • Shorebird concentrations in spring at the mouth of the Kenai River. • Seabird colonies are found at the mouth of the Kenai River.

Narrative

Other most environmentally sensitive areas in Cook Inlet, further from the Drift River Facility, but still situated in the path of a potential oil spill include:

- Barren Islands
- Chinik Head to Silver Beach (Kamishak Bay)
- Susitna Flats and Susitna Flats State Game Refuge
- Anchorage Flats and Anchorage Coastal Wildlife Refuge
- Goose Bay State Game Refuge
- Palmer Hay Flats State Game Refuge
- Kachemak Bay Critical Habitat Area and Fox River Critical Habitat Area

A map showing environmentally sensitive areas for spring (April – May) can be found at: http://www.asgdc.state.ak.us/maps/cplans/cook/PDFS/SPRING.PDF

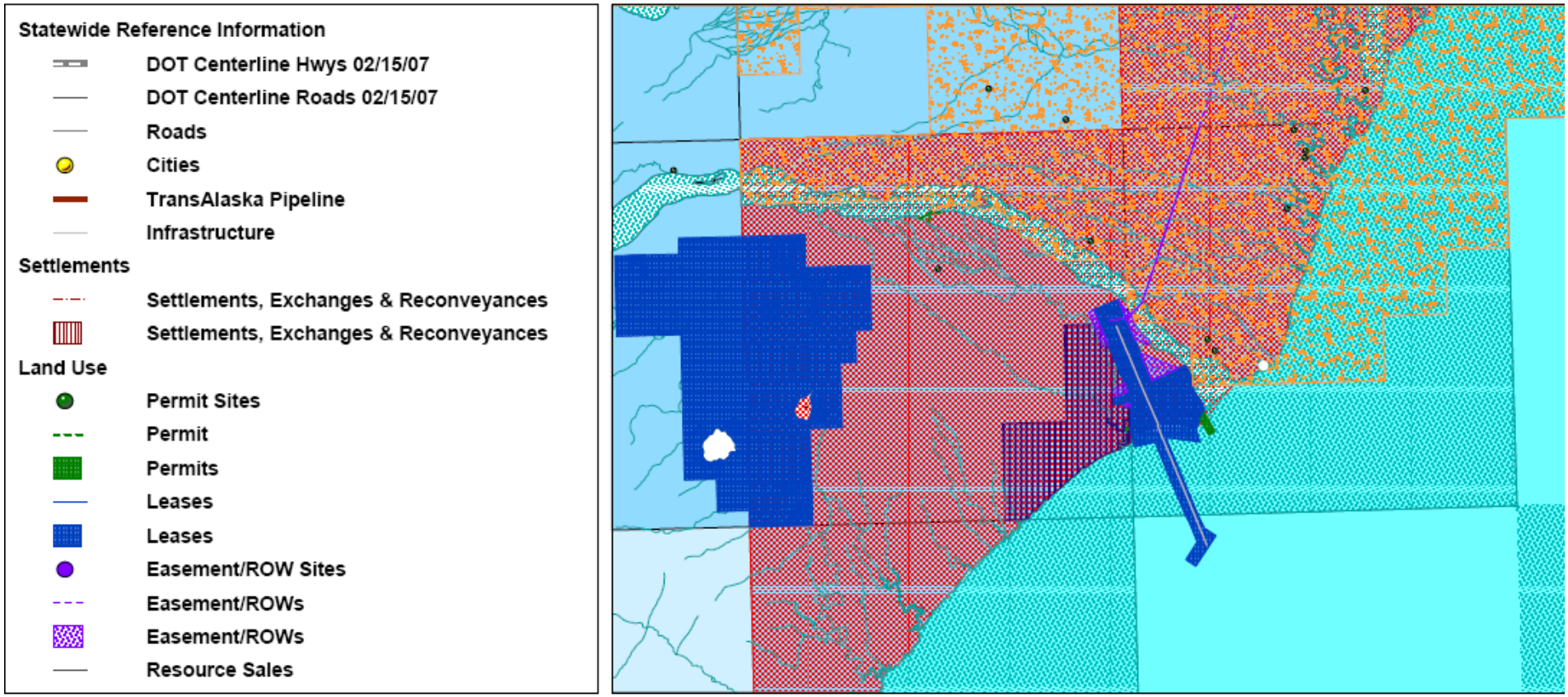
Individual maps of most environmentally sensitive areas for Cook Inlet can be accessed at:
http://www.asgdc.state.ak.us/maps/cplans/subareas.html#cook

4. Archaeo-cultural and Socio-economic issues: Archaeo-cultural issues are being reported upon by ADNR. The following subsistence and personal use harvest information has been supplied by ADF&G – Subsistence Division.

