SITE SAFETY PLAN

M/V SELENDANG AYU

December 2004

SITE SAFETY PLAN FOR M/V SALENDANG AYU

FOSC: **RP:** **SOSC:**

TABLE OF CONTENTS:

A. SITE DESCRIPTION

Location: MV Selendang Ayu

Hazards: Oil: _Benzene, Hydrocarbons
Treatment chemicals:
General safety hazards: Cold wx exposure, driving hazards, shore assessment

Weather related hazards: ___heat stress, _x__hypothermia, _x__frostbite, __x_severe storms ___fog, other:_____

Surrounding population: ___industrial, ___residential, ___rural, _x__unpopulated, other:_____

Topography: _x__rocky, _x__sandy beach, ___docks, _x__cliffs, ___marshes, ___ other:_____

B. SITE ORGANIZATION.

Function and Name	**Phone Number**
OSC:	907 359 8900
Scientific Support Coord.:	Room 327
Site Safety and Health Officer:	907-359-8865
Contractor Supervisor:	907-271-2660
Responsible Party	
State Representative	
Other Fed/State/Local reps:	(907) 359-5328

C. ENTRY OBJECTIVES.

_x__site surveys ___mechanical cleaning __x_oil recovery _x__booming
___bioremediation ___dispersant application _x__wildlife rehabilitation/hazing
___OTHER related activities_____

Detailed objectives shall be developed daily, and shall be described during the pre-entry safety briefing.

D. SITE CONTROL.

1. Reporting: Anyone entering or departing a work area, or associated control zones, shall report to the site supervisor.

2. Site Safety Plan: No person shall enter a site without subscribing to this or another approved Site Safety and Health plan.

3. Training: No person shall enter a site without adequate training in hazardous waste operations safety and health; based on work assignment and applicable hazardous conditions.

4. Site Boundaries: The following control boundaries have been established, and should be marked as follows:

a. Exclusion (Hot) Zone(s): Orange, red, or black and yellow
b. Contamination Reduction (Warm) Zone(s): Yellow
c. Support (Cold) Zone(s): Green

The above zones shall be marked as needed to control traffic and enforce decontamination procedures. Appropriate placards, barricades, traffic cones, and/or boundary tape shall be used for this purpose. The Site Safety Officer shall periodically inspect work areas to ensure the effectiveness of boundaries.

5. Site Map: The site safety map is attached and shall be modified as necessary for each sector by the site safety supervisor when any of the following are modified:

a. Exclusion Zone boundaries

b. Contamination Reduction Zone: Boundaries, decontamination layout, equipment storage, temporary waste storage areas, washing, toilets and hygiene facilities.

c. Support Zone: Boundaries, first aid stations, emergency fire fighting equipment, command posts/office spaces, new equipment staging/storage, eating/rest areas, bird/mammal cleaning and rehabilitation.

d. Location of unidentified hazards: Underground cables, overhead cables, pits, trenches, open holes/hatches, wasted deck plate, hearing protection areas, hard hat areas, suspected locations of poisonous plants, insects, or animals, high pressure wash areas, bioremediation application areas, and dispersant application areas

E. HAZARD EVALUATION

CHEMICAL HAZARDS (check appropriate category of oil, or attach appropriate MSDS if available).

_x__***Oils containing benzene***: including crude, gasoline, military JP4, commercial JET B, aviation gasoline, gas oils, and feed stocks.

Composition: Composed of an indefinite petroleum distillate mixture. May contain benzene, toluene, xylene, naphthalenes, & PolyAromatic Hydrocarbons (PAHs) in concentrations that may vary widely depending on the source of the oil, weathering, and aging.

Hazard Description: May cause dermatitis by skin contact; nausea by inhalation; and eye irritation. Benzene is a hematological toxin (it affects the blood and blood forming organs), and is a carcinogen. The most important potential benzene, toluene, or xylene hazard is in poorly ventilated areas (such as pits or under docks), or around freshly spilled oil. Benzo(a)pyrene is a skin contact hazard and potentially may cause skin cancer with chronic skin contact. As oil weathers and ages, benzo(a)pyrene becomes more concentrated because it evaporates much slower than other chemicals in the mixture.

Basic Precaution: Stay away from, or upwind of, fresh oil spills; wear chemical resistant clothing as necessary to protect against skin or eye contact; periodically change protective clothing that has oil on it; immediately change clothing that is showing evidence of oil penetrating to your skin; and wash skin with soap and water when changing into street clothing, before eating/drinking, or when exiting to a contamination reduction zone. Flush eyes with water if oil gets in them. If ingested do not induce vomiting-- contact a physician. Urine phenol should be tested as soon as possible (and not later than 72 hours after exposure) if there is a suspected overexposure to benzene. Urine specific gravity should be corrected to 1.024 for this test. If urine phenol values exceed 75 mg per liter further testing in accordance with 29 CFR 1910.1028(i)(4) may be needed, and individuals must be removed from areas of potential benzene exposure until values return to normal.

_x__***Oil not containing benzene***: including kerosene, diesels, military JP5, commercial JET A.

Composition: Composed of an indefinite petroleum distillate content typically including PolyAromatic Hydrocarbons (PAHs). The concentration of these products will vary widely depending on the source of the oil, weathering, and aging.

Hazard Description: May cause dermatitis by skin contact; nausea by inhalation; and eye irritation by contact. Benzo(a)pyrene is a skin contact hazard and potentially may cause skin cancer with chronic skin contact.

Basic Precaution: Wear chemical resistant clothing as necessary to protect against skin or eye contact; periodically change protective clothing that has oil on it; immediately change clothing that is showing evidence of oil penetrating to your skin; and wash skin with soap and water when changing into street clothing, before eating/drinking, or when exiting to a contamination reduction zone. Flush eyes with water if oil gets in them. If ingested do not induce vomiting--contact a physician.

___ ***Bioremediation application***. See attached MSDS information when these products are used.

___ ***Dispersant applications***. See attached MSDS information when these products are in use.

Hydrogen sulfide (H_2S) : H_2S is a clear foul smelling gas that smells like rotten eggs. Although the smell may be detected at very low concentrations, it is not a good warning property because exposure to dangerous concentrations deadens the sense of smell. Hydrogen sulfide is found in certain crude oils ("sour" crudes), and is also generated by decaying organic materials.

Hazard Description: H_2S is very irritating to the eyes even at low concentration. At higher concentrations it is irritating to mucus membranes. Concentrations resulting in respiratory irritation may cause pulmonary edema. It is also a chemical asphyxiant, which causes asphyxiation in a manner similar to cyanide. Other effects include headache, dizziness, excitement, staggering gait, diarrhea, fatigue, and insomnia. H2S is a central nervous system depressant, and high concentrations may cause paralysis of the respiratory system. In addition to health effects, H2S is also a flammable gas

- OSHA PEL: 10 ppm
- OSHA STEL: 15 ppm
- IDLH:300 ppm
- Flammable Range: 4.0 to 44%

Basic Precaution: Avoid areas above exposure limits. Use colorimetric or electronic concentration meters or dosimeters to monitor exposures. For concentrations above exposure limits, positive pressure supplied air or self-contained breathing apparatus must be used. For very high concentrations in confined spaces, monitor for explosive atmospheres.

