IAP Cover Sheet

Incident Name:	Operational Period to be covered by IAP:
DRIFT RIVER TERMINAL COORDINATION	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:00)

Approved by:

Mark Hamilton* FOSC :

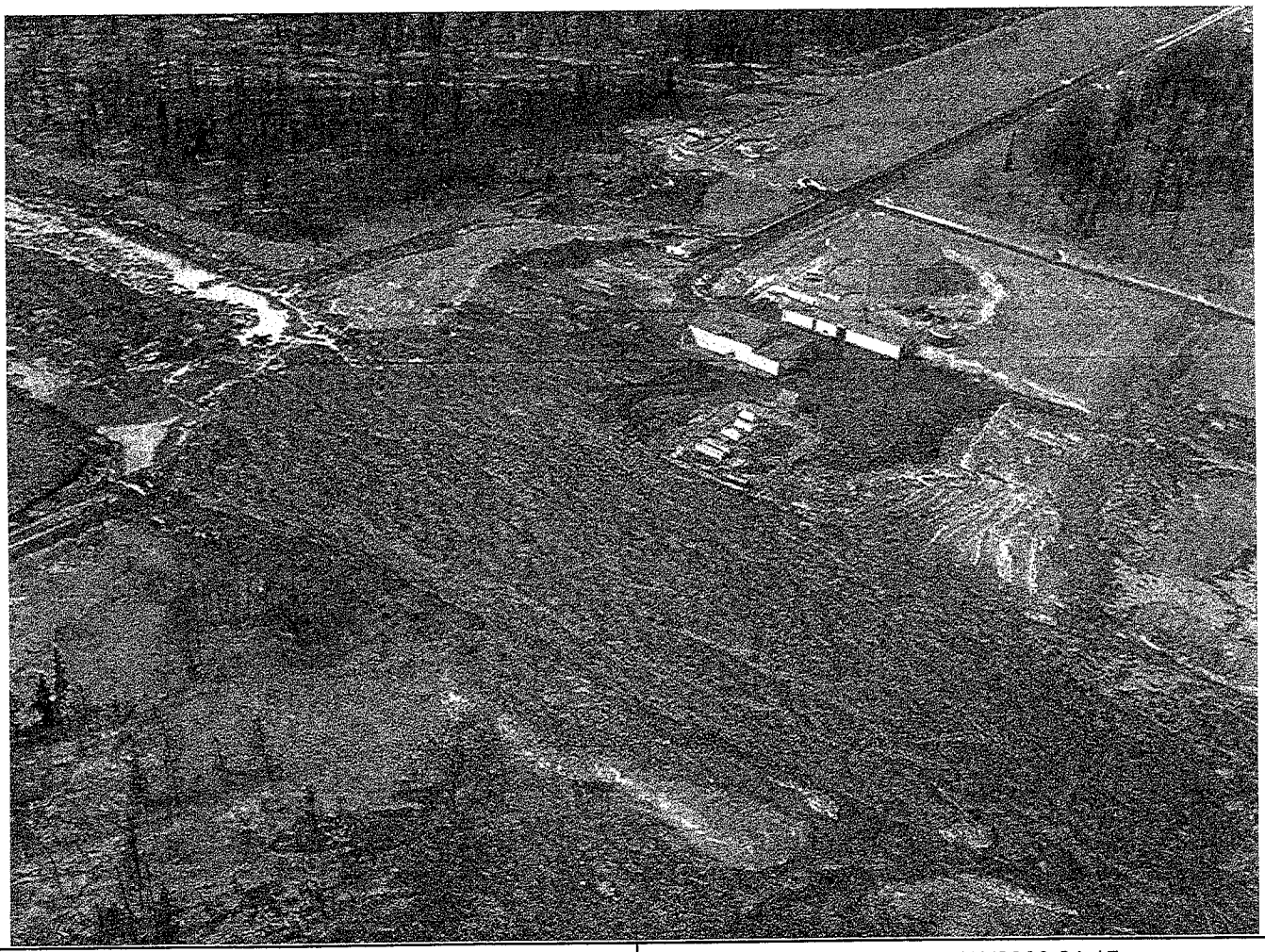
Gary Folley SOSC :

Rod Ficken RPIC :

Incident Action Plan

Mt. Redoubt erupted on March 22, 2009 and continues to erupt with associated lahars and ashfall. The Drift River Terminal is located near Mt. Redoubt. An Incident Command System Unified Command has been formed to coordinate efforts related to safety, protection of the environment, protection of the facility, providing information to the public, and continued oil production in Cook Inlet.

*Capt. Mark Hamilton of the US Coast Guard (FOSC for the Terminal & Maritime)
Drift River Oil Terminal photo by ADEC, 3/28/09



Weather Report

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Reider, Megan	**at** 4/2/2009 15:09
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	04/01/09 17:20-JWJ	

Present Conditions

Wind Speed:	15 mph	**Wave Height:**	3 feet
Wind Direction From The:	Northeast	**Wave Direction:**	
Air Temperature:	30s Fahrenheit	**Swell Height:**	
Barometric Pressure:		**Swell Interval:**	
Humidity:		**Current Speed:**	
Visibility:		**Current Direction Toward:**	
Ceiling:		**Water Temperature:**	
Next High Tide (Time):		**Next Low Tide (Time):**	
Next High Tide (Height):		**Next Low Tide (Height):**	
Sunrise:	06:00	**Sunset:**	19:00

Notes: Tonight...Mostly cloudy with scattered snow showers...mainly south of talkeetna. Lows 15 to 20 except 5 to 10 above toward the park. Variable wind to 10 mph.

PKZ140-030200-
COOK INLET NORTH OF KAMISHAK BAY AND ENGLISH BAY
400 AM AKDT THU APR 2 2009

...SMALL CRAFT ADVISORY TONIGHT AND FRIDAY...

.TODAY...VARIABLE WIND 10 KT BECOMING NE 15 KT IN THE AFTERNOON.
SEAS 3 FT. SNOW.
.TONIGHT...NE WIND 25 KT EXCEPT N 15 KT N OF KALGIN ISLAND.
SEAS 5 FT. SNOW. FREEZING SPRAY.
.FRI...N WIND 30 KT EXCEPT N 20 KT N OF KALGIN ISLAND. SEAS 8 FT
EXCEPT 3 FT N OF KALGIN ISLAND. SNOW. FREEZING SPRAY.
.FRI NIGHT...N WIND 30 KT. SEAS 7 FT.
.SAT...N WIND 20 KT. SEAS 4 FT.
.SUN...NE WIND 15 KT. SEAS 3 FT.
.MON...E WIND 10 KT. SEAS 2 FT.

24 Hour Forecast

Sunrise:	07:25	**Sunset:**	20:50
High Tide (Time):		**High Tide (Time):**	
High Tide (Height):		**High Tide (Height):**	
Low Tide (Time):		**Low Tide (Time):**	
Low Tide (Height):		**Low Tide (Height):**	

Forecast: Friday...Cloudy with scattered snow showers. Highs in the lower to mid 30s except mid to upper 20s toward the park. Variable wind 10 mph.

Friday Night...Mostly cloudy with scattered snow showers. Lows 10 to 20 above. North wind 10 to 15 mph.

Weather Report

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Reider, Megan	**at** 4/2/2009 15:09
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	04/01/09 17:20-JWJ	

48 Hour Forecast

Sunrise:	07:20	**Sunset:**	20:50
High Tide (Time):		**High Tide (Time):**	
High Tide (Height):		**High Tide (Height):**	
Low Tide (Time):		**Low Tide (Time):**	
Low Tide (Height):		**Low Tide (Height):**	

Forecast: Saturday...Partly cloudy in the morning then becoming mostly sunny. Highs in the mid 30s except in the mid 20s toward the park. North wind 10 to 20 mph.

Saturday Night...Mostly clear. Lows zero to 10 above.

Resources Summary

Incident: DRIFT RIVER TERMINAL COORDINATION | **Period:** Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:00)

ID	Supplier	Resource Type	Description	Quantity	Size	Area of Operation	Status	Status Date/Time
2163	Blaines Art Supplies	Facilities	Office Supply/Equip	1		Command Post	Enroute/Sourced	ETA: 04/01/2009 11:00
2145	Chevron	Equipment: Comms	cell phone	1		Command Post	Enroute/Sourced	ETA: 03/31/2009 10:45
2175	Chevron	Equipment: Comms	Equipment: Comms	1	each	Command Post	Enroute/Sourced	ETA: 04/01/2009 07:00
2241	Chevron	Facilities	Cell Phone	1		Command Post	Enroute/Sourced	ETA: 04/01/2012 00:00
2181	Graphic Products	Facilities	Office Supply/Equip	6		Command Post	Enroute/Sourced	ETA: 04/01/2009 10:00
2157	Sheraton Anchorage Hotel	Miscellaneous	meeting room	1		Command Post	Enroute/Sourced	ETA: 04/22/2009 08:00
2331	CIPL	Equipment: Heavy	Bobcat	1		Debris Removal TF	Assigned	03/31/2009 12:00
2198	CIPL	Equipment: Heavy	Bull Dozer (D-4)	1		Debris Removal TF	Assigned	04/01/2009 17:59
2204	CIPL	Equipment: Heavy	Bull Dozer (D-6)	1		Debris Removal TF	Assigned	04/01/2009 17:59
2210	CIPL	Equipment: Heavy	Bull Dozer (D-7)	1		Debris Removal TF	Enroute/Sourced	ETA: 04/01/2009 14:00
2192	CIPL	Equipment: Heavy	Bull Dozer (D-8)	1		Debris Removal TF	Assigned	04/01/2009 17:59
2216	CIPL	Equipment: Heavy	Excavator (315)	1		Debris Removal TF	Assigned	04/01/2009 18:03
2222	CIPL	Equipment: Heavy	Excavator (320)	1		Debris Removal TF	Assigned	04/01/2009 18:03
2234	CIPL	Equipment: Heavy	Front-end loader (950)	1		Debris Removal TF	Assigned	04/01/2009 18:04
2228	CIPL	Equipment: Heavy	Front-end loader (IT62)	1		Debris Removal TF	Assigned	04/01/2009 18:04
2325	CIPL	Manpower: Operator	Equipment Operators	4		Debris Removal TF	Assigned	03/31/2009 12:00
2247	Airgas S/B Gulf States Airga	Equipment: Safety	Respirators	1		Facility Restart & Oil Movement (	Enroute/Sourced	ETA: 04/02/2009 12:50
2248	Airgas S/B Gulf States Airga	Equipment: Safety	Safety Glasses	100		Facility Restart & Oil Movement (	Enroute/Sourced	ETA: 04/02/2009 12:50
2301	Alaska Maritime Helicopters	Aircraft: Helo	Bell 212 N357EH, 11 pas	1		Helibase OSK Nikiski	Enroute/Sourced	ETA: 03/30/2009 08:00
2313	Alaska Maritime Helicopters	Aircraft: Helo	BoCow BO-105CBS 429	1		Helibase OSK Nikiski	Enroute/Sourced	ETA: 03/30/2009 08:00
2319	CIPL	Manpower: Operator	DRT personnel	12		Terminal Repair TF	Enroute/Sourced	ETA: 04/02/2009 15:42