Site No.	Priority	Site Name / Physical Location	Site Issues
1	HIGH	Cook Inlet	• Non-commercial, personal use net fisheries for salmon. • Subsistence set gill net salmon fisheries in Tyonek Subdistrict, around Seldovia, and in the Port Graham and Koyuktoluk subdistricts. • Significant marine subsistence fisheries (halibut, rockfish, cod) around Seldovia, and in the Port Graham and Koyuktoluk subdistricts. • Marine mammal hunting for harbor seals, sea lions, and sea otters takes place in lower Cook Inlet. • Subsistence bird hunting, lower Cook Inlet. • Very significant subsistence harvests of marine invertebrates in areas outside the nonsubsistence areas of lower Cook Inlet. • Significant personal use fisheries for clams.

Prepared by: Gayle Martin, ADF&G – Habitat, on March 27, 2009 at 1:00 pm.

Drift River


Statewide Reference Information
DOT Centerline Hwys 02/15/07
DOT Centerline Roads 02/15/07
Roads
Cities
TransAlaska Pipeline
Infrastructure
Settlements
Settlements, Exchanges & Reconveyances
Settlements, Exchanges & Reconveyances
Land Use
Permit Sites
Permit
Permits
Leases
Leases
Easement/ROW Sites
Easement/ROWs
Easement/ROWs
Resource Sales
SCALE 1 : 139,674
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NOAA Resources at Risk Summary (March 26, 2009)

Resources at Risk for the Drift River Tank Farm, Cook Inlet, AK

I. Incident Information

This report was prepared at 1000 EST on 26 March 2009. Mt. Redoubt, located approximately 100 nm SW of Anchorage on the West Side of Cook Inlet erupted 5 times on 23 March 2009. These eruptions caused lahars, extensive flooding, and mud flows around the Drift River Tank Farm, where oil from the Cook Inlet fields is temporarily stored prior to shipping out aboard tankers. Currently, two of the four active tanks have 74,000 bbls of crude oil apiece. This report covers resources potentially at risk from the present time to 30 days from now.

II. Geographic Region Covered

The area covered by this report includes the Drift River, Rust Slough, and environs in Redoubt Bay, Cook Inlet. This area does not necessarily correspond to actual or potential oil locations. Consult other Hotline reports for oil location information.

III. Expected Behavior of the Spilled Material

Cook Inlet, Drift River Terminal Crude (API 34.1) is a light to medium weight crude oil. This product may coat the intertidal environment, as well as wildlife on the water surface. The product may also result in water column and benthic impacts if mixed into the water column, or if it strands in large amounts in shallow, sheltered areas. While the focus of this report is on resource impacts resulting from a crude oil release, the likelihood is that impacts would be unpredictable due the dynamic nature of a volcanic eruption and subsequent natural disasters, such as floods, mudslides, etc. If oil is released, chances are that it would be mixed with mud, water, debris (e.g., mud, gravel, trees, etc.), and potentially in very large volumes.

IV. Shoreline Resources at Risk

The shoreline along the Drift River, Rust Slough, and Redoubt Bay is predominantly extensive marsh. There are large exposed tidal flats extending 2 or more nm offshore of the Drift River in Redoubt Bay. There are pockets of sand/gravel beaches at the Drift River mouth and elsewhere along the coast. The tidal range is approximately 23 feet.

The most sensitive habitats in the area are coastal and riparian marshes, which are often highly productive, serving as important wildlife habitat for migratory and nesting birds, and nursery areas for fish and shellfish. The marsh vegetation is likely under a period of winter senescence (vegetation growth is dormant); therefore, the key concern at this time of year is if the lighter fractions of the oil penetrate into the marsh sediments and any wrack/litter. Lighter fractions of the oil may be acutely toxic to wetland vegetation, especially if oil penetrates into the sediments. Where wetland sediments are muddy and soft, it is important to prevent excessive disturbance and further mixing of oil into the substrate by foot traffic during cleanup activities, as this could

result in more severe and long-term impacts to the marshes. If large volumes of mud, water, and debris are introduced into the marshes, along with oil, damages to the habitat and associated species would be extensive.