First aid for exposures includes flushing the eyes with water, and support respiration as needed. Medical treatment must be given for suspected overexposure!

ENVIRONMENTAL MONITORING FOR CHEMICAL HAZARDS: The following monitoring shall be conducted. Monitoring equipment shall be calibrated and maintained in accordance with the manufacturer's instructions (electronic equipment shall be calibrated before each day's use).

INSTRUMENT	**FREQUENCY**
_x_ Combustible gas	___continuous, ___hourly, __x_ daily, Other:
_x_ Oxygen	___continuous, ___hourly, _x__ daily, Other:
__ HNU	___continuous, ___hourly, ___ daily, Other:
_x_ OVA	___continuous, ___hourly, __x_ daily, Other:
__ WBGT/heat stress	___continuous, ___hourly, ___ daily, Other:
__ Noise	___continuous, ___hourly, ___ daily, Other:
__ H_2S Monitor	___continuous, ___hourly, ___ daily, Other:
__ other chemical specific monitors (colorimetric/electronic):	
1. B/W PID	___continuous, ___hourly, __x_ daily, Other:
2.	___continuous, ___hourly, ___ daily, Other:

Additional hazards may be encountered on site and shall (along with any other applicable hazards found during the site survey) be marked on the attached maps.

F. GENERAL SITE SAFETY AND HEALTH PROCEDURES.
The following controls shall be observed on site (check appropriate).

_x_ ***Buddy System:*** Personnel must work within sight of a partner at all times, in the exclusion and decontamination zones. A partner shall be assigned by the site safety supervisor as personnel check in.

_x_ ***Occupational Medical Monitoring***: Personnel shall be enrolled in an occupational medical monitoring program in accordance with 29 CFR 1910.120 (USCG Strike Team Safety and Occupational Health Program Manual, and the USCG Medical Manual).

x__ ***Fires***: Each restriction zone and associated contamination reduction zone shall have at least one each of the following: -

- A fully charged Class A fire extinguisher for ordinary fires
- A fully charged Class B fire extinguisher for liquid fires
- Hand held fog horn to alert personnel

The above items shall be maintained in a readily accessible location, clearly labeled in red, and with the location noted on the project map.

_x_ ***Slippery Rocks and Surfaces***: All personnel in the work area shall wear rubber safety boots with steel toe/shank and textured bottoms. Boat crews may substitute clean deck shoes with textured soles kept free of oil on cloth/leather uppers.

_x_ ***Mud***: Dangerous mud flats posing a trap hazard shall be designated on the site safety map as areas off limits to personnel. Mark these locations with banner tape, barricades, or other

marking equipment.

_x_ ***Lighting***: Fixed or portable lighting shall be maintained for dark areas or work after sunset. Sufficient illumination shall be provided at a minimum to meet the requirements of table H-120.1 (Minimum Illumination Intensities) of 29 CFR 1910.120(m)

_x_ ***Work Near Water:*** All personnel working in boats, on docks, or generally within 10 feet of water deeper than 3 feet, shall wear Coast Guard approved personal flotation devices (PFDs).

__ ***Heat Stress:*** The site safety officer shall make heat stress determinations throughout the day. If it is determined that a heat stress hazard exists, an alert shall be passed to all teams to implement mandatory rest periods. The Site Safety Officer shall generally be guided by the ACGIH guidelines in determining work/rest periods. Fluids shall be available at all times and encouraged during rest periods. (See attached information sheet on heat related health effects).

_x_ ***Cold Stress:*** Workers shall be provided with adequate warm clothing. The Site Safety Officer shall make cold stress determinations throughout the day when temperatures fall below 50 degrees F.

• If a cold stress hazard exists, an alert shall be passed to all teams to implement mandatory rest/ warm-up periods. The Site Safety Officer shall generally be guided by the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines in determining rest/warm-up periods.

• For prolonged cold weather operations, warming shelters shall be provided for rest periods. Warm and/or sweat fluids (such as soups, cocoa, cider, or sweetened--low caffeine--hot teas) shall also be available during rest periods. Drinking coffee should not be encouraged.

• For prolonged water temperatures below 59 degrees F, or a combined water and air temperature less than 100 degrees F, exposure suits shall be worn by personnel working/traveling in small boats or aircraft over water.

_x_ ***High Noise Level:*** Hearing protection shall be used in high noise areas (exceeding 84 dBA, or designated by the Site Safety Officer). Locations likely to exceed this level include: the vicinity of vac-trucks and heavy equipment; bird hazing stations; and generally where noise levels require personnel to raise their voices to be heard.

_x_ ***Drum Handling:*** Drums and containers must be handled in accordance with 29 CFR 1910.120. In general:

• Containers must be labeled and constructed in accordance with EPA (40 CFR 264-265, and 300), and DOT (49 CFR 171-178) regulations

• Temporary holding/staging areas for drums and containers containing waste materials shall be constructed to contain spillage, run-off, or accidental releases of materials

• Manual lifting and handling of drums and containers shall be kept to a minimum. To the

extent possible, mechanical devices designed for that purpose shall be used

_x_ ***Confined Spaces:*** In general, confined spaces shall not be entered during oil spill recovery operations. If confined space entry is required, follow OSHA's confined space regulations (29 CFR 1910.146) and the unit safety and health manual.

__ ***Poisonous/Infectious Insects***: All personnel shall be provided with long sleeved clothing and insect repellent in designated areas.

__ ***Poisonous Snakes***: All personnel working in designated areas shall wear snake proof leggings or hip high rubber boots. Snake bite kits shall be kept with first aid kits in these areas.

__ ***Poisonous Plants***: Long sleeved clothing shall be worn in areas designated to contain these plants.

_x_ ***Electrical Hazards:*** Electrical power lines (buried or overhead) shall be marked on applicable project maps, and physically marked in the field as necessary.

x__ ***Trap Hazards:*** Open manholes, pits, trenches, or similar hazards shall be noted on project maps, and marked with placarded barricades. The site safety supervisor shall ensure that these locations are periodically checked during the day; and additionally in the event that entering personnel are not accounted for at the end of a shift.

_x_ ***Carbon Monoxide***: Equipment operators shall ensure that personnel do not linger or work near exhaust pipes.

_x_ ***Falling Objects***: Hard hat areas determined by site survey shall be noted on project maps.

__ ***UV Light Exposure***: Sunscreens of protection factor 15 (or greater), and UV tinted safety glasses shall be made available for response personnel as needed.

_x_ ***Helicopter Operations:*** Pilots shall provide safety briefing for all passengers (see ref (d) also).