ICS 202 - General Response Objectives

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Section, Command **at** 4/2/2009 10:35
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	Period

Overall and Strategic Objectives

	Assigned To	Status
Ensure Safety of Citizens and Response Personnel		
• Develop evacuation protocol	SOFR, AVO, Restart	
• Enhanced weather forecasting and monitoring for Drift River Terminal	NWS	
Maximize the Protection of Environment		
• Identify possible spill scenarios in light of current conditions	Spill Response Group (CISPRI)	
• Identify available spill response resources and capabilities	Spill Response Group (CISPRI)	
• Identify pre-response activities and develop a mobilization plan for other resources	Spill Response Group (CISPRI)	
• Identify resources at risk	Environmental Unit	Complete
• Evaluate non-mechanical response options	Spill Response Group (CISPRI)	
Maximize the Protection of Drift River Facility		
• Evaluate Dike Freeboard	Restart Facility Group	
• Evalaute Dike Corners for any Impacts	Resart Facility Group	
Manage a Coordinated Response through Unified Command		
Keep Stakeholders (Internal & External) and the Public Informed of Response Activities		
• Plan a Community Meeting	Joint Information Center (JIC)	
• Continue Press Updates as Needed	Joint Information Center (JIC)	
• Development of fact sheet as requested	Joint Information Center (JIC)	
Ensure Safe Drawdown of Drift River Tank Capacity		
• Ensure all Agency Permits and approvals are met	Environmental Unit	
• Conduct sounding before each tanker arrival	Restart Facility Group	
• Verify operational capability	Restart Facility Group	
Reduce Oil Storage Inventory in West Cook Inlet to Minimum Safe Operating Levels to Reduce Risk to Environment		
• Develop oil movement management plan (short and long term)	Restart Facility Group	

Approved By

: _____

ICS 203 - Organization Assignment

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Lewis, Cheryl at 4/2/2009 18:24
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	April 2, 2009 18:24 / cal

Incident Commander and Staff

Title	Name	Mobile	Pager	Other	Radio
Unified Command FOSC (USCG)	Mark Hamilton				
Deputy Unified Command FOSC (US	Jim Robertson				
Unified Command SOSC (ADEC)	Gary Folley				
Deputy Command SOSC (ADEC)	John BROWN				
Incident Commander	Rod Ficken				
Deputy Incident Commander(CIPL)	Phillip DePrang				
Liaison Officer (DEC)	Dale Gardner				
UC/CMT Liaison Officer (DEC)	Larry Iwamoto				
Information Officer (USCG)	Sara Francis				
Deputy Information Officer (DEC)	Weld Royal				
Deputy Information Officer	Santana Gonzalez				

Operations Section

Title	Name	Mobile	Pager	Other	Radio
Operations Section Chief (CIPL)	Johnny Santiago				
Deputy Operations Section Chief	Tracy Long				
Deputy Operations Section Chief	Jim Rosenberg (USCG)				
Deputy Operations Section Chief	Steve Russell (DEC)				
Debris Removal Task Force Leader	Curtis Pennington				
Terminal Repair Task Force Leader	Ernie Simpson				
Facility Restart/Oil Movement (CIPL)	Troy Haugeberg/ Don Dod				
Facility Restart/Oil Movement (DEC)	Shannon DeWandel				
Facility Restart/Oil Movement (DNR)	Sam Saengsudham				
Facility Restart/Oil Movement	Tom Johnson				
Facility Restart/Oil Movement (DNR)	Allison Iverson				
Facility Restart/Oil Movement (USCG	Angela Hollis				
Facility Restart/Oil Movement(DNR)	Shannon Miller				
Spill Response Group (CISPRI)	Doug Lentsch				
Spill Response Group (DRAT)	Mark Wagner				
Spill Response Group (DRAT)	Matt Odum				
Spill Response Group (PST)	Karl Breedlove				
Spill Response Group (USCG)	Bianca Witkowski				
Spill Response Group (NOAA)	John Whitney				
Lahar and Flood Forecasting (AVO)	Bob Swenson				
ON CALL Lahar and Flood Forecasti	Jim Aldrich (CIPL)				
ON CALL Lahar and Flood Forecasti	Merlin Mullen (COE)				
ON CALL Lahar and Flood Forecasti	Chris Nye (AVO)				
ON CALL Lahar and Flood Forecasti	Tina Neal (USGS)				
ON CALL Lahar and Flood Forecasti	Scott Linsey (NWS)				
Debris Removal Task Force Leader					
Terminal Repair Task Force Leader	Ernie Simpson				

ICS 203 - Organization Assignment

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Lewis, Cheryl at 4/2/2009 18:24
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	April 2, 2009 18:24 / cal

Planning Section

Title	Name	Mobile	Pager	Other	Radio
Planning Section Chief	Lois Born				
Deputy Planning Section Chief (CVX	Mike Ward				
Deputy Planning Section Chief (DEC	Alan Wien				
Deputy Planning Section Chief (USC	Rob Hollinger				
Deputy Planning Section Chief (USC	Terry Hasenauer				
Situation Unit Leader	Lonnie Evans				
Situation Unit (DEC)	Frank Wesser (DEC)				
Situation Unit-Other Display Process	USCG Sector Anchorage				
Documentation Unit Leader (CIPL)	Margaret Attaway				
Documentation Unit	Cheryl Lewis				
Documentation Unit	Ryan Taylor				
Documentation Unit	Jace Johnson				
Documentation Unit	Domenic Pagliaro				
Documentation Unit	Clara Crosby				
Documentation Unit (CIPL)	Trish Baker				
Environmental Unit Leader (CIPL)	Jeff Smith				
Environmental Unit (CIRCAC)	Sue Saupe				
Tech Specialist- AVO	Chris Nye				
Tech Specialist- NOAA-SSC	John Whitney				
Tech Specialist- PHMSA	Tom Johnson				

Logistics

Title	Name	Mobile	Pager	Other	Radio
Logistics Section Chief (CIPL)	Joe McAdara				
Deputy Logistics Section Chief (DEC	Geoff Harben				
Communications Unit Leader (CIPL)	Gordy Nisler				
Support Branch	DMVA-SECC				

Finance Section

Title	Name	Mobile	Pager	Other	Radio
Finance Section Chief (CIPL)	Susan Ellenbecker				
Finance Section Deputy	Gregory Buie - USCG				

At DRT

Title	Name	Mobile	Pager	Other	Radio
	Sheppard Ken				
	Sarnovski Daniel				
	Jones Mike				
	Robinson Todd				
	Covy Clint				

Enroute

Title	Name	Mobile	Pager	Other	Radio
	Curtis Pennington				
	Davies Mike				
	Nall Gary				

ICS 203 - Organization Assignment

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Lewis, Cheryl **at** 4/2/2009 18:24
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	April 2, 2009 18:24 / cal

Waiting at Trading Bay

Title	Name	Mobile	Pager	Other	Radio
	Baines Ray				
	Blakely Sam				
	Chapman Jim				
	Cooper Mike				
	Gaines Brad				
	Letzring Steve				
	Sparkman Gary				
	Tarroma John				

Enroute-Nikiski/CISPRI (Christy Lee)

Title	Name	Mobile	Pager	Other	Radio
	Burchan John				
	Harding Chris				

ICS 204 - Assignment List

Incident: DRIFT RIVER TERMINAL COORDINATION	**Prepared By:** Pagliaro, Domenic **at** 4/2/2009 16:04
Period: Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:0	**Branch:** Drift River Terminal
	Division/Group/Staging: Debris Removal TF

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Operations Section Chief (CIPL)	Johnny Santiago		
Debris Removal Task Force Leader	Clint Covey	CIPL	

Incident Resources for this Period

Sys. ID	Resource Type - Subtype	Description	Quantity	Size	Status
Debris Removal TF					
2331	Equipment: Heavy - Bobcat	Bobcat	1 each		Assigned
2198	Equipment: Heavy - Bull Dozer	Bull Dozer (D-4)	1 each		Assigned
2204	Equipment: Heavy - Bull Dozer	Bull Dozer (D-6)	1 each		Assigned
2210	Equipment: Heavy - Bull Dozer	Bull Dozer (D-7)	1 each		Enroute/Sourced
2192	Equipment: Heavy - Bull Dozer	Bull Dozer (D-8)	1 each		Assigned
2216	Equipment: Heavy - Excavator	Excavator (315)	1 each		Assigned
2222	Equipment: Heavy - Excavator	Excavator (320)	1 each		Assigned
2234	Equipment: Heavy - Front-end lo	Front-end loader (950)	1 each		Assigned
2228	Equipment: Heavy - Front-end lo	Front-end loader (IT62)	1 each		Assigned
2325	Manpower: Operator - Equipmer	Equipment Operators	4 each		Assigned

Assignments

Continue Mud Debris Removal

Communications

Name / Function	Radio: Freq. / System / Channel	Phone	Pager
Command & Control	153.140 / Ground Task Force 1 / Ch.1		
Task Force Working Channel	153.380 / Ground Task Force 2 / Ch.6		
Initial contact & monitoring marine radic	156.800 / Marine 16 / Ch.16		
Boat to shore	156.500 / Marine 10 / Ch.10		
Ground to air	122.700 / Air Logistics / N/A		
Coast Guard Liaison	157.100 / Marine 22 / Ch.22		

Tactical Objective

- Continue mud and debris removal

Location of Work

Drift River Terminal

Special Site-Specific Safety Considerations

Review facility safety plan (JSSP). Conduct JSAs for unusual tasks.
Ensure comms are functional.
Ensure three points of contact; avoid slips, trips and falls.
Report any spills or sheen. Exposure monitoring has not identified inhalation hazard.

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

ICS 204 - Assignment List

Incident: DRIFT RIVER TERMINAL COORDINATION	**Prepared By:** Pagliaro, Domenic **at** 4/2/2009 16:05
Period: Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:0	**Branch:** Drift River Terminal
	Division/Group/Staging: Terminal Repair TF

Operations Personnel

Title	Name	Affiliation	Contact Number(s)
Operations Section Chief	Johnny Santiago		
Terminal Repair Task Force Leader	Mike Cooper		

Incident Resources for this Period

Sys. ID	Resource Type - Subtype	Description	Quantity	Size	Status
Terminal Repair TF					
2319	Manpower: Operator	DRT personnel	12 each		Enroute/Sourced

Assignments

Conduct Integrity Check. Schedule repairs as needed.