Tidal flats are also sensitive habitats. Biological utilization of tidal flats is often high, and organisms that are buried in the sediments will likely be severely impacted. Oil usually does not penetrate into the sediments of tidal flats, because they are tightly packed and heavily water-saturated, but rather, oil will cover portions of the flats at low tide, and then be re-floated at high tide. Organisms living in the flats may be smothered during low tide.

Oil may penetrate into mixed sand and gravel beaches. This oil is difficult to remove and may become a source of chronic sheening. On mixed sand and gravel beaches oil may form a band of oil or a greasy stain on the substrate, especially along the high-tide line. Heavier accumulations could penetrate into the sediments. Lighter oils tend to penetrate deeper than heavy oils, and penetration is greatest in coarse, well-sorted sediments. Along exposed, high-energy areas, surface contamination may be quickly removed, while in low-energy areas, sheens may be released during high tide.

V. Biological Resources at Risk

Birds

While bird use of the area is likely limited in late winter, many migratory species arrive in spring (April-May). The Redoubt Bay Critical Habitat Area (268 square miles of wetlands and riparian habitat) provides spring resting and feeding habitat for hundreds of thousands of waterfowl on their way to northern nesting grounds. It is well known as the largest nesting area for the Tule white-fronted goose in the world. It is also heavily used for nesting by other geese and swan species (e.g., cackling Canada goose, Taverner's Canada goose, lesser Canada goose, snow goose, and tundra and trumpeter swans). Diving and dabbling ducks arriving in the spring for summer breeding (tens of thousands) may include: pintail, mallard, green-winged teal, northern shoveler, canvasback, lesser scaup, bufflehead, redhead, gadwall, American wigeon, and common eider. Shorebirds utilizing the area during spring migration include: yellowlegs, snipe, godwits, whimbrels, sandpipers, plovers, dunlin, and phalaropes. Sandhill cranes (a few nesting pairs), ravens, and gulls may be present in spring. There is a bald eagle nest along the Drift River.

Waterfowl are usually at high risk during oil spills because they spend a lot of time on the water surface and in wetlands. Gulls and shorebirds can also be severely impacted by oil. Direct oiling of birds reduces the buoyancy, water repellency, and insulation provided by feathers, and may result in death by drowning or hypothermia. Preening of oiled feathers may also result in ingestion of oil resulting in irritation, sickness, or death. Oil brought back to the nests by adult birds may kill or injure eggs and young birds.

Fish

Coho salmon run up the Drift River in the summer and fall. Eggs hatch in early spring and embryos may be present in gravel until they emerge in May and June where they occupy shallow stream margins. Coho, pink, and sockeye salmon and Dolly Varden may be present in Rust Slough and Cannery Creek. Pink fry swim out of the gravel and migrate downstream in late

winter or spring. Sockeye fry also emerge in early spring and move to rearing areas. Dolly Varden eggs hatch in March with emergence in April or May followed by rearing in streams.

Larval and juvenile fish are especially sensitive because they inhabit shallow waters, are less mobile, and are more sensitive to oil toxicity. Eggs and fry would be impacted by large additions of sediment, debris, etc. into the sloughs and rivers.

Invertebrates

Extensive razor clam beds occur off of Rust Slough and Cannery Creek. The largest razor clam fishery in Alaska occurs on the eastern beaches of Cook Inlet, which is on the opposite bank of the area of present concern. Most razor clam digging occurs from April through September (peak in early summer), and there is no limit on west side Cook Inlet beaches. Razor clams may be smothered by the crude oil and tainting from lighter fractions of the oil may be a concern. A large influx of sediment (mud) onto shellfish beds would cause smothering of the organisms.

Marine Mammals

Harbor seals, killer whales, harbor porpoises, beluga whales, and Dall's porpoise are present in Redoubt Bay. Haul-outs, rookeries, and concentration areas for seals and whales occur in Cook Inlet, but fall outside the immediate area of concern at the present time.

VI. Human-Use Resources at Risk

The Redoubt Bay Critical Habitat Area (managed by ADF&G) occurs along the west side of Cook Inlet including Rust and Cannery Creeks and Drift River. Facilities in the area include: Drift River Terminal and Christy Lee Loading Facility.