__ ***All Terrain Vehicle*** (ATVs). Drivers shall maintain a safe speed at all times, and shall not be allowed to operate vehicles in a reckless manner. ATV drivers shall not operate ATVs outside of areas and lanes specified by the site safety supervisor.

G. PERSONAL PROTECTIVE EQUIPMENT (PPE) Refer to attachment (a).
General:

Flight Ops (Fixed and Rotary): All personnel will wear a Mustang Type suit (Dry/Immersion –Gumby suit **NOT** required unless determined necessary by Pilot).

Boat Ops: Masters/Commanding Officers will establish requirements for cold weather gear working on weather decks. Minimum requirement is a float coat/Type II flotation device. A Dry suit/Immersion suit will be carried onboard for each person.

Small Boat Ops (skiffs): All personnel will wear a Mustang Type suit (Dry / Immersion

suit is not required to be carried onboard unless determined by Platform master for specific operations such as leaving on the beach for an extended period of time for SCAT operations.

H. DECONTAMINATION PROCEDURES

Contaminated personnel, and personnel entering contaminated areas, shall be decontaminated in accordance with the current work plan or attached decon layout.

I. SANITATION & PERSONAL HYGIENE

Potable water, nonpotable water, toilets and personal hygiene facilities shall be readily available. For further information see 29 CFR 1910.120(n).

J. EMERGENCY PROCEDURES

1. Emergency Medical Procedures:

- Contact local EMS at 911 (In Grand Alaskan 9-911).
- Do not attempt to move seriously injured personnel, call for an ambulance to come to the injured person.
- The closest hospital for regular emergencies is:
___IFHS_____ Phone: _(907)_581-1202 _____
- Closest hospital for chemical exposure emergencies:
__IFHS_____ Phone: _(907) 581-1202_____
- Contact ATSDR (404) 639-0615 (24 hr)

2. Emergency Fire Procedures:

- DO NOT attempt to fight fires other than small fires. A small fire is generally considered to be a fire in the early stages of development, which can readily be extinguished with personnel and equipment in the immediate area in a few minutes time.
- DO NOT take extraordinary measures to fight fires.
- YOU MUST sound the appropriate fire signal if fire can not be put out quickly.
- Alert nearby personnel to call fire department.
- Notify supervisor.
- When the fire alarm is sounded, personnel shall immediately leave the work area WITH THEIR ASSIGNED BUDDY, to the entry/exit point by the designated evacuation route.

- The Site Supervisor OR the Fire Department shall ensure that the fire is extinguished and a temporary fire watch has been posted BEFORE restarting work.

3. Evacuation Routes.

Primary Evacuation Route: _____

_____
_____
_____

Secondary Evacuation Route: _____

_____
_____
_____

Assembly Point: _____

_____

K. COMMUNICATION

1. Hand Signals:

THUMBS UP: I'm OK / I agree.
THUMBS DOWN: don't agree.
HANDS ACROSS THROAT: out of air / trouble breathing
GRAB HAND/ARM: come with me
HANDS ON HEAD: I need assistance
Repeated short blasts from a hand held fog horn shall be used to indicate a fire emergency.

2. Radio Communication:

Working:
freq:_____, chnl:___21_____ (_x_VHF __UHF __CB _____OTHER)

Emergency:
freq:_____, chnl:_____ (__VHF __UHF __CB _____OTHER)

freq:_____, chnl:_____ (__VHF __UHF __CB _____OTHER)

3. Phone Communication:

On-Scene Coordinator:
(_907__)_359-8900 (_voice _fax _cellular _pager _home)
(_____)_____(_voice _fax _cellular _pager _home)

Site Safety and Health Officer:
(_____)_____(_voice _fax _cellular _pager _home)
(_____)_____(_voice _fax _cellular _pager _home)

Agency for Toxic Substance and Disease Registry (ATSDR)
(404)639-0615 (24 hr) (voice) 0655 (fax)
Case officer: _____

ATSDR can provide emergency medical and toxicological information, assist in determining procedures for potential chemical overexposures, and can provide on scene assistance for certain chemical emergencies.

Police:
(_911__)_____(_voice _fax _cellular _pager _home)

Fire:
(_911__)_____(_voice _fax _cellular _pager _home)

Ambulance/EMT/Hospital:
(_____)_____(_voice _fax _cellular _pager _home)

(_____)_____(_voice _fax _cellular _pager _home)

OTHER NUMBERS:
(_____)_____(_voice _fax _cellular _pager _home)

(_____)_____(_voice _fax _cellular _pager _home)

(_____)_____(_voice _fax _cellular _pager _home)

(_____)_____(_voice _fax _cellular _pager _home)

Sign Up Sheet

Team Member (Print Name)	Contact Number (Phone, Pager)	Signature	Date
Melburn Dayton	RM 123		9 Dec 2004
Eddie Athey	907 359-5328		9 Dec 2004
Jonathan Copley	RM 119		10 Dec 2004
Carl Pulliam			10 Dec 2004
John Bollinger			10 Dec 2004

References:
(a) 29 CFR 1910.120 OSHA regulations for Hazardous Waste Sites
(b) 40 CFR 311 Worker Protection
(c) NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH 85-115)
(d) Site Safety Program for Oil Spill Response

ATTACHMENT (_a_): PPE ENSEMBLE DESCRIPTIONS

PAGE 1 LEVEL A ENSEMBLE

OPERATION FOR WHICH THIS LEVEL A ENSEMBLE APPLIES:_M/V SELANGDANG AYU
_____

___ ENCAPSULATING SUIT
- ___ Chemrel Max
- ___ Chem Fab Challenger 6000
- ___ Tychem 1000
- ___ Responder
- ___ Responder Plus
- ___ _____

___ INNER GLOVES
- ___ Nitrile
- ___ _____

___ OUTER GLOVES
- ___ Silvershield
- ___ Solvex
- ___ Ansol
- ___ Fireball
- ___ _____

___ OUTER SAFETY BOOTS
- ___ Neoprene
- ___ Outer booties
- ___ _____

___ SCBA
- ___ MSA 4500
- ___ Nose cup
- ___ _____

___ HARD HAT

___ STEELE VEST

___ EEBA

___ SEE ALSO LEVEL D ENSEMBLE FOR ROUTINE COLD ZONE WORK/REST

___ _____

___ _____

ATTACHMENT (a): PPE ENSEMBLE DESCRIPTIONS

PAGE 2 MODIFIED LEVEL B ENSEMBLE

OPERATION FOR WHICH THIS LEVEL B ENSEMBLE APPLIES: Oil Recovery Operations
_____

__x_ SPLASH SUIT
- __x_ Tyvek
- ___ Saranex
- ___ _____

___ INNER GLOVES
- ___ Nitrile
- ___ _____

__x_ OUTER GLOVES
- ___ Silvershield
- ___ Solvex
- ___ Ansol
- ___ Fireball
- ___ _____

_x_ OUTER SAFETY BOOTS
- ___ Neoprene
- _x_ Outer booties
- ___ _____

___ SCBA
- ___ MSA 4500
- ___ Nose cup
- ___ _____

_x_ HARD HAT (As Crane Operations require)