Communications

Name / Function	Radio: Freq. / System / Channel	Phone	Pager
Command & Control	153.140 / Ground Task Force 1 / Ch.1		
Task Force Working Channel	153.380 / Ground Task Force 2 / Ch.6		
Initial contact & monitoring marine radic	156.800 / Marine 16 / Ch.16		
Boat to shore	156.500 / Marine 10 / Ch.10		
Ground to air	122.700 / Air Logistics / N/A		
Coast Guard Liaison	157.100 / Marine 22 / Ch.22		

Tactical Objective

Site Assessment Task Force:
- 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

Location of Work

Drift River Terminal

Special Site-Specific Safety Considerations

Review facility safety plan (JSSP). Conduct JSAs for unusual tasks.
Ensure comms are functional.
Ensure three points of contact; avoid slips, trips and falls.
Report any spills or sheen. Exposure monitoring has not identified inhalation hazard.

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

ICS 206 - Medical Plan

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	McAdara, Joe	**at**	4/1/2009 21:15
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	Drift River		

Medical Aid Stations

Name	Location	Paramedics (On-Site)	Phone	Radio
Central Peninsual Hospital	Soldotna, AK	Yes	262-2266	No
AK National Guard	Anchorage, AK	Yes	907-428-7230	No
Fairweather Inc.	Anchorage, AK	Yes	907-258-3446	No
Dr. Marcus Deede	Soldotna, AK	Yes	262-6622	No
Nikiski Fire Department	Nikiski, AK	Yes	283-2451	No

Transportation (Ground and/or Air Ambulances Services)

Name	Location	Paramedics	Phone	Radio
Nikiski Emergency Response	Nikiski, AK	Yes	911	No
Providence Life Flight	Anchorage, AK	Yes	907-243-5433	No
Security Aviation	Anchorage, AK	No	(907) 248-2677	No
ERA Aviation (speak to Shane)	Nikiski Heliport	No	776-6748	No

Hospitals

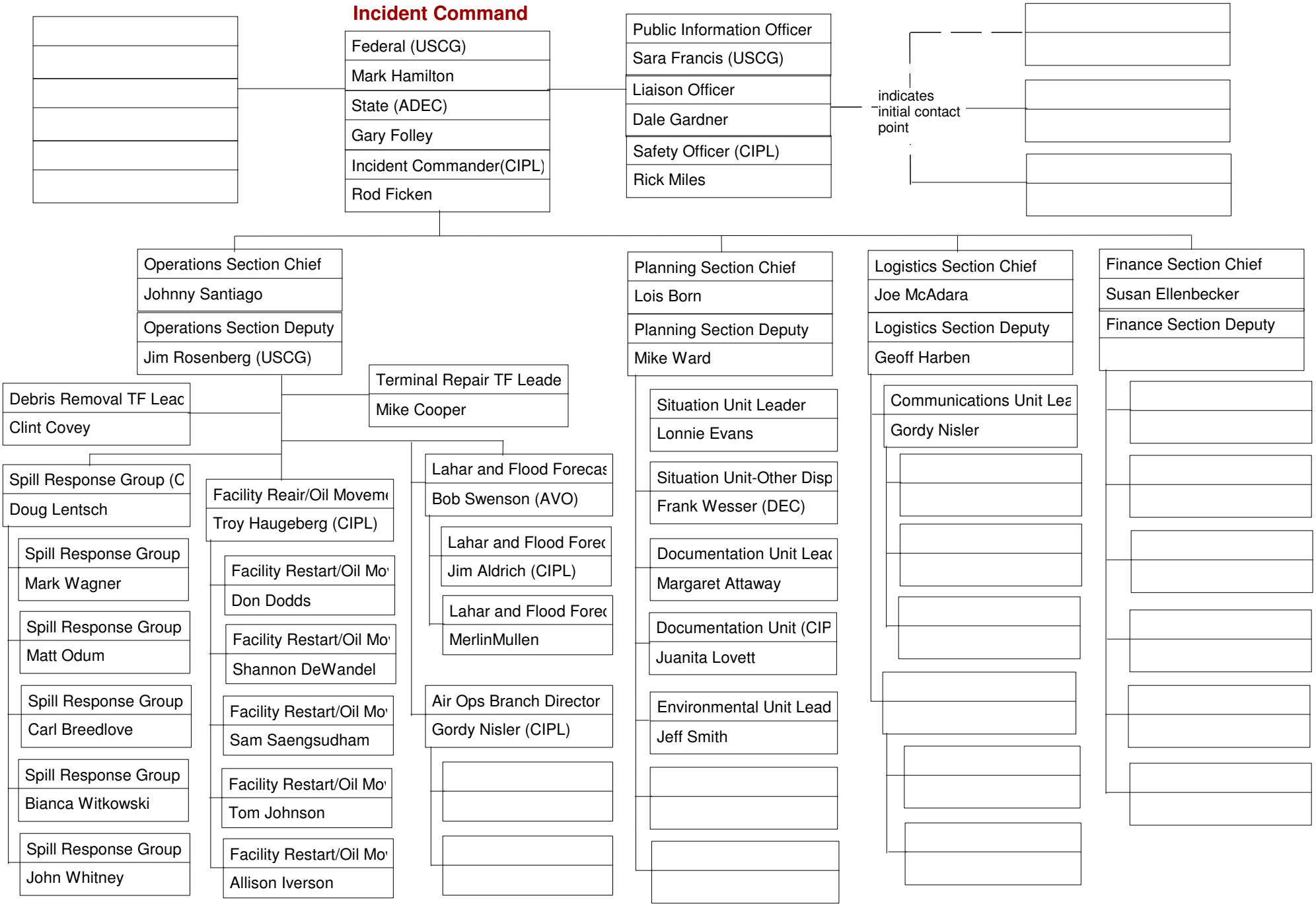
Name	Location	Helipad	Burn Center	Phone	Radio
Central Peninsula General Hospital	Soldotna, AK	Yes	No	(907) 262-4404 24 h	No
Alaska Regional Hospital	Anchorage, AK	Yes	No	(907) 276-1130/175	No
Providence Alaska Medical Center	Anchorage, AK	Yes	No	(907) 562-2211	No
South Peninsula Hospital	Homer, AK		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

Special Medical Emergency Procedures

Emergency medical helicopter service through ERA (Initial); Lifeflight from Providence Hospital and U.S. Coast Guard. Nikiski Paramedics (Central Peninsula Emergency Services) will respond and escort to Central Peninsula Hospital. In the Kenai Borough (911) can be used for contacting and mobilization of local police, Alaska State Troopers, and Ambulance

ICS 207 - Organization Chart

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Johnson, Jace	**at** 4/2/2009 17:11
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:00)	**Version Name:**	4/02/2009 16:30	



ICS 208 - Site Safety Plan

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Miles, Rick	**at** 4/2/2009 17:55
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	CIPL 4/01/09	

Applies To Site: Drift River Terminal

Products: Volcanic Ash, Crude Oil (Attach MSDS)

SITE CHARACTERIZATION

Water: Cook Inlet
Wave Height: 5 feet
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

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

Air Monitoring

%O2: 20.9 **%LEL:** 0 **ppm Benzene:** NA
ppm H2S: 0.0 ☒ **Other (Specify):** Volcanic ash particles (lab)

CONTROL MEASURES

Engineering Controls

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

Personal Protective Equipment

- ☐ Impervious suit
- ☐ Inner gloves
- ☒ Outer gloves
- ☒ Flame resistance clothing
- ☒ Hard hats
- ☒ Respirators
- ☒ Eye protection
- ☒ Personal floatation
- ☒ 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 COORDINATION	**Prepared By:**	Miles, Rick	**at** 4/2/2009 17:55
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	CIPL 4/01/09	

WORK PLAN

- ☐ Booming ☐ Skimming ☐ Vac trucks ☐ Pumping ☐ Excavation
- ☒ Heavy equipment ☐ Sorbent pads ☐ Patching ☐ Hot work ☐ Appropriate permits used
- ☒ Other Assessment

TRAINING

- ☒ Verified site workers trained per regulations

ORGANIZATION

Title	Name	Telephone/Radio
Incident Commander:	Rod Ficken	
Deputy Incident Commander:	Chris Myers	
Safety Officer:	Rick Miles	
Public Affairs Officer:	Sara Francis	
Other:		

EMERGENCY PLAN

- ☒ Alarm system
- ☒ Evacuation plan
- ☒ First aid location

Notified

☐ Hospital	Phone:
☐ Ambulance	Phone:
☐ Air ambulance	Phone:
☐ Fire	Phone:
☐ Law enforcement	Phone:
☐ Emergency response/rescue	Phone:

PRE-ENTRY BRIEFING

- ☒ Initial briefing prepared for each site

Attachments / Appendices

- Aircraft Travel
- Cold Stress and Hypothermia Consideration
- Exposure Monitoring Data
- Site Hazards
- Safe Work Practice for working in Volcanic Ash
- Respirator Use Guidelines
- Monitoring Program
- Safe Work Practices for Boats
- Monitoring Program
- Platform Entry onto Vessel

APPENDIX: COLD STRESS AND HYPOTHERMIA CONSIDERATIONS

Frostbite and hypothermia are the two major hazards of working in cold temperatures. A cold environment can reduce the temperature of the body and cause shivering, reduced mental alertness, and sometimes loss of consciousness. However, a healthy worker who is properly protected and takes reasonable precautions can function efficiently and safely in cold environments.

A. Factors Affecting Cold Exposure Severity

1. Important factors contributing to cold injury
   - exposure to humidity and high winds
   - contact with moisture or metal
   - inadequate clothing

   General health conditions that affect cold stress severity:
   - age
   - overall health
   - fatigue
   - allergies
   - vascular disease
   - smoking
   - drinking
   - certain drugs or medications
2. If someone becomes fatigued during physical activity, they will be more susceptible to heat loss. As exhaustion approaches, the body's ability to contract the blood vessels diminishes; blood circulation occurs closer to the skin; and rapid loss of heat begins. Sedative drugs and alcohol increase the risk of hypothermia by dilating the blood vessels near the skin, which increases heat loss and lowers body temperature.
3. The actual effects of a cold environment on the body also depend upon how well the skin is protected. An insulating barrier affects the rate of heat loss from radiation, convection, conduction and evaporation.
4. Environmental factors include wind and humidity, as well as temperature. The faster the air movement, the greater the effects of cold exposure.

B. Hypothermia

Cold injury can be localized or generalized. Frostbite, frostnip, or chilblain are examples of localized injuries. Hypothermia is a generalized (threatening the whole body) cold injury that can be life threatening.