Resources At Risk Assessment
Drift River Tank Farm Area, Cook Inlet, Alaska

Incident Brief

Mt. Redoubt is located approximately 100 nm SW of Anchorage on the west side of Cook Inlet. On 23 March 2009, the volcano erupted, the radiant heat melted snow and ice on the peak generating a lahar which caused flooding, and mud flows around the Drift River Tank Farm a facility that temporarily stores Cook Inlet crude oil produced from offshore platforms. The oil is loaded to a tank ship periodically. The current volume of oil on the facility is 160,000 bbls (2 storage tanks contain approximately 74,000 bbls each and the pipeline from the tank farm to the loading berth contains an additional 10,000bbls of oil). Continued high volcanic activity threatens the area.

Specific Geographic Regions of Interest

The area covered by this report includes the Drift River, Rust Slough, and environs in Redoubt Bay, Cook Inlet. This area does not necessarily correspond to actual or potential oil locations. Impact areas have been identified strictly by probability of impact. The western shoreline in the central Cook Inlet area has the highest probability of oil spill impact (within a 5-mile range from the Drift River Terminal).

Expected Behavior of the Spilled Material

Cook Inlet, Drift River Terminal Crude (API 34.1) is a light to medium weight crude oil. This product may coat the intertidal environment, as well as wildlife on the water surface. The product in water column impacts if mixed into the water column.

Resources at Risk

The shoreline and extensive backshore area North of Drift River incorporates Redoubt Bay State Critical Habitat Area. This area is predominantly marsh and sensitive migratory bird habitat and nesting areas. There are large exposed tidal flats extending 2 or more nm offshore of the Drift River in Redoubt Bay. The tidal range is approximately 23 feet.

These marshes serve as important wildlife habitat for migratory and nesting birds, and nursery areas for fish and shellfish, all of which commence in Spring. Lighter fractions of the oil may be acutely toxic to wetland vegetation, especially if oil penetrates into the sediments.

Tidal flats are also sensitive habitats. Biological utilization of tidal flats is often high, and organisms that are buried in the sediments will likely be severely impacted. Oil usually does not penetrate into the sediments of tidal flats, because they are tightly packed and heavily water-saturated, but rather, oil will cover portions of the flats at low tide, and then be re-floated at high tide. Organisms living in the flats may be smothered during low tide.

Resources At Risk Assessment
Drift River Tank Farm Area, Cook Inlet, Alaska

Initial Response Measures

Where critical habitats have been identified, the Cook Inlet Spill Response Co-Op will initiate initial spill containment & protection measures before the spill reaches these areas. These protection measures will ensure ecological constraints & habitats are maintained to avoid extensive shoreline or habitat damage.

U.S. Department of the Interior (DOI)
Potential DOI Resources at Risk for Central Cook Inlet/Drift River Vicinity

March 26, 2009	April 30, 2009
Migratory birds: • Pribilof Island Rock Sandpiper (entire population) • Intertidal marsh and mudflat habitat (shorebird and other migratory bird feeding) • Migratory bird spring migration (geese, ducks, shorebirds, etc.) Alaska Maritime National Wildlife Refuge • Chisik Island	Migratory birds: • No Pribilof Island Rock Sandpipers anticipated (migrated out of the area) • Intertidal marsh and mudflat habitat (expect increasing shorebird and other migratory bird feeding) • Anticipate a larger number of migratory birds in spring migration (geese, ducks, shorebirds, etc.) Alaska Maritime National Wildlife Refuge • Chisik Island
Lake Clark National Park & Preserve (the following locations have sensitive resources and/or habitat): • Polly Creek • Crecent River • Tuxedni Bay • Johnsonn River • Silver Salmon • Red River • Shelter Creek • Chititna bay • Southe Kamishak Bay • Douglas Reef • Shakun Island • Swikshak Laggon • Hallo Bay • Kukak Bay/Devil's Cove • Kaflia Bay • Kanak/Hidden Harbor • Takli Island • Gographic Harbor • Katmai Bay • Kashvik	Same
Coastal historic properties	Same
Native Allotments located at: • Northern Kalgin Island • West Foreland • Tyonek • Nikiski • Clam Gulch • Ninilchik	Same

As of March 26, 2009, at 10:20 a.m.