___ STEELE VEST

___ EEBA
___ SEE ALSO LEVEL D ENSEMBLE FOR ROUTINE COLD ZONE WORK/REST

___ _____

___ _____

ATTACHMENT (a): PPE ENSEMBLE DESCRIPTIONS

PAGE 3 LEVEL C ENSEMBLE

OPERATION FOR WHICH THIS LEVEL C ENSEMBLE APPLIES:_____
_____

___ SPLASH SUIT
- ___ Tyvek
- ___ Saranex
- ___ _____

___ INNER GLOVES
- ___ Nitrile
- ___ _____

___ OUTER GLOVES
- ___ Silvershield
- ___ Solvex
- ___ Ansol
- ___ Fireball
- ___ _____

___ OUTER SAFETY BOOTS
- ___ Neoprene
- ___ Outer booties
- ___ _____

___ FULL FACE AIR PURIFYING RESPIRATOR
- ___ Cartridges:_____
- ___ Nose cup
- ___ _____

___ HARD HAT

___ EEBA

__x SEE ALSO LEVEL D ENSEMBLE FOR ROUTINE COLD ZONE WORK/REST

___ _____

___ _____

ATTACHMENT (a): PPE ENSEMBLE DESCRIPTIONS

PAGE 4 LEVEL D ENSEMBLE

OPERATION FOR WHICH THIS LEVEL D ENSEMBLE APPLIES: General Cold Weather for M/V Selandang Ayu

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__x cloth coveralls (Mustang Type suit)
OPTION: _x_long/___short sleeved coveralls
OPTION: street clothing may be worn by personnel not exposed to splashing liquids or oily equipment with a Mustang Type suit.

_x_ resistant (see note 2) steel toe/shank safety boots with textured bottoms
OPTION: hip high boots (e.g., designated snake areas)
OPTION: deck shoes with textured soles (e.g., boat ops)

_x resistant gloves (as needed)
OPTION: leather gloves (if no contact with oil)

___ hard hat (all personnel in designated areas)

_x safety glasses (as required by Site Safety Officer)
OPTION: with tinted lenses (as required for sunlight)

_x_ PFD (all personnel on or near water)

___ ___full-face/___half mask respirator with:
___organic vapor cartridge (benzene)
___OTHER:_____. See NOTE 3 below.

___ EEBA
___ quart bottle to carry fluids (during heat stress alerts)
_x_ hearing protection (in noisy areas)
___ insect repellant (in designated mosquito/tick areas)
___ sunscreen (as needed for sunlight)
___ whistle (in designated areas)
NOTES:

1) "AS NEEDED" means to use when and in such a way so as to prevent significant skin contact with oil.

2) "RUBBER"/"RESISTANT" means chemical resistant material which resists oil penetrating to the skin or cloth garments underneath. Neoprene is a common material which is resistant to many oils.

Respiratory protection is used in this ensemble as a safe work practice while working around

carcinogens in order to keep low exposures as low as reasonably attainable. For spill response involving oils that may still contain benzene in particular this may be used while working in close proximity to spilled product until benzene has weathered away (typically the first day).

PPE & Decontamination Kits to be carried on board helo's

1. Tivek Suits
2. Eye Protection
3. Rubber gloves
4. Shoe covers

These items are to be carried on board helo's in addition to PPE that is donned. This will aid in decon procedures on the helo and prevent further contamination.

Procedure to include doffing soiled PPE prior to entering aircraft.

Putting on extra PPE to prevent contamination of aircraft.

Once back in the hangar at Unalaska, going through decon procedure.

ATTACHMENT (b): **MOTOR VEHICLE SAFETY BRIEFING**

One of the most dangerous operations performed by pollution response personnel is driving to and from the spill site. This is particularly true when driving vehicles that you are unfamiliar with such as motor pool and rental vehicles.

Familiarize yourself with your vehicle before driving. Walk around and check the outside condition, familiarize yourself with the interior as well, and make all adjustments before driving a vehicle.

___ signs of accident damage:

_____

_____

___ tires inflated
___ gas cap is in place and sufficiently tight
___ front hood and trunk are closed securely
___ spare tire is in good condition
___ locate tire changing equipment
___ locate road emergency kit (government vehicles)
___ check that exterior lights function properly
  ___ headlights (dim)
  ___ headlights (bright)
  ___ parking lights
  ___ emergency flashers (front and rear)
  ___ left turn indicator (front and rear)
  ___ right turn indicator (front and rear)
  ___ brake lights
___ side mirrors adjusted and in good condition
___ adjust the rear view mirror
___ horn works properly
___ seat belts are in good condition
___ locate your sunglasses
___ locate the headlight switch
___ locate the headlight dimmer switch
___ locate the windshield wiper switch
___ locate the windshield washer switch
___ locate panel light brightness adjustment
___ locate heating and air conditioning switches
___ locate radio/cassette control switches
___ with ignition switch on (before ignition) check
  ___ low oil light/gauge
  ___ battery charging failure light/gauge
  ___ engine overheating light/gauge

GET YOUR ATTITUDE RIGHT before driving!

- Pollution response personnel must function with "DELIBERATE speed"... not reckless speed.

- Forget schedules while driving! The road is no place to make up lost time.

- SETTLE DOWN! Do not bring frustrations into the vehicle with you.

- Make up your mind to be the most courteous driver on the road. Forget about getting even with bad drivers on the road. Forget about competing with other drivers.

- Expect other drivers to make stupid mistakes, and prepare to deal with their mistakes.

- Having the right-of-way is no substitute for being alive. Expect the other drivers to break the rules.

Use your parking lights ONLY WHEN PARKED! Use your headlights during all conditions of reduced visibility (dawn, dusk, fog).

Do not drive under the influence of alcohol or drugs. Coffee, cold showers, fresh air, or other "remedies" will not make you sober. Only time will make you sober.

Take frequent breaks about every hour or 100 miles. If you decide to take a nap, pull over at a well lighted rest stop and keep your doors locked while you are sleeping.

Conditions that increase the likelihood of highway hypnosis include:
- driving too long without a break
- driving at night
- staring straight ahead instead of scanning all directions

Look ahead for problems and maintain a safe distance behind the car in front of you.

Slow and steady is the best pace for driving on snow, ice, or other slippery road surfaces. Do not hit your brakes hard or accelerate quickly.

Do not stare into the headlights of oncoming traffic.

ATTACHMENT (c): SAFE WORK PRACTICES FOR HELICOPTERS

Regulations regarding the use of helicopters can be found in 29 CFR 1910.183.