1. Hypothermia is an abnormally low body temperature caused by exposure to cold in air or in water. Hypothermia results as the body loses heat faster than it can produce it. Air temperature alone is not enough to judge the cold hazard of a particular environment. Hypothermia cases often develop in air temperatures between 30-50 degrees Fahrenheit. When you figure in such factors as windchill, the effective temperature can be significantly lower.
2. Pain in the extremities may be the first warning of dangerous exposure to cold. Severe shivering is a sign of danger requiring removal from the cold exposure.
3. Early warnings of hypothermia are uncontrollable shivering and the sensation of cold; the heartbeat slows and sometimes becomes irregular; the pulse weakens; and the blood pressure changes. Fits of shivering, vague or slurred speech, memory lapses, incoherence, or drowsiness may occur. Other symptoms, which may be seen before unconsciousness, are cool skin, slow, irregular breathing, low blood pressure, apparent exhaustion, and inability to get up after a rest.
4. Handling cold stress and hypothermia victims
   a. A worker should go immediately to a warm shelter if any of the following symptoms

occur:

- pain, numbness, white color in the extremities, ears, nose, cheeks (or frostnip)
- onset of heavy shivering
- excessive fatigue
- drowsiness
- euphoria

A litter should be used if possible for all but the mildest cases.

b. The main objective in handling hypothermia is to warm the body core evenly and without delay. However, doing it too rapidly can disrupt body functions such as circulation.
   - The outer layer of clothing should be removed when entering a warm shelter
   - The remaining clothing should be loosened to permit sweat to evaporate, and changed if wet
   - Alcohol and caffeinated drinks should not be consumed
   - Anyone on medications, such as blood pressure control or water pills, should consult a physician about possible side effects of cold stress

c. If medical help is not immediately available: keep the person quiet, but awake if possible; avoid unnecessary movement; and if it is necessary to move a hypothermia victim, use a litter - the exertion of walking or rough handling could aggravate circulation problems or cause irregular heartbeats.

d. The sudden return of the cool blood pooled in the extremities to the heart can cause shock. Do not rewarm the core and the extremities at the same time. In a case of mild hypothermia where the person is conscious, the body may be packed with heat packs or warm towels at the neck, groin, and armpits. As the extremities begin to recover warmth give conscious victims sweet, warm drinks. Avoid caffeine or alcoholic drinks.

5. Water immersion victims. Floatation is the most important factor in water immersion survival, but may not be available if not provided in advance (see protective clothing notes below).

a. It is especially important to keep your head dry

b. Avoid thrashing about and assume the HELP position (Heat Escape Lessening Posture) by crossing wrists over chest and draw in knees close to your chest to avoid losing body heat. By using the HELP position, the head, neck, armpit, and groin areas are protected which are all high heat loss areas.

c. If others are in the water with you, huddle together to reduce heat loss, aid in rescue, and boost morale.

COLD STRESS INJURY AND TREATMENT

INJURY	SYMPTOMS	POSSIBLE CAUSES	TREATMENT
Hypothermia	Pain in the extremities; uncontrollable shivering; reduced body core temperature; cool skin; rigid muscles; slowed heart rate; weakened pulse; low blood pressure; slow irregular breathing; memory lapses; slow, slurred speech; drowsiness; incoherence; lack of coordination; diminished dexterity and judgment.	Exposure to low air temperatures; exposure to high winds; water immersion; inadequate clothing; allergies; recent alcohol consumption; smoking; prescription medications; exhaustion; dehydration.	Remove person from wind, snow, rain; minimize use of energy by person; keep person awake; remove wet clothing; get person into dry clothing; wrap blanket around person; pack neck, groin, armpits with warm towels; do not rewarm extremities and body at the same time; give sweet warm drinks to conscious person; remove person to medical facility.
Frostbite	Whitened areas on skin; burning sensation at first; blistering; affected part cold, numb, and	Exposure to cold; age (very young or old); underlying disease.	Cover the frozen part; provide extra clothing and blankets; bring person indoors; place the part in tepid water or

	tingling.		rewarm with *warm packs; if no water is available, wrap gently in a sheet and blanket or place fingers under armpits; discontinue warming when the affected part becomes flushed and swollen; give sweet warm fluids to conscious person; if feet are affected, put on dry socks; if cheeks are affected, cover cheeks with warm hands; do not rub the part with anything; do not use heat lamps, hot water bottles, or place near hot stove; do not break blisters; obtain medical assistance immediately.
Chillblain	Recurrent localized itching, swelling, and painful inflammation of the fingers, toes or ears; severe spasms.	Inadequate clothing; exposure to cold and moisture, underlying disease.	Remove to warmer area; consult physician.
Frostnip	Skin turns white.	Exposure to cold.	Remove to warmer area; refer to treatment for frostbite.
Acrocyanosis	Hands and feet are cold, blue, and sweaty.	Exposure to cold; inadequate clothing; underlying disease.	Remove to warmer area; loosen tight clothing; consult physician.
Trench Foot	Edema of the foot; tingling; itching; severe pain; blistering.	Repeated exposure to cold and moisture.	Remove to warmer area; refer to treatment for frostbite; consult physician.
Raynaud's Disease	Fingers turn white, numb and stiff; intermittent blanching and reddening of the fingers and toes; affected area tingles and becomes very red or reddish purple.	Exposure to low air temperature and high winds; inadequate clothing; underlying disease; stress.	Remove to warmer area; consult physician.

C. Evaluating Cold Exposure Hazards

1. Common sense will dictate how much clothing to wear and when to get into a warm area in most cases. However, some work environments require more complex evaluations.
2. Evaluating a work environment to determine the degree of cold stress involves measuring air temperature, wind speed, and the amount of energy expended by the worker.
3. Air temperature can be measured by an ordinary bulb thermometer. Wind speed can be measured in a variety of ways but can also be estimated as follow:
   5 mph - light flag moves
   10 mph - light flag fully extended
   15 mph - raises newspaper sheet
   20 mph - blowing and drifting snow
4. Table 2 in the Cold Stress section of the ACGIH TLV booklet estimates effective temperature using actual temperature and wind speed. This booklet also provides additional guidelines for controlling cold exposure hazards.

D. Preventing Cold Stress

1. Reduce manual work load. When cold stress is a concern, personnel exposures should be reduced by eliminating manual operations as much as possible. Power tools, hoists, cranes, or lifting aids should be used to reduce the metabolic work load and to reduce the duration of human exposure. Fatigue is also a compounding stress factor.

2. Dehydration. Working in cold areas causes high water losses through the skin and lungs, because of the dryness of the air. Increased fluid intake is essential to prevent dehydration. Warm, sweet, caffeine-free, non-alcoholic fluids, in addition to water, should be available at the work site for fluid replacement and caloric energy.
3. Warm locations for breaks. For outdoor work such as beach cleaning, where it will be difficult to warm the work area, it is particularly important to provide frequent breaks in a warm location. These locations should also be stocked with warm fluids to help warming and prevent dehydration. A work-rest schedule should be implemented using Table 3 in the Cold Stress section of the latest edition of the ACGIH TLV booklet for guidance. Providing movable spot heaters close to the work area can also be effective, and can also prevent secondary hazards from carbon monoxide when workers attempt to warm themselves near running engines. If fine work is to be performed with bare hands, special provisions should be made to keep the worker's hands warm using such things as warm air jets, radiant heaters, or contact warm plates.
4. Indoor/outdoor wind breaks and shelter. The work area should be shielded if the air speed at the job site is increased by winds, draft, or ventilating equipment. For example, bird/mammal rehabilitation may be conducted in large warehouse type buildings where heating may be difficult. Wet work stations (such as washing or drying stations) should be enclosed by barriers to reduce drafts.
5. Scheduling and task management. Schedule the coldest work for the warmest part of the day. Move work to warmer areas whenever possible. Assign extra workers to highly demanding tasks. Make relief workers available for workers who need a break. The buddy system is required for all waste site operations. This is particularly important when working in stressful environments. Minimize sitting still or standing around for long periods. Older workers need to be extra careful in the cold. Additional insulating clothing and reduced exposure time should be considered for these workers. Sufficient sleep and good nutrition are important for maintaining a high level of tolerance to cold.

6. Protective clothing/equipment.
   a. General considerations. Provisions for additional total body protection are required if work is performed in an environment at or below 4^{o} C (39.2^{o}F) At air temperatures of 2^{o}C (35.6^{o}F) workers who become immersed in water or whose clothing gets wet should be given dry clothing immediately and treated for hypothermia. Continuous exposure of skin should not be permitted when the air speed and temperature results in an equivalent chill temperature of -32^{o}C (-25.6^{o}F).
   b. Insulation. It is essential to preserve the air space between the body and the outer layer of clothing to retain body heat. The more air pockets each layer of clothing has, the better the insulation.
      i. Outer layer should be windproof and waterproof. Outer layers should not prevent sweat evaporation.
      ii. Dirty or greasy clothing loses much of its insulative value. Air pockets are crushed or filled, and heat can escape more easily.
      iii. Any interference with the circulation of blood reduces the amount of heat delivered to the extremities. All clothing should be loosely worn and unrestrictive.
   c. Chemical protective clothing (CPC) considerations. While CPC is important for protecting personnel from hazardous exposures, it is important to remember that CPC ensembles have undesirable, as well as desirable impacts on the cold stress on personnel.
      i. Undesirable effects. The desired insulating effect of clothing is negated if skin or clothing is wet. Protective clothing (for cold or chemical protection) can also add to the work load/fatigue of workers. When cold stress is a concern, care should be exercised in selecting ensembles particularly for those parts of the ensemble protecting the trunk of the body.

ii. Desirable. Liquids conduct heat better than air and have a greater capacity for heat than air. For example, a spill of cold gasoline on skin can freeze the tissue very quickly. Chemical resistant gloves, such as neoprene with cotton inserts, should be worn to prevent this localized cold stress.

d. Priority clothing. The most important parts of the body to protect are the feet, hands, head and face. Keeping the head covered is important because as much as 40% of body heat can be lost when the head is exposed.

e. Ensemble options. The following items should be considered for addition to worker ensembles in cold environments:

i. A cotton t-shirt and shorts under two-piece cotton and wool thermal underwear. Two-piece long underwear is preferred because the top can be removed and put back on as needed.

ii. Socks with high wool content. Use thin inner socks and thick outer socks. If cold, wet feet are a concern, the socks should be changed during the mid-shift break.

iii. Wool or thermal trousers (lap trousers over boot tops to keep out snow or water).

iv. Felt-lined, rubber-bottomed, leather-topped boots, with a removable insole (for heavy work). For chemical protective boots, air insole cushions and felt liners (steel/shank boots should be avoided unless needed for specific safety reasons).

v. Wool shirt or sweater over a cotton shirt.

vi. Wool knit cap (watch cap) or (if hard hats are required) specially made hard hat liner.

vii. Face mask (vital when working in cold wind). Note: Face protectors must be periodically removed so the worker can be checked for signs of frostbite.

viii. Double-layered goggles with foam padding around the edges (extremely cold environments).

ix. Insulated gloves.
60 degrees F, or lower, for sedentary work
40 degrees F, or lower, for light work
20 degrees F, or lower, for moderate work
0 degrees F, or lower, wool mittens should be used instead of gloves

f. Ensembles for work when water immersion may occur.

i. Floatation (personal or throwable) devices are extremely important to avoid unnecessary swimming that will increase the rate of body heat loss.

ii. Air trapped between layers of clothing will provide buoyancy and heat insulation, but Personal Floatation Devices (PFDs) offer the best chance for survival in cold water. Type III PFDs include float coats and cold water immersion suits which provide floatation and thermal protection.

iii. Position throwable floatation devices in boats or work areas near water.

g. Selection of materials.