Weather Report

Incident:	Drift River Terminal Flooding	**Prepared By:**	Ha, Young	**at** 3/30/2009 14:07
Period:	Period 5 (3/30/2009 16:00 - 3/31/2009 16:00)	**Version Name:**	3/30/2009	

Present Conditions

Wind Speed:	15-30 mph	**Wave Height:**	
Wind Direction From The:	South to Southwest	**Wave Direction:**	
Air Temperature:	29 Fahrenheit	**Swell Height:**	
Barometric Pressure:	29.42 in (Rising)	**Swell Interval:**	
Humidity:	73%	**Current Speed:**	
Visibility:	10 miles	**Current Direction Toward:**	
Ceiling:		**Water Temperature:**	
Next High Tide (Time):	3/30/2009 19:49	**Next Low Tide (Time):**	3/31/2009 01:55
Next High Tide (Height):	17.1 feet	**Next Low Tide (Height):**	3.7 feet
Sunrise:	07:28	**Sunset:**	20:41

Notes: Scattered Clouds 4,600 ft. Mostly cloudy with scattered snow showers. Highs in the 30s. South to southwest wind 15 to 30 mph. Tonight, mostly cloudy. Lows 15 to 25 degrees F. South wind to 15 mph except west 15 to 30 mph around Kachemak Bay.

24 Hour Forecast

Sunrise:	07:25	**Sunset:**	20:44
High Tide (Time):	3/31/2009 07:31	**High Tide (Time):**	3/31/2009 20:43
High Tide (Height):	19.3 feet	**High Tide (Height):**	15.6 feet
Low Tide (Time):	3/31/2009 01:55	**Low Tide (Time):**	3/31/2009 14:36
Low Tide (Height):	3.7 feet	**Low Tide (Height):**	-1.2 feet

Forecast: Tuesday, March 31, 2009. Partly cloudy in the morning then becoming cloudy. Highs in the 30s. Variable wind to 10 mph. Evening, mostly cloudy. Lows 15 to 25. Variable wind to 10 mph.

48 Hour Forecast

Sunrise:	07:21	**Sunset:**	20:47
High Tide (Time):	4/1/2009 08:21	**High Tide (Time):**	4/1/2009 21:52
High Tide (Height):	17.8 feet	**High Tide (Height):**	14.1 feet
Low Tide (Time):	4/1/2009 02:43	**Low Tide (Time):**	4/1/2009 15:35
Low Tide (Height):	5.3 feet	**Low Tide (Height):**	0.4 feet

Forecast: Wednesday, April 1, 2009. Mostly cloudy with a slight chance of snow. Highs in the 30s. Light winds except west 10 to 20 mph around Kachemak Bay. Evening, mostly cloudy. Lows in the teens.

Drift River Terminal Tide Information (March 29 – April 7)

Date	Day	Time	Height	Time	Height	Time	Height	Time	Height
03/29/2009	Sun	12:36AM LDT	0.9 L	06:15AM LDT	20.8 H	01:06PM LDT	-3.1 L	07:03PM LDT	18.5 H
03/30/2009	Mon	01:13AM LDT	2.1 L	06:51AM LDT	20.3 H	01:48PM LDT	-2.5 L	07:49PM LDT	17.1 H
03/31/2009	Tue	01:55AM LDT	3.7 L	07:31AM LDT	19.3 H	02:36PM LDT	-1.2 L	08:43PM LDT	15.6 H
04/01/2009	Wed	02:43AM LDT	5.3 L	08:21AM LDT	17.8 H	03:35PM LDT	0.4 L	09:52PM LDT	14.1 H
04/02/2009	Thu	03:46AM LDT	6.8 L	09:25AM LDT	16.3 H	04:50PM LDT	1.7 L	11:17PM LDT	13.6 H
04/03/2009	Fri	05:12AM LDT	7.7 L	10:52AM LDT	15.2 H	06:18PM LDT	2.0 L		
04/04/2009	Sat	12:45AM LDT	14.2 H	06:49AM LDT	6.7 L	12:28PM LDT	15.2 H	07:37PM LDT	1.3 L
04/05/2009	Sun	01:52AM LDT	15.8 H	08:08AM LDT	4.6 L	01:49PM LDT	16.3 H	08:37PM LDT	0.4 L
04/06/2009	Mon	02:41AM LDT	17.4 H	09:06AM LDT	2.0 L	02:51PM LDT	17.6 H	09:25PM LDT	-0.5 L
04/07/2009	Tue	03:22AM LDT	19.0 H	09:53AM LDT	-0.4 L	03:41PM LDT	18.7 H	10:07PM LDT	-0.8 L