I. BASIC SAFE WORK PRACTICES FOR ALL PASSENGERS/GROUND CREWS:

A. Passengers should receive a safety briefing from helicopter operators including safety features and equipment, their location on the individual aircraft, water landing procedures when appropriate, and emergency information cards before taking off.

B. Passengers or ground crewmembers approaching helicopters shall stay in a crouched position, and shall be in clear view of the pilot while approaching or departing a helicopter.

C. Passengers and ground crew should approach/depart from the Main Cabin Door- RIGHT of the helicopter ONLY when signaled by the pilot; and should NEVER walk under or around the tail.

D. 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.

E. 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.

F. Passengers shall wear seat belts at all times.

G. Passengers and ground crew shall wear hearing protection (including communications headsets, or helmets) at all times around operating helicopters.

H. Passengers shall wear a minimum of a Mustang Type Suit with floatation.

I. Passengers shall generally assist the pilot in watching for other traffic or ground obstacles as directed by the pilot.

J.. During emergency landings in water:

1. Do not exit until rotor blades stop turning or pilot signals all clear.

2. Do not inflate life preservers until outside of the helicopter.

II. SAFE WORK PRACTICES FOR CARGO HANDLING ARE FOUND IN 29 CFR 1910.183 AND INCLUDE:

A. Use proper slings and tag lines in accordance with 29 CFR 1910.183(c) and 1910.184.

B. Testing and use of cargo hooks and electrically operated cargo hooks shall be performed in accordance with 29 CFR 1910.183(d) and (i).

C. Static charge on suspended loads shall be dissipated with a grounding device before ground crew touch the suspended load unless protective rubber gloves are being worn.

D. External loads shall not be lifted unless determined to be within the helicopter manufacturer's recommended rating.

E. Communications shall be maintained in accordance with 29 CFR 1910.183.

F. Ground and flight crewmembers shall be familiar with, and use the manual signaling system described in 29 CFR 1910.183.

Attachment (d): Small Boat Operations

GENERAL MESSAGE		
TO: Operations	POSITION: OPS	
FROM: LCDR Melburn Dayton	POSITION: Safety Officer	
SUBJECT: Small Boat Operations	DATE: 11DEC04	TIME: 1400
MESSAGE:		
In order to consider any small boat for operations as a skiff for shoreside or any operations shall be inspected and approved for consideration as an operational asset. No boat will be permitted to operate as a landing craft, shuttle, boom deployment vessel until determined sea-worthy and safe by a qualified unified command representative . All vessels acting as a platform for operation shall provide a current COI for review before operations can take place.		
SIGNATURE:	POSITION: Safety Officer	
REPLY:		
DATE:	TIME:	SIGNATURE/POSITION:

ATTACHMENT (e): M/V SELENDANG AYU INCIDENT
ENVIRONMENTAL CONDITIONS SAFE OPERATIONS TABLE

PLATFORM	WIND SPEED			WIND DIRECTION				SEA STATE		TEMP W/ H2O AIR		CEILING/ VISIBILITY		
	<30	<40	>40	N	S	E	W	<3	10	>10	< 32	>32	500/2	<500/2
HELO														
HH-60														
HH-65														
FIXED-WING														
SHIPBOARD														
SYCAMORE														
M/V REDEEMER														
M/V CAPE FLATTERY														
M/V JOSHUA														
SKIFFS														

Safety Notes:

Boarding M/V Selendeng Ayu with Salvage Personnel will be in accordance with American Salvage Association safety guidelines (Atch f). It will be performed utilizing a USCG HH-60 Jayhawk helicopter. The above established safety parameters are for routine incident response operations and will be used as a guideline for the salvage determination tasking. The FOSC, Aircraft Commander and the Boarding Salvage personnel will reach agreement at time of tasking for specific operational weather parameters. The AC and Boarding Salvage personnel will make an on-scene determination for actual boarding based on sea state, projected duration of safe weather conditions and M/V Selandang Ayu stability. Primary and secondary Comms will be established prior to boarding for Emergency Egress from M/V SA. See Safety Plan for established PPE, safe cold weather ops and confined space entry procedures.

Attachment (f): AMERICAN SALVAGE ASSOC SAFETY PLAN

ASA SALVAGE SAFETY STANDARDS (ASA-SSS)

1. OBJECTIVES OF THE ASA SALVAGE SAFETY STANDARDS

1.1 The American Salvage Association (ASA) recognizes the inherent differences and unforeseen difficulties attendant to any marine casualty as compared with general marine transportation as a primary mover of loads and products. In order to ensure job safety as a primary and identified goal of any marine salvage and wreck removal operation, the ASA promotes domestic and world-wide safety standards. While fully recognizing international and existing safety standards, the ASA, nevertheless, has established its own Salvage Safety Standards, the objectives of which are to ensure safety at sea, prevention of human injury and loss of life, the avoidance of damage to the marine environment and preservation of property.

1.2 Only by planning, organizing and implementing the safety elements affecting this unique business of salvage and wreck removal can the industry expect to attain the highest level of success and environmental protection.

2.0 PRECEDENCE

2.1 The Salvage Safety Standards are the primary source of reference for the conduct of all operations in a salvage/wreck removal operation and shall be used in conjunction with the member company's own safety standards and practices. Members of the ASA will strictly adhere to the ASA Salvage Safety Standards unless emergency conditions evolve during the salvage/wreck removal operation that would necessitate, in the judgment of the Salvage Master and in the interests of safety mitigation, a temporary deviation. The ASA Safety Standards are intended to complement other domestic and international procedures, instructions or guidelines, as applicable, and shall work in conjunction with the AWORP and the ISM Code, where appropriate.

3.0 ASA Safety Policy

3.1 The following safety policies and procedures shall serve as the ASA Salvage Safety Policy.

3.2 The ASA is committed to safety in all phases of a salvage/wreck removal operation. ASA members must make every effort to fully comply with all applicable laws and regulations. Recognizing the unique nature of casualty response, the ASA Salvage Safety Standards supplement existing legislated safety standards as a means of providing additional protection for our members and their employees, the

environment, equipment and cargo. Every ASA member is expected to give his full support to the promotion of safety.

3.3 The ASA believes that most accidents that occur during a salvage/wreck removal operation are preventable by establishing rules and safe working procedures, exercising good judgment, and using common sense, adhering to reasonable standards and rigorously enforcing those standards. All ASA members and their employees have the opportunity and responsibility to protect themselves and to contribute to the protection of their fellow crewmembers, the environment, and the equipment for which they are responsible.

3.4 The individual is always directly responsible for his immediate actions, or inaction, and is therefore the only person who can guarantee his own safety. A job is done well only when it is done safely.

3.5 ASA members expect to maintain efficiency in our daily operations by doing every job safely and correctly the first time and every time. ***Accidents and injuries that occur as a result of carelessness or attempting to save a few minutes are unacceptable.*** Everyone is expected to recognize the need to practice "safety first" when engaged in any task.