MATERIAL	ADVANTAGES	DISADVANTAGES	WEAR IN
Wool	Stretches without damage. Insulates well when wet.	Heavy weight. Absorbs moisture. Skin irritant.	Layer 1-3
Cotton	Comfortable. Lightweight	Absorbs moisture.	Layer 1-2
Silk	Lightweight. Durable. Good insulator. Washes well.	Expensive. Does not transfer moisture well.	Layer 1
Nylon	Lightweight. Durable. Water resistant.	Impervious to perspiration. Flammable.	Layer 3
Down	Lightweight. Durable. Good insulator when dry.	Expensive. Hard to dry. Poor insulator when wet.	Layer 2-3
Polyester	Does not absorb moisture (insulates even when wet).	Heavier than down. Does not compress as well as down.	Layer 2-3

Exposure Monitoring Data

This document must be filled out at intervals determined by the Site Safety and Health Officer. A new form will be used each time and faxed or otherwise submitted to the Safety Officer for attachment or amendment to the Site Safety and Health Plan. All updates to this information must be retained and attached to the Site Safety and Health Plan.

Date:3/31/09 **Time:**

Location:

Type Monitoring	**Results**	**Comments**
Oxygen	21%	Expected result
LEL	0%	Expected result
H_2S	0.0 ppm	Expected result
Carbon Monoxide	0.0 ppm	Expected result
Total Hydrocarbons	Awaiting laboratory results	
Benzene	None anticipated (no spills)	

Other: _____

Instrumentation used:

Last date of calibration:

Survey performed by:

Comments:

Signature of Cognizant Authority	Title	Date & Time

ATTACHMENT: SITE HAZARDS

BOAT SAFETY.

See Attachment - Safe Work Practices for Boats.

CHEMICAL HAZARDS

See Attachment - Hazardous Substance Information Sheets

COLD STRESS.

See COLD STRESS

CONFINED SPACES.

See Attachment - Confined Space Entry Procedure

See Appendix - Confined Space Entry Checklist

DRUM HANDLING AND SPILL CONTAINMENT.

Drum handling at a spill site will primarily involve drums of waste and contaminated clothing. Several types of drums may be used, ranging from 5 to 55 gallons in size. All drums and containers must be properly labeled in accordance with OSHA and DOT regulations. Manual lifting and moving of drums should be kept to a minimum. Mechanical devices and dollies should be used for moving heavy drums.

EQUIPMENT OPERATIONS FOR CLEANUP/CONTAINMENT

Heavy Equipment:

Operation of heavy equipment, such as a front end loaders, bulldozers and cranes must be done in accordance with applicable OSHA regulations. The operators must be trained and qualified to operate powered industrial vehicles. The operator and helper must be familiar with proper signaling techniques. Buckets must not be used as a lift; hard-hats must be worn; and a fire extinguisher must be present on board equipment.

Cranes must be operated in accordance with the manufacturers' instructions and established construction practices. Outriggers must be fully extended to assure maximum stabilization of the equipment. Cranes must be operated only where the ground provides adequate support. Rigging components must be inspected daily. Only certified wire rope slings with manufactured sledges or manufactured web slings will be used. Certification documents must be received and filed for all slings. Each sling must be marked or tagged with its rated capacity and slings must not be used with loads in excess of their rated
capacity. (29 CFR 1910.184) Personnel shall not be allowed under the boom or load except for the minimum time necessary to hook up or unhook the load. (29 CFR 1910.180)

Forklifts:

Only trained and authorized operators shall be allowed to operate forklifts. Horseplay is not permitted. Only stable or safely arranged loads that do not exceed the capacity of the truck shall be handled. Fuel tanks must not be filled while the engine is running. Operators shall perform daily or pre-use inspections of the forklift to be operated. A separate inspection will be made each shift during multi-shift operations. Records of inspections must be maintained. All inspection discrepancies must be corrected prior to operation of the forklift. If the discrepancy cannot be corrected immediately, the forklift must be tagged out of service. 29 CFR 1910.178

Hand/Power Tools:

Hand tools are non-powered. The greatest hazards posed by hand tools result from misuse and improper maintenance. Saw blades, knives or other tools should be directed away from other employees. Dull tools can be more hazardous than sharp tools. Personal protective equipment, such as wire mesh gloves, wrist guards, arm guards, aprons and belly guards may be appropriated. Spark resistant tools (brass, plastic, aluminum and wood) should be used around flammable substances.

Power tools are based on the power source used: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated. The following general precautions should be observed: never carry power tools by the cord; never yank the cord to unplug the tool; keep cords and hoses away form heat, oil and sharp edges; disconnect tools when not in use and before servicing; keep observers a safe distance away; secure work with clamps or a vise freeing both hands to operate the tool; avoid accidental starting; maintain tools with care; keep them sharp and clean; safeguard hazardous moving parts of the tool; and, protect the operator from: point of operation, in-running nip points, rotating parts, and flying chips and sparks. Many tools including drills, tappers, fastener drivers, disc sanders, belt sanders and others must be equipped with momentary contact "on-off" control switch.

Employees using hand and power tools and exposed to the hazards of falling, flying, abrasive and splashing objects, or exposed to harmful dusts, fumes, mists, vapors or gases must be provided with the particular personal equipment necessary to protect them from the hazard. All hazards involved in the use of [hand] and power tools can be prevented by following five basic safety rules: Keep all tools in good condition with regular maintenance; use the right tool for the job; examine each tool for damage before use; operate according to the manufacturer's instructions; and provide and use the right protective equipment.

ELECTRICAL HAZARDS.

Electrical hazards shall be identified and marked with suitable placards, barricades, or warning tape as necessary.

FATIGUE.

Working long hours without rest may be required, especially during the early phase of response. This, coupled with the stress of the situation and wearing required PPE, can contribute to fatigue. Symptoms include loss of concentration, errors in judgment, irritability, sleepiness, soreness and stiffness in joints and muscles. Rest and sleep are the primary treatments for fatigue. Stress can be addressed by relaxation techniques, such as deep breathing, stretching, taking breaks, and other methods.

FIRE, EXPLOSION AND IN-SITU BURNING

Flammable and combustible materials may be encountered at the spill site. These may be fuels for vehicles and equipment or the spilled material itself. However, some cleanup chemicals such as solvents may also be used. Refer to the container label or proper MSDS for more information on these materials.

Precautions should be taken when working with either flammables or combustibles:

- No smoking
- Store in approved, labeled containers
- Ensure containers used to transfer materials are properly grounded
- Provide fire extinguishers in areas where these materials are used

In-situ burning presents health and safety hazards not only to the workers engaged in the burning activities, but also to individuals downwind of the burn site. Health and safety hazards include:

- Physical hazards: explosions, heat, loss of control of burning oil (e.g., flashback to the spill source, loss of containment).
- Inhalation of airborne burn products: These may include toxic and irritating substances such as: smoke particles, carbon monoxide, carbon dioxide, sulfur oxides, nitrogen dioxide, polycyclic aromatic hydrocarbons, acid aerosols, aldehydes, acrolein, polynuclear aromatic hydrocarbons, volatile organic hydrocarbons.

Safety factors to be considered include status of the spill (e.g., burning, being lightened, personnel being evacuated, etc.); weather and sea conditions; distance of intended burn location to the spill source; type and condition of the oil; proximity of ignitable vegetation, docks, and other facilities; and control measures.

A detailed Burn Plan should be prepared. This should include a summary of safety and control measures. Care must be taken to protect all personnel from any harmful exposure to heat and or combustion products.

HEAT STRESS

See Heat Stress

HELICOPTER OPERATIONS

Helicopters may be in use at the spill site for overflight surveillance; site characterization; personnel/equipment transport; and rescue/medical transport. Safe work practices for passengers and other personnel include:

1. Passengers must receive a safety briefing from the pilot before liftoff. The briefing should include: safety features and equipment and their location on the individual aircraft; helicopter underwater escape procedures when appropriate; and, emergency information.
2. Passengers and ground crew members approaching helicopters shall stay in a crouched position, and must be in clear view of the pilot while approaching or departing a helicopter.
3. Passengers and ground crew should approach/depart from the FRONT of the helicopter only when signaled by the pilot; and shall never walk under or around the tail, rotor or exhaust.
4. Loose fitting clothing, hats, hard hats, or other gear, which might be caught in rotor downwash, must be secured or

removed within 100 feet of operating helicopters.

5. Passengers shall maintain a distance of 50 feet from helicopters while rotors are turning. Ground crew should also maintain this distance, unless specific work practices are developed for closer work.
6. Passengers shall wear seat belts at all times and personal floatation devices when flying over bodies of water.
7. Passengers and ground crew shall wear hearing protection (which may include communication headsets or helmets) at all times around operating helicopters.
8. Passengers shall assist the pilot in watching for other traffic or ground obstacles, as directed by the pilot.
9. During emergency landing in water:
    a. Do not exit until instructed to do so by the pilot after rotor blades stop turning or pilot signals all clear.
    b. Do not inflate personal floatation devices until outside of the helicopter.

LIFTING

Use available machinery and lift-aiding equipment before lifting heavy loads. Use team work for heavy and numerous small loads. Do not rush work. Use of chemical protective clothing will restrict movement and visibility. Use extra care while lifting in protective gear.

Safe lifting techniques:

1. Position feet properly. Feet should not be close together, but should be close to the load to help keep the body close to the center of gravity. One foot should be positioned in the direction the load will be moved to avoid twisting or turning of the back during the lift. Turn using your feet and not by twisting the back.
2. Before and during the lift keep the load close to you to keep the center of gravity over your feet.
3. Check your grip and test the weight of the load before lifting.
4. The back should be straight when starting the lift and the knees should be bent. This will help to ensure that much of the lifting is done with the legs. To help keep the back straight, the chin should be tucked in and head kept up.
5. Keep the stomach muscles tight while lifting. Keep your back straight during the lift and avoid twisting motions in particular.
6. Move slowly and deliberately.

MOTOR VEHICLES

All motor vehicles must be operated in accordance with all state and local motor vehicle regulations. Posted speed limits must be observed and seat belts worn by all occupants. Check the outside of the vehicle and familiarize yourself with the interior and make all adjustments before driving. Drive defensively. Employees involved in any accident must inform their supervisor as soon as possible. The driver is responsible for getting as much accident information as possible. 29 CFR 1910.178

Safe use of motor vehicles is essential at the spill site and in traveling to and from the site. Vehicles should be checked:

Tires inflated	Fuel	Spare tire	Lights	Windshield wipers
Brakes	Turn signals	Seat belts	Horn	

NOISE

Noise may be a significant hazard at a spill cleanup site. Noise may be generated by: pumps, generators, compressors, trucks, and, heavy equipment. At a spill site, high noise areas and equipment will be identified.

Areas requiring the use of hearing protection will be so posted. Hearing protection will be made available as required. As a general rule, hearing protection should be worn in areas where noise prevents hearing ordinary conversation. Since hearing loss caused by high noise exposure may not be noticed at first, it is important to wear the hearing protection in high noise areas.

OVERHEAD AND BURIED UTILITIES

If work has to be performed near overhead lines, the lines must be de-energized and grounded, or other protective measures must be provided before work is started. Arrangements must be made with the person or organization that operates or controls the electric circuits to de-energize and ground them. If protective measures such as guarding, isolating, or insulating are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment. Clearance from overhead power lines to persons or equipment must be at least 10 feet unless the voltage exceeds 50 kV. If a vehicle is in transit with its structure lowered, the clearance may be reduced to 4 feet. If voltage exceeds 50 kV, the clearance must be increased by 4 inches for each 10 kV. There are specific approach distances and insulation requirements given in the referenced OSHA standard. (29 CFR 1910.333)

The estimated location of buried utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground services should be determined before work begins. Utility companies or owners must be contacted, advised of the proposed work and informed of the urgency of the situation. OSHA states the aforementioned companies or owners have 24 hours to respond unless state or local laws allow more time. Excavation may proceed if the exact location of the installation cannot be determined or the utility company or owner does not respond in the time period required by law. When the excavation approaches the estimated location of the underground installations, the exact location must be determined by safe and acceptable means. While the excavation is open the installation must be protected, supported or removed as necessary to safeguard employees. (29 CFR 1926.651)

POOR VISIBILITY

Fixed or portable lighting shall be maintained for dark areas or work areas after sunset to ensure that sufficient illumination is provided. (See Table H-120.1 of 29 CFR 1910.120(m) for Minimum Illumination Intensities.)

PUMPS AND HOSES

Pumps and hoses may be used at the spill site to apply water, steam or chemicals for cleanup and/or decontamination. They may also be used for liquid waste collection. Caution should be used when working in areas where hoses are in use as they present a tripping hazard. Additionally, when using pumps and hoses, determine their last contents to avoid contamination or chemical reaction. Use the proper pump and hose for the job.

STEAM AND HOT WATER

Steam and hot water may be used during the spill cleanup. Use caution when working with these materials since they can cause severe burns. Wear gloves and eye/face protection when handling and be careful not to spray in the direction of other personnel.

UV RADIATION

Ultraviolet radiation from sunlight can be a significant hazard at a spill site. Cleanup will primarily be done outdoors; therefore, sunscreens with the appropriate protection factor and UV-tinted safety glasses may be needed. Other types of radiation, such as from welding and cutting, may also be a hazard. Avoid direct visual contact and use proper eye protection as needed.

SLIPS, TRIPS AND FALLS

Slips, trips and falls on oily surfaces are the major cause of injuries at an oil spill site. Many of these injuries occur in the first few minutes of work before workers realize the conditions and begin to take precautionary measures. When entering a spill site, walk slowly and carefully in oil-coated areas. Be especially careful when walking on oil-covered rocks. Oil-resistant safety-toe boots with non-slip soles should be worn at all times in areas containing oil-covered rocks. This type of footwear can help to minimize the falling hazard, but will not prevent it. Open manholes, mud, pits, trenches, or similar hazards shall be identified and marked with suitable placards, barricades, or warning tape as necessary.

TRENCHING AND EXCAVATION

All surface encumbrances that may create a hazard to employees shall be removed or supported to safeguard employees. Consideration must be given to underground installations. Appropriate precautions must be taken with regard to soil type and conditions to avoid cave-in. Employees must be provided with an approved means of access and egress. Adequate precautions shall be taken to prevent employee exposure to hazardous atmospheres. Where hazardous atmospheres exist, emergency rescue equipment shall be readily available. Employees must be protected from cave-ins, falling loads, mobile equipment, water accumulation, loose rock and soil. A competent person must inspect the excavation, adjacent area, and protective systems prior to the start of work, as needed throughout the shift and after every rainstorm or hazard increasing occurrence. (29 CFR 1926.65 Subpart P)

WEATHER

Safe Work Practices for Working in Volcanic Ash

Task	Hazard	Mitigation
Routine Facility Activities	Slips, Trips, Falls	Use 3 points of contact when exiting vehicles. Wear traction devices. Follow CIPL Safety Plan.
Working in Ashfall	Inhalation of silica particulate	Remain indoors during heavy ashfall. Wear air-purifying particulate respirator outdoors

Guidelines for Respirator Use

Oxygen-Deficient Atmosphere

NIOSH defines an oxygen-deficient atmosphere as any atmosphere containing oxygen at a concentration below 19.5% at sea level. NIOSH certification of supplied-air or air-purifying respirators is limited to those respirators used in atmospheres containing at least 19.5% oxygen, except for those supplied-air respirators equipped with auxiliary self-contained breathing apparatus (SCBA).

The minimum requirement of 19.5% oxygen at sea level provides an adequate amount of oxygen for most work assignments and includes a safety factor. The safety factor is needed because oxygen-deficient atmospheres offer little warning of the danger, and the continuous measurement of an oxygen-deficient atmosphere is difficult.

At oxygen concentrations below 16% at sea level, decreased mental effectiveness, visual acuity, and muscular coordination occur. At oxygen concentrations below 10%, loss of consciousness may occur, and below 6% oxygen, death will result. Often only mild subjective changes are noted by individuals exposed to low concentrations of oxygen, and collapse can occur without warning.

Since oxygen-deficient atmospheres are life-threatening, only the most reliable respirators are recommended; the most reliable respirators are the self-contained breathing apparatus or the supplied-air respirators with auxiliary self-contained units. Because a high protection factor is not necessary to ensure an adequate supply of oxygen even in an atmosphere containing no oxygen, any certified self-contained unit is adequate. All aspects of a respiratory protection program must be instituted for these recommendations to be valid.

Exposure Limits

The legal, enforceable exposure limit is the permissible exposure limit (PEL) set by OSHA. NIOSH develops recommended exposure limits (RELs) for hazardous substances. To formulate these recommendations, NIOSH evaluates all known available medical, biological and engineering, chemical trade, and other information relevant to the hazard. Other exposure limits that can be considered in making respirator selections include State-OSHA exposure limits (e.g., California), ACGIH TLVs, AIHA WEELs, corporate exposure limits, etc. The effectiveness of this RSL is limited to the adequacy of the selected exposure limits in protecting the health of workers. Exposure limits based on a thorough evaluation of more recent or extensive data should be given priority.

For all chemicals that cause irritation or systemic effects but do not cause carcinogenic effects, it is currently believed that a threshold exposure concentration exists such that virtually all persons in the working population (with the possible exception of hypersensitive individuals) would experience no adverse health effects.

Other variables such as the specific situation, worker, or job may influence the selection of the appropriate exposure limit for a given contaminant. For example, the effects of some hazardous substances may be increased due to exposure to other contaminants present in the workplace or the general environment or to medications or personal habits of the worker. Such factors, which would affect the toxicity of a contaminant, would not have been considered in the determination of the specific exposure limit. Also, some substances are absorbed by direct contact with the skin and mucous membranes, thus potentially increasing the total exposure.

Immediately Dangerous to Life or Health (IDLH)

An IDLH exposure condition is one that poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment. The purpose of establishing an IDLH exposure level is to ensure that the worker can escape from a given contaminated environment in the event of failure of the respiratory protection equipment. The IDLH is considered a maximum level above which only a highly reliable breathing apparatus providing maximum worker protection is permitted. Any appropriate approved respirator may be used to its maximum use concentration up to the IDLH concentration.
In establishing the IDLH concentration, the following conditions must be assured:

a. The ability to escape without loss of life or immediate or delayed irreversible health effects. (Thirty minutes is considered the maximum time for escape so as to provide some margin of safety in calculating the IDLH.)

b. The prevention of severe eye or respiratory irritation or other reactions that would hinder escape.

Sources of information for determining whether the exposure limit for a contaminant represents an IDLH condition are as follows:

a. Specific IDLH guidelines provided in the literature such as the NIOSH Pocket Guide for Hazardous Chemical Substances (http://www.cdc.gov/niosh/npg/npg.html) and the American Industrial Hygiene Association (AIHA) Hygienic Guides.

b. Human exposure and effects data, and/or

c. Animal exposure and effects data, and/or

d. Where such data specific to the contaminant are lacking, toxicologic data from analogous substances and chronic animal exposure data may be considered.

Eye Irritation

Eye protection in the form of respirators with full facepieces, helmets, or hoods is required for routine exposures to airborne contaminants that cause any irritation to the mucous membranes of the conjunctivae or the cornea or cause any reflex tearing. Eye protection is required for contaminants that cause minor subjective effects as well as for those that cause any damage, including disintegration and sloughing of conjunctival or corneal epithelium, edema, or ulceration. NIOSH is not aware of any standards for gas-tight goggles that would permit NIOSH to recommend such goggles as providing adequate eye protection.

For escape, some eye irritation is permissible if the severity of irritation does not inhibit the escape and if no irreversible scarring or ulceration of the eyes or conjunctivae is likely.

When data on threshold levels for eye irritation are insufficient, quarter or half-mask respirators can be used, provided that the worker experiences no eye discomfort and no pathologic eye effects develop. Workers should be told that if any eye discomfort is experienced, they will be provided with respirators that have full facepieces, helmets, or hoods and that provide protection equivalent to the quarter- or half-mask respirators.

ATTACHMENT: MONITORING PROGRAM

Monitoring will be performed on an ongoing basis for airborne hydrocarbons. Direct reading instruments are being used. Personal exposure monitoring may be conducted at the recommendation of the Site Safety Officer or Industrial Hygienist. Laboratory analysis is required for some monitoring samples. Results will be made available to comany and contractor employees. See **Site Characterization and Analysis Form Attachment** and **Exposure Monitoring Form Attachment** for current data. These forms must be filled out completely, and updates to the information faxed or otherwise submitted to the Safety Officer for attachment or amendment to the Site Safety and Health Plan. All updates must be retained and attached to the Site Safety and Health Plan.

SITE:
DATE:

A. MONITORING PLAN:

1. Air monitoring at the spill site and surrounding areas will be done to ensure site worker and community safety.
2. Air monitoring will be done during work shift site characterization, and on each work shift during cleanup activities until results indicate no further monitoring is required.
3. All monitoring done at the cleanup site will be documented and the data maintained by qualified personnel on site.
4. Monitoring will be done in accordance with OSHA 29 CFR 1910.120. Monitoring to be done:

- during initial site entry and characterization;
- if a new potential inhalation hazard is introduced into the work area;
- during cleanup activities, on each work shift;
- if a new task is begun which may involve potential inhalation exposure.

B. INITIAL SITE MONITORING

1. Monitoring will be done during initial site entry. The monitoring will include checking for:
   - oxygen (O2) deficiency using a direct reading oxygen meter;
   - flammable atmospheres (%LEL) using a combustible gas indicator;
   - benzene, hydrogen sulfide, hydrocarbons, and combustion by-products (SO_2, CO), as needed, using direct-reading instruments, colorimetric indicator tubes, and/or other valid methods.
2. Instruments will be calibrated prior to and following use.
3. All monitoring will be documented. (See attached form for example.)