3.6 Safety policies or procedures are always subject to amendment if a member has a suggestion for a better way. Everyone is encouraged to participate in the development of new procedures, or revisions to existing procedures, by making recommendations to the Salvage Safety Standards. Each company must establish a protocol for receipt of suggestions and improvement of present practices.

4.0 What is a Site Safety and Health Plan (SSHP)

4.1 The Site Safety and Health Plan, generally and herein referred to as the Site Safety Plan or SSHP, is specific to the site where a salvage or wreck removal operation takes place, to the specific operation, to the techniques and work methods, and to the equipment that will be used during the operation. The Site Safety Plan has four (4) purposes:

1. to lay out safety procedures and methods required for the site.

2. to spell out operational safety practices and procedures that will be used during the operation.

3. to be a practical plan that is useful throughout the operation.

4. to fulfill regulatory requirements.

4.2 Throughout the plan, Company Safety Manuals and Safe Operating Practices Manuals may be cited—with appropriate chapter and verse. These manuals should be available at the site for review by regulators and the use of workers and supervisors.

5.0 Procedures

The ASA has developed a specific set of procedures to ensure the priority of safety during a salvage/wreck removal operation. Each member of the ASA has agreed to follow these procedures in the preparation of individual salvage/wreck removal operations.

5.1. *Site Safety and Health Plan*

Care must be taken to ensure that safety, including the prevention of human injury or loss of life and the occurrence of damage to the marine environment and to the preservation of property, is a primary obligation of the Salvor during the entire salvage/wreck removal operation. As a result, a site specific safety plan must be incorporated into the overall Salvage Plan and must include:

- health and safety analysis for each site task or operation;
- comprehensive operations work plan;
- personnel training requirements;
- PPE selection criteria;
- site specific occupational monitoring requirements;
- air monitoring plan, if needed;
- site control measures;
- confined space entry procedures (if needed);
- pre entry briefings, (tailgate meetings) initial and as needed;
- pre-operations commencement health and safety briefings for all incident participants;
- and quality assurance of SSHP effectiveness.

A sample Site Safety and Health Plan is provided in Appendix “B”.

5.2 Daily Briefings and Reporting

A safety briefing shall be held at the commencement of each work day. All elements of casualty response underway shall be discussed, including

- a review of diving operations;
- an update on vessel operations;
- status of all heavy lift operations;
- status of all rigging;
- status of all refloating operations;
- weather conditions;
- a review of safety hazards and dangerous situations encountered, corrective actions taken, effectiveness of these actions and any other additional recommendations;
- status of unmet safety requirements and procedures;
- new hazards or safety requirements and procedures;
- employee comments and feedback
- any other issue/activity to be conducted during the day.

5.3 Vessel/Equipment Inspections

Equipment should be subject to inspection upon arrival at the site of the casualty. Any salvage work should have safety standards for equipment, including inspections before delivery to the work site. Those organizations which follow AWORP, ISM Code or other safety programs should ensure adherence to these programs and/or codes.

Vessels should, where appropriate, be classified by a recognized classification society. If appropriate, the ISM should be identified, approved and current. Inspections should be made on each vessel to ensure safety is being maintained as well as all licensing requirements for navigating crew. Appropriate insurance on all vessels and equipment must be confirmed.

5.4 Subcontractors

When utilizing subcontractors, professional salvors who are members of the ASA should be conscious of subcontractors' safety standards and safety programs. To the maximum extent possible, subcontractors should be chosen on the basis of their safety record and demonstration of a safety program in their operations. When fellow members of the ASA are integrated by subcontract, there is the advantage of a common safety program. When the subcontractor is not a member of the ASA, the subcontractor's safety program should be reviewed carefully to ensure that it can be incorporated into salvor's safety program. If changes are required to ensure an integrated safety program, these changes should be made to subcontractor's safety program before the subcontractor begins work at the salvage site. Adequate and appropriate insurance must be provided and reviewed as necessary.

5.5 Salvage Master's Log

The Salvage Master must keep an independent log of daily salvage activities. This log is to be completed and maintained according to industry standards and in accordance with any applicable regulatory requirements. Sufficient entries are to be made to ensure that the salvage operation can be understood from the log itself.

Specifically, entries in the Salvage Master's log as they relate to safety shall include, but not be limited to the following:

- acknowledgement of safety program;
- acknowledgement that inspections have been carried out;
- deficiencies have been corrected;
- times and details of accidents and deaths at the salvage site;
- notation of damage to or loss of any important articles or fixtures;
- any occasion of touching ground, colliding with ship or any other fixed or floating object, including the time of accident, the names of deck and engineering officers and other bridge personnel. The name and port of registry of any other ship involved shall also be recorded;
- description of the weather, wind, sea and corrected barometer and any unusual phenomenon;

- full particulars of any contravention or suspected contravention of Oil Pollution Prevention Regulations and actions taken;
- names and descriptions of any vessels, lighters, barges or small craft alongside including time of arrival and departure;
- any damage caused by vessels alongside;
- times of commencing and ceasing to load or discharge;
- times of departure and return of ships;
- any other entry that is required by regulation;
- copies of reports required by regulation or submitted to any agency.

The Salvage Project Manager should have copies and overall control of the salvage logs.

6.0 Roles and Responsibilities

6.1 An outline of the roles and responsibilities for each member of a Salvage Team is attached as Appendix A.

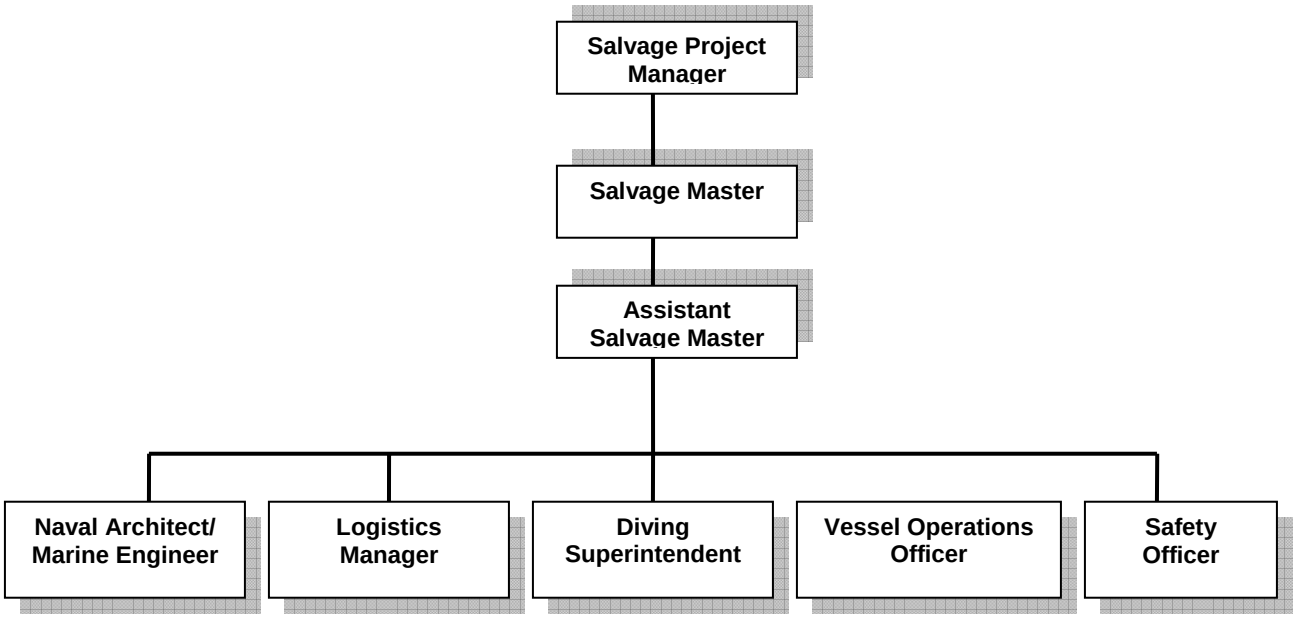
APPENDIX A

ROLES AND RESPONSIBILITES OF A SALVAGE TEAM

1.0 Typical Organizational Matrix

Due to the uniqueness of its operations, there is no one standard organizational structure or matrix for a salvage/wreck removal project.

An example of a possible organizational matrix is shown here.



2.0 Responsibilities

It is a high priority in any salvage/wreck removal operation that working conditions are favorable to the safety and health of employees and any persons at the site of the casualty. All members of the salvage team are committed to protecting all persons at the site of the casualty and all property from accidental loss or damage. To fulfill this commitment, the salvage team will provide support and maintain a safe and healthy work environment that complies with and at times exceeds regulatory requirements as the team strives to eliminate any foreseeable hazards which could cause personal injury or illness, loss or damage to property or loss to the environment. The role and responsibilities of each key member of the salvage team are discussed in the following sections.

2.1 Salvage Project Manager

In incidents of high visibility and either real or potential, substantial adverse environmental impact, a salvage project manager who directs overall activities and integration of efforts with regulating agencies, owner, underwriter, media,

environmental groups, special interest groups and the general public must be appointed. This appointment is mandatory whenever an Incident Command System is utilized. The Salvage Project Manager must insure that the salvage safety plan is not only being actively engaged in all respects but that the other participants are aware of the program and are playing a part in support of the total safety of all elements of the operation.

2.2 Salvage Master

The Salvage Master has overall accountability in all respects for the salvage/wreck removal operation. He is responsible for the formulation, development, implementation and monitoring of the salvage plan to ensure an effective and efficient salvage operation. He is ultimately responsible for its success or failure. Above all others, the Salvage Master is responsible for accomplishing the goals of the salvage operation, the safety of the salvage personnel, the equipment used during the salvage operation, preservation of property, and the protection of the environment. All other positions described below report to the Salvage Master and provide him with advice and assistance in the particular area of expertise.

The Salvage Master's specific responsibilities with regard to safety are:

- review and execute the Site Safety Plan for the operational area.
- ensure that personnel safety and health receive top priority in all phases and areas of operations.
- coordinate safety and health issues and requirements pertaining to both pollution response and salvage operations.
- serve as the final safety and health authority for the salvage operations.
- review and approve accident reports.
- review and approve supervisory safety meeting minutes/reports.
- order work to stop if there is an immediate danger to life and health (IDLH) and consult with supervisor and managers to determine and carry out corrective actions before allowing work to resume.
- report safety deficiencies and provide recommendations to correct deficiencies to ICS Command; monitor implementation of recommendations.
- review work plans to identify safety deficiencies and requirements and coordinate with supervisor and manager to resolve deficiencies and meet requirements.

2.3 Naval Architect/Marine Engineer

The Naval Architect or Marine Engineer has the responsibility to plan the technical and engineering aspects of the salvage/wreck removal operation and to then oversee its safe and orderly execution in accordance with the approved engineering plans. All technical and engineering work is subject to and conditioned by safety considerations.

2.4 Logistics Manager

The Logistics Manager is directly responsible to the Salvage Master for planning, organizing, directing and controlling all support services, both materiel and

administrative, during the entire salvage operation. He assists the Salvage Master and the Safety Officer in the interface with regulatory and other interested parties and is tasked with making these individuals aware of the safety program for the particular salvage/wreck removal operation. The Logistics Manager must ensure that all safety equipment is available to suit the tasks for which the equipment will be used.

2.5 Diving Superintendent

The Diving Superintendent reports to the Salvage Master and is responsible for all diving operations deployed during the salvage/wreck removal operation, including:

- the preparation of all diving plans to ensure that procedures issued by the regulatory authority responsible for the enforcement of the regulation for the safety and protection of divers are identified, are incorporated into the salvage plan and will be observed by the diver conducting the dive;
- the provision of safe working conditions to the highest standards;
- emergency and contingency planning;
- maintenance and verification that all diver logbooks are up to date;
- verification and inspection of all diving equipment;
- verification of fitness to dive certifications, as applicable.

2.6 Vessel Operations Officer

The Vessel Operations Officer is accountable for managing and directing the cost effective operation and deployment of all vessels and other delivery platforms used to fulfill the salvage plan requirements during the salvage/wreck removal operation. He is responsible to manage the acquisition and in-service support of all vessels and other delivery platforms and their installed equipment identified in the salvage plan and to ensure that the vessels and other delivery platforms and their installed equipment and systems are maintained in accordance with the relevant standards and regulations throughout their in-service operation in support of the salvage/wreck removal operation. An inspection of all vessels employed in the salvage/wreck removal operation should be made when possible and practicable. A Vessel Operations Officer is required in a substantial operation where significant subcontracted assets are in use.

2.7. Safety Responsibilities of the Logistics Manager, Diving Superintendent and Vessel Operations Officer

The Logistics Manager, Diving Superintendent and Vessel Operations Officer are specifically responsible to:

- assist in the development, review and execution of the Site Safety Plan for their operational area;
- assist in the coordination of safety and health issues and requirements impacting other operational areas;
- assist in monitoring the effectiveness and implementation of the Site Safety Plan through their supervisors the Safety Officer;

- review and approve all accident reports for their operational area;
- review and approve work plans.

2.8 Safety Officer

The Safety Officer reports directly to the Salvage Master on a day-to day basis and is accountable to him for all matters concerning safety, including safety of personnel, equipment and protection of the environment. Specifically the Safety Officer is responsible to:

- create a site specific safety plan;
- implement the salvage safety plan;
- immediately correct action of any noted deficiency;
- create and implement other safety documentation, when necessary;
- brief visitors and subcontractors on Site Safety Plan;
- conduct investigations of accidents, prepare reports, and review reports and results with operational managers;
- oversee Safety meetings and briefing.;
- conduct periodic safety inspections and report findings and results to the Salvage Master;
- review and approve requirements for personal protection equipment (PPE), oversee use of PPE, monitor PPE use;
- review and maintain MSDSs if necessary;
- monitor reported adverse physical conditions of personnel and determine if the individual is capable of participating in an activity.