C. POST-EMERGENCY MONITORING (ON-GOING)

1. Monitoring for benzene, hydrogen sulfide, hydrocarbons and combustion by-products will be done during each work shift on an on-going basis, as needed. Repeat initial site monitoring if any significant changes occur (i.e., temperature increases, more material released, wind direction changes, etc.)
2. Checks for oxygen deficiency and flammable atmospheres will be made if confined spaces are encountered, or as required.
3. Exposure monitoring shall be done as necessary. Personnel samples will be collected under the direction of the industrial hygiene personnel. Samples will be analyzed by a laboratory accredited by the American Industrial Hygiene Association.
4. Results of site monitoring will be made available to site workers' supervision for informing all affected employees. Results will be available to the Command Center for review by regulatory

agencies.

SITE MONITORING DATA (EXAMPLE)

DATE/TIME	LOCATION	%LEL	$\%O_2$	BENZENE (PPM)	H_2S (PPM)	OTHER SPECIFY (PPM)	COLLECTED BY

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

Job Safety Analysis

Field Team: Cook Inlet
JSA Type: Operations
Work Type: Commodity Transfer
Job Description: Overwater transportation and platform entry from vessel.
Job Site: Drift River Terminal
Date: 4/2/2009
Creator/Modifier: Harding, Christopher (CHDZ)
Approver: Ficken, Rodney(FICK)
Risk Level: High Risk Non-routine Job

Control ID: 1000515
Status: Initial

In case of an incident, the following people will be contacted:

CPL Rep: Ops supervisor Ph _____
Contract Rep: _____ Ph # _____
Other: Team leader Ph # _____

Seq. No	Sequence Of Job Steps	Potential Hazard(s)	Recommended Action
1	Mount the Billy Pugh. (Optional)	gravity - slips trips and falls	Mount the Billy Pugh on a solid surface. Ensure that grip is adequate.
2	Overwater travel. (Optional)	gravity - falls and or drowning motion - swinging Billy Pugh	Ensure proper PPE is obtained for over water operations. Ensure that grip is adequate. Travel over water only when conditions are favorable. Have capabilities in place for a water rescue.
3	Dismount the Billy Pugh. (Optional)	gravity - slips trips and falls	Dismount the Billy Pugh on a solid surface and watch for solid footing. Ensure that grip is adequate. Ensure proper PPE is obtained for over water operations.
4	Ladder or walkway use for overwater travel	gravity - falls and or drowning motion - unstable walkway	Ensure proper PPE is obtained for over water operations. Ensure that walkway or ladder is stable for personnel transfer.

During the Safety Analysis, consider the following:

Chemical Hazard:
Inhalation Skin Contact
Absorption Injection
Biological Hazards:
Bloodborne Pathogens
Plant/Insect/Animal
Physical Hazards:
Electrical
Fire/Explosion
Noise
Radiation
Heat/Cold Stress
Pinch Point/Line of Fire
Walking/Working Surfaces
Strike against/Struck by Stored Energy
Ergonomic Hazards:
Repetition

			Ensure that grip is adequate. Travel over water only when conditions are favorable. Use stop work in necessary.
5	Platform entry	gravity - slips, trips and falls motion - wind and lifting	Ensure proper PPE is obtained for over water operations. Ensure that the ladder is stable for personnel use. Obtain and use fall protection equipment if necessary. Use two people to set the ladder. Stay away from fender edge whenever possible.
6			
7			
8			
9			
10			

Forceful exertion
Body Positioning
Work Area Design

Personnel:

SSE/Mentor
New to area
New to job

Environmental:

Weather (rain, cold, etc)
Wet, humid, slippery

What conditions or job changes or distractions will trigger the use of Stop Work Authority on this job? High seas, heavy ice, high winds

JSA Reviewed by:

Last Name	First Name	Review Date
Burcham	John	04/02/2009

Harding	Christopher	04/02/2009

ICS 220 - Air Operations

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:** Pagliaro, Domenic	**at** 4/2/2009 13:04
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:00)	**Version Name:**	4/02/2009 DEP

Personnel and Communications

Title/Position	Name	Air/Air Frequency	Air/Ground Frequency	Phone
Operations Section Chief	Johnny Santiago			
Air Ops Branch Director	Gordy Nisler			

Planned Flight Information

Type Of Aircraft	Operating Base	Aircraft Company	Passenger Capacity	Purpose	Scheduled Flights
Bell 212 Helicopter N357EH	OSK Heliport, Nikiski	ERA Aviation	11	Transfer personnel to Drift River, Primary Helicopter	
Bell 212 Helicopter N358EH	OSK Heliport, Nikiski	ERA Aviation	11	Transfer personnel to Drift River, Backup Helicopter	
BoCow BO-105CBS 492HL	Trading Bay (presently located in Kenai)	Air Logistics	4	Transfer personnel to Drift River, CIPL's helicopter	
Bell JetRanger 301MH	Homer	Alaska Maritime	4	AVO overflights	
Bell JetRanger 302MH	Homer	Alaska Maritime	4	AVO overflights	
Bell LongRanger 303MH	Homer (normally kept in Kenai)	Alaska Maritime	6	AVO overflights	
Bell LongRanger 304MH	Homer	Alaska Maritime	6	AVO overflights	
Bell LongRanger 306MH	Homer	Alaska Maritime	6	AVO overflights	
Bell 407 308MH	Homer	Alaska Maritime	6	AVO overflights	
Bell JetRanger 284CA	Homer	Alaska Maritime	4	AVO overflights	
Bell LongRanger N5843	Homer	Alaska Maritime	6	AVO overflights	
Bell LongRanger N10814	Kodiak	Alaska Maritime	6	AVO overflights	

ICS 220 - Air Operations

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Pagliaro, Domenic	**at** 4/2/2009 13:04
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:00)	**Version Name:**	4/02/2009 DEP	

Notes (Special Instructions, Safety Notes, Hazards, Priorities)

.

ICS 223 - Health and Safety Message

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Reider, Megan	**at** 4/1/2009 21:15
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	Alaska Visitors Guide	

Major Hazards and Risks

ALASKA VISITORS BRIEFING
COMMON DANGERS AND HAZARDS

The climate in Alaska can be extreme almost anytime of the year in southcentral Alaska. Spring temperatures can vary from well below freezing to above freezing, even during the same day. Aside from driving on slick roads, exposure to the elements represents the primary hazard that visitors to Alaska routinely encounter. Even seemingly harmless outings can become life-threatening quickly due to the remoteness of the particular location, extreme terrain, and temperature variation. Other hazards of concern to visitors may include wildlife, even in the Anchorage city limits!

DRIVING

Driving is the most dangerous activity people engage in on a regular basis. In Alaska, even city drivers in springtime can encounter snow and ice. Dust from sanding roads all winter can reduce visibility. Patches of ice and black ice are common. Black ice is actually just thin, invisible ice, and results from the thaw freeze cycles each day.

- Take the time to scrape your windshield before you start driving.
- Reduce your speed.
- Maintain extra distance between and the vehicle in front of you.
- Avoid clusters of cars in traffic.
- Plan for increased stopping distances.
- When exiting your vehicle after parking, use 3 points of contact (both hands holding onto something when you step out).

CLOTHING

To prepare for any outdoor activity, it is important to dress warmly, but more important to dress in layers if you are going to be outside for any length of time. Parking lots, streets, and sidewalks can be slick. Slips, trips, and falls are common hazards.

- Inner layers (socks, long underwear, shirts), synthetic materials are best.
- Mid layers (lightweight coats, vests, etc.), synthetic materials are best.
- Outer layers (waterproof or weatherproof shell coats – similar material pants are recommended).
- Footwear with traction soles (hiking boots are preferable for any long walk and traction devices are available for purchase at local stores).
- Hats and protective headwear (knit or synthetic hats that cover ears).
- Gloves are recommended.
- UV protective eyewear (sunglasses help with driving).

WILDLIFE

Moose are common in nearly any area of Alaska (including Anchorage), and bears (brown or grizzly, and black) may be becoming active in the spring. Bears are a concern in some parks within the Anchorage city limits.

- Never approach any animal. Any wild animal is a potential safety hazard.
- If a wildlife encounter occurs, make them aware of your presence and remain calm. Injury incidents are extremely rare when people stay in groups.
- Stay in groups if you go for a hike.
- Make noise, and be aware of your surroundings.

If you travel outdoors (e.g., nearby parks), establish a trip plan and let someone staying behind know where you are going and when you plan to return. Cellphone reception is often available, but not a completely reliable form of communications.

Be SAFE and enjoy your stay!

ICS 223 - Health and Safety Message

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Reider, Megan	**at** 4/1/2009 21:15
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	Alaska Visitors Guide	

Narrative

ICS 224 - Environmental Unit Summary

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Smith, Jeff	**at** 4/2/2009 10:09
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	April 2, 2009 at 1010	

Area Environmental Data

See the 232 Form - Resources at Risk

Priorities for Mitigating Environment and Cultural Impacts

None at this time.

Wildlife Assessments and Rehabilitation

No impacts to wildlife have been observed to date.

Permits (Dispersants, Burning, and/or Other

A list of potential permits that me may be needed for different spill scenarios are:

ADEC Insitu Burning Plan and Application
ADEC On-site Burning of Spill Related Oily Waste Approval Request
ADEC Open Burning Approval Application
ADEC Oil Spill Decanting Application/Authorization
ADF&G Special Area Permit (Trading Bay State Game Refuge)
ADNR Alaska Field Archaeology Permit Application
ADNR Fish Habitat Permit
ADNR Land Use Permit Application
ARRT Dispersant Application
ARRT Wildlife Hazing
ARRT Wildlife Capture, Transportation, Stabilization, Treatment
Unified Command Waste Management Permit
Unified Command Decanting Permit
USACE Nationwide Permit No. 20 – Oil Spill Cleanup in Spawning Areas
USCG Recovered Oil and Water Management Plan, Oil Spill Quantification Plan, Oil Spill Request for Decanting Authorization
USFWS Migratory Bird Scientific Collecting Permit Application
USFWS Migratory Bird Rehabilitation Permit Application
USFWS Migratory Bird Salvage Permit Application
USFWS Migratory Bird Treaty Act Permits
USFWS Take/Import/Transport/Export of Marine Mammals Application
USFWS Export/Import/Interstate and Foreign Commerce/Take of Animals Application
ARRT - Alaska Regional Response Team

Waste Management

Working with ACMP personnel to identify a suitable disposal option for muds.

A site specific Waste Management Plan will be developed if needed.

Other Environmental Concerns

None at this time.

Logistical Support Needs

ICS 230 - Daily Meeting Schedule

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Pagliaro, Domenic	**at** 4/2/2009 15:55
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:00)	**Version Name:**	4/02/09 07:30-JWJ	

Meeting Name & Date/Time	Purpose	Attendees	Location
New Period Begins 4/2/2009 08:15			
Operations Briefing 4/3/2009 08:00	Present IAP and assignments to the supervisors/leaders for the next operational period.	IC/UC, Command & General Staff, Branch Directors, Division/Group Supervisors, Task Force/Strike Team Leaders	
Prep for Objectives 4/3/2009 08:15			
Unified Command Objectives Meeting 4/3/2009 09:00	Review/Identify and prioritize objectives for the next operational period.	IC/UC members; SelectedCommand and General Staff, as appropriate; DOCL or Historian	Break-out room
Command & General Staff Meeting 4/3/2009 10:30	IC/UC gives direction to Command & General staff including incident objecdtives and priorities	IC/UC, Command and General Staff, Section Chiefs & Unit Leaders	Sheraton 2nd Floor Kuskokwim Conference Room
Prep for Tactics 4/3/2009 10:30			
Tactics Meeting 4/3/2009 13:30	Develop/Review primary and alternate Strategies to meet Incident Objectives for the next Operational Period	PSC, OSC, LSC, RESL, SITL,, ENVL, SOFR, COMMS, DOC, ICS Specialist & HIST, Tech Spill, Spill Response Group (Doug L), Facility Restart and Oil Movement Group, Lahar and Flood Group, PIO	Sheraton 2nd Floor Kuskokwim Conference Room
Prep for Planning 4/3/2009 13:31			
PLANNING MEETING 4/3/2009 16:00	Reveiw status and finalize strategies and assignments to meet Incident Objectives for the next Operational Period	Determined by IC/UC, Command, Command Staff, General Staff, RESL, SITL, ENVL, DOCL, Historian, COML, THSP, & ICS Specialist	Sheraton 2nd Floor Kuskokwim Conference Room
IAP Delivery & Approval 4/3/2009 17:00			

ICS 232 - Resources at Risk

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Smith, Jeff	**at** 4/2/2009 10:06
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	April 3, 2009 - 1009	

Environmentally Sensitive Areas and Wildlife Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
1	HIGH	Redoubt Bay Critical Habitat Area, located north of the Drift River Facility	(see narative below)
2	High	Kalgin Island and Kalgin Island Critical Habitat Area, located south east of the Drift River Facilit	
3	High	Migratory Birds: Redoubt Bay	
4	High	Fish: Drift River, Rust Slough, Cannery Creek	
5	High	Marine Mammals: Redoubt Bay and Kalgin Island	
6	High	Invertebrates: Redoubt Bay	
7	High	Salt-Water Marsh Shoreline Habitat: Redoubt Bay	
8	High	Tidal Flats: Redoubt Bay and Kalgin Island	
9	High	Mixed sand and gravel beaches: Redoubt Bay	

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Smith, Jeff	**at** 4/2/2009 10:06
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	April 3, 2009 - 1009	

Narrative:

Site or Resource Issue
1
HIGH
Redoubt Bay Critical Habitat Area, located north of the Drift River Facility (see attached map)
· Waterfowl and shorebird concentrations in spring; anadromous fish in streams and lakes, including Drift River; harbor seal haulout, at least one site; brown bear and black bear concentrations in spring.
2
HIGH
Kalgin Island and Kalgin Island Critical Habitat Area, located south east of the Drift River Facility
· Harbor seal haulout, at least two sites; streams and lakes with anadromous fish
3
HIGH
Migratory Birds: Redoubt Bay
30 March – 30 April
· Pribilof Island Rock Sandpipers over-wintering (majority of the population: 18,000); central to northern Redoubt Bay; begin migrating out in mid-April.
· Increasing numbers of shorebirds and waterfowl feeding in intertidal marshes and mudflats.
· Geese and swans (50,000 – 100,000); peak late April/ early to mid-May.
Migratory Birds: Redoubt Bay
30 April – 30 May
· Western sandpipers (500,000 – 950000); 20-47% of the Pacific flyway population.
· Dunlin (50,000 – 94,000); 11-21% of the Pacific flyway population.
· Hudsonian godwit (7,500); 15% of world's population
· Geese and swans (50,000 – 100,000); peak late April/ early to mid-May.
· Swan migration (9,000); peak first week of May.
4
HIGH
Fish: Drift River, Rust Slough, Cannery Creek
Coho, pink, and sockeye salmon and Dolly Varden present.
· Coho salmon run; eggs hatch early spring; embryos in gravel until May/June; fingerlings occupy shallow stream margins.
· Pink salmon fry migrate from gravel to downstream in late winter/early spring.
· Sockeye salmon fry emerge in early spring; migrate to rearing areas.
· Dolly Varden eggs hatch in March; emerge in April/May; rear instream.
· Larval/juvenile fish especially sensitive because they inhabit shallow waters, are less mobile, and more sensitive to oil toxicity; eggs and fry vulnerable to large influxes of sediment, debris, etc.
5
HIGH
Marine Mammals: Redoubt Bay and Kalgin Island
· Endangered Cook Inlet population of beluga whales present in Redoubt Bay.
· Harbor seal haulouts in north Redoubt Bay and on Kalgin Island.
· Killer whales, harbor porpoises, and Dall's Porpoise present in Redoubt Bay.
6
HIGH
Invertebrates: Redoubt Bay
· Small clam (Macoma balthica) is a major food source for migratory birds, particularly shorebirds; prevalent in mudflats on west side of Cook Inlet in densities of 2,000 – 3,000 clams per square meter.
7
HIGH
Salt-Water Marsh Shoreline Habitat: Redoubt Bay
· Most sensitive shoreline habitat type; highly productive for migrating and nesting birds; nursery for fish and shellfish.
· Dormant in April, lighter fraction of oil acutely toxic, prevent disturbance and mixing of oil into sediment
ICS 232 – Resources at Risk Printed: Page 2 of 2
ICS 232 – Resources at Risk
Incident: DRIFT RIVER TERMINAL COORDINATION
Prepared by: Environmental Unit at 4/2/2009
Period:
Version Name: March 30, 2009 until revised

Environmentally Sensitive Areas and Wildlife Issues (cont.)
Site #
Priority
Site Name or Resource
Site or Resource Issue
7
HIGH
Salt-Water Marsh: Redoubt Bay (cont.)
by foot traffic during cleanup as this can result in severe and long-term impacts.
8
HIGH
Tidal Flats: Redoubt Bay and Kalgin Island
· Sensitive habitat; highly biologically productive; organisms buried in mudflats will likely be severely impacted.
· Oil does not usually penetrate sediment of tidal flats because they are tightly packed and heavily water saturated; oil can penetrate air holes made by buried invertebrates.
· Oil will cover flats at low tide and be re-floated at high tide.
· Organisms living in mudflats may be smothered during low tide.
9
HIGH
Mixed sand and gravel beaches: Redoubt Bay
· Oil may penetrate; difficult to remove; may become source of chronic sheening.

http://www.asgdc.state.ak.us/maps/cplans/cook/PDFS/SPRING.pdf
http://www.asgdc.state.ak.us/maps/cplans/subareas.html#cook

Archaeo-cultural and Socio-economic Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
1	High	Native Allotments: Kalgin Island and West Foreland	(see narative below)
2	High	Razor clam harvest: Rust Slough and Cannery Creek	
3	High	Set-net fisheries: Redoubt Bay, Kalgin Island	

Narrative:

1
HIGH
Native Allotments: Kalgin Island and West Foreland
· Native allotment (1) at northeast shore Kalgin Island.
· Native allotments (2) at southern tip of West Foreland
2
HIGH
Razor clam harvest: Rust Slough and Cannery Creek
· Razor clam beds at Rust Slough and Cannery Creek.
· Harvest begins in April (peaks in May/June).
· Clams may be smothered by oil; tainting may be concern; influx of sediment and debris may cause smothering.
3
HIGH
Set-net fisheries: Redoubt Bay, Kalgin Island
· Non-commercial, personal use set-net fisheries for salmon.
· Subsistence set-net salmon fisheries.

Archaeo-cultural and Socio-economic issues: Archaeo-cultural issues are being reported upon by ADNR. Subsistence and personal use harvest information has been supplied by ADFG – Subsistence Division.

ICS 232 - Resources at Risk

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Pagliaro, Domenic **at** 4/1/2009 21:16
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	ADFG (from March 27, 2009, 1:00 pm)

Environmentally Sensitive Areas and Wildlife Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
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	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 eas	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

ICS 232 - Resources at Risk

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Pagliaro, Domenic **at** 4/1/2009 21:16
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	ADFG (from March 27, 2009, 1:00 pm)

Environmentally Sensitive Areas and Wildlife Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
			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.

Archaeo-cultural and Socio-economic Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
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.

ICS 232 - Resources at Risk

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Pagliaro, Domenic **at** 4/1/2009 21:16
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	NOAA Resources at Risk Summary

Environmentally Sensitive Areas and Wildlife Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue

I — Incident Information

Narrative: 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

Narrative: 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

Narrative: 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

Narrative: 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.

ICS 232 - Resources at Risk

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Pagliaro, Domenic **at** 4/1/2009 21:16
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	NOAA Resources at Risk Summary

Environmentally Sensitive Areas and Wildlife Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
V		Biological Resources at Risk	Birds

Narrative: 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

Narrative: 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

Narrative: 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

Narrative: 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

Narrative: 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.

ICS 232 - Resources at Risk

Incident:	DRIFT RIVER TERMINAL COORDINATION	**Prepared By:**	Pagliaro, Domenic **at** 4/1/2009 21:16
Period:	Period 3 Working (4/3/2009 09:00 - 4/4/2009 09:	**Version Name:**	US DOI - Redoubt Bay and Kalgin Island

Environmentally Sensitive Areas and Wildlife Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
1	Mar 15 -Mar 30	Pribilof Island Rock	Sandpipers over wintering (entire population: 18,000). See Narrative for Special Note.
2	Mar 30 -Apr 30	Pribilof Island Rock	Sandpipers begin migrating out in mid-April
			Increasing numbers of shorebirds and migratory birds feeding in intertidal marshes and mudflats during spring migration
			Geese and swans (50,000 -100,000); peak late April/early to mid-May
3	Apr 30 -May 30		Western Sandpipers (500,000 -950,000); 20-47% of the Pacific flyway population.
			Dunlin (50,000 -94,000); 11-21% of the Pacific flyway population.
			Hudsonian Godwit (7,500) 15% of world population
			Geese and swans (50,000 -100,000); peak late April/early to mid-May
			Swan migration (9,000); peak first week May

Archaeo-cultural and Socio-economic Issues

Site #	Priority	Site Name and/or Physical Location	Site Issue
1	Mar 15 -Mar 30	Native Allotments	Northeast shore Kalgin Island (1)
			Southern tip West Foreland (2)
2	Mar 30 -Apr 30	Native Allotments	Same as Site #1
3	Apr 30 -May 30	Native Allotments	Same as Site #2