2.9 Safety Responsibilities of Supervisors

- Review, monitor and implement Site Safety Plan.
- Enforce the wearing and proper use of all required PPE, and established safety and health procedures.
- Monitor employee condition during work.
- Inspect the work site for safety deficiencies, safety violations, and unsafe situations.
- Make on-the-spot corrections of safety hazards whenever possible, or if not possible, contact Safety Officer.
- Stop work if there is an Immediate Danger to Life and Health situation, notify the Safety Officer and the Salvage Master, evacuate if necessary, and do not resume work until cleared by Safety Officer and Salvage Master.
- Assist the Safety Officer in the investigation of accidents.
- Revise and resubmit work plans when there are changes in procedures, as required.
- Report all injuries and illnesses and physical conditions that may impact performance and safety (blisters on feet, weak knees, twisted ankle, colds, fever, etc.). to the Safety Officer within 24 hours.

2.10 Safety Responsibilities of All Hands

- Work safely.
- Review and comply with the Site Safety Plan.
- Comply with established safety procedures and work plans.
- Use PPE as trained/instructed; do not modify PPE without consulting with the assigned supervisor and the Safety Officer.
- Report all dangerous situations or safety hazards to supervisor.
- Stop work if an Immediate Danger to Life and Health situation exists and stopping work will not endanger other workers/operations; in all events, report situation immediately to supervisor.
- Monitor the condition of other employees, especially work partners at hazardous work sites.
- Report all injuries, illnesses and physical conditions that may impact performance and safety to supervisor.

APPENDIX B

SITE SAFETY AND HEALTH PLAN

TABLE OF CONTENTS

F. Personal Protective and Safety Equipment
G. Monitoring Equipment and Procedures
H. Decontamination
I. Medical Surveillance

VII. EMERGENCY PROCEDURES AND FACILITIES

VIII ACCIDENT REPORTING AND RECORD KEEPING

IX. SIGNALS, WARNING SIGNS, AND SIGNALING

A. Site Plan
B. Work Plan
C. Safety Plan Acceptance Sheet
D. Initial Safety Briefing
E. Daily Safety Briefing
F. Hospital Route Map
G. Hospital Route Map

SITE SAFETY AND HEALTH PLAN (SSHP)

FOR SALVAGE OR WRECK REMOVAL

I. *INTRODUCTORY MATERIAL*

Contractor:

Customer:

Contract Number:

Task Order Number:

Site Name:

Site Location:

Purpose of Work: Contains a brief description of the purpose of the work to be conducted on the site

Prepared By: _____, Safety Officer

Office / Address:

Telephone: ( ) _____

Facsimile: ( ) _____

Email _____

Date Prepared: _____

Signature: _____ **Date:** _____

Reviewed By (Title and Signature):	Date
Salvage Project Manager:	
Salvage Master:	
Diving Superintendent:	

All site safety procedures will be in accordance with this Site Safety and Health Plan. All personnel involved in handling oil and hazardous materials will have the appropriate level of OSHA HAZWOPER training as delineated in 29 CFR 1910.120 with current certification. This Salvage Site

Safety and Health Plan includes the Diving Operations Health and Safety Plan and may be integrated in a single Site Safety Plan for the entire casualty response. All safety procedures will be in compliance with or exceed the regulations of the United States Coast Guard, OSHA, the Safety Standards of the American Salvage Association, and the Safety Manuals and Safe Practices Manuals of the Salvage Contractor and his subcontractors. This Site Safety Plan will be maintained by the Salvage Master and the Safety Officer.

Visitors to a field location or aboard the casualty will be held to a minimum. Everyone visiting field locations or aboard the casualty will wear appropriate PPE and will be escorted at all times by a representative of the Salvage Company. Visitors will not touch, move, or excavate any materials without express permission of the Salvage Manager or Salvage Master.

The Safety Officer may modify this plan with risk to human safety and health if site conditions warrant. All modifications will be coordinated with the Salvage Project Officer and Salvage Master

II. *SITE DESCRIPTION*

Contains a brief description of the location, size and make up of the casualty and the shore site.

A. The Casualty

1. The Ship or Vessel

A brief description of the casualty and its current condition.

2. Cargo

A brief description of the cargo and its stowage with identification of any cargo covered by the IMDG Code or which is potentially polluting.

3. Bunkers

A brief description of the type, quantity and location of bunkers and other oils aboard the casualty.

B. Weather

A brief description of the weather that may be expected at the site during the expected period of the operation and the sources of weather information.

C. The Shore Site

1. Site Map and Chart:

A site map and nautical chart of the casualty area are provided as Attachment 1 to this Plan. (A site map is required and can be hand drawn; the chart should be a replica of the appropriate section largest scale chart covering the casualty location and operations area). Site work zones are marked on the site map and chart.

2. Present Use: (Check all that apply)

[ ] Military	[ ] Recreational	[ ] Other (specify)
[ ] Residential	[ ] Commercial	[ ] Unknown
[ ] Natural Area	[ ] Industrial	
[ ] Agricultural	[ ] Landfill	

[ ] Secured [ ] Active
[ ] Unsecured [ ] Inactive

3. Known Past Uses:

Contains a brief description of known past uses of the site.

4. Surrounding Population:

Contains a brief physical description of the site, its flora. fauna and human population. Known dangerous, threatened, or endangered species at the site should be noted.

[ ]	Rural	[ ]	Residential	[ ]	Other (Specify)
[ ]	Urban	[ ]	Industrial	[ ]	
[ ]	Remote location	[ ]	Commercial	[ ]	

5. Previous Sampling /Investigation Results:

Contains a listing of the air, water, soil, and vegetation samples known to have been taken at the site and the results of the analyses.

Type of Sample	Date	Sampling Method	Analysis Results
Air, Water, Soil, Vegetation			

III. *WORK PLAN AND OBJECTIVES*

A. Overall Objectives

All work shall be conducted in accordance with procedures established during pre-salvage or entry briefings and the attached work plans.

Overall objectives include:

1. accomplishment of the purposes of the work;
2. preservation of property;
3. protection of the environment;
4. protection of personnel from death or injury;
5. a plan to be implemented in the event of personal injury.

B. Daily or Shift Objectives

Daily or shift objectives include:

1. accomplishment of specific work aboard the casualty, ashore, afloat or underwater for the day or shift;
2. safety issues particularly relevant to the day's or shift's work;
3. daily or shift objectives shall be developed daily and shall be described during the daily or shift change presalvage/entry briefing.

Complete salvage (or wreck removal) and diving operations work plans are provided as Attachment 2 to the Site Safety and Health Plan. Brief descriptions of the work are in the paragraphs below.

C. Activities/Tasks to be Performed:

1. Ashore:

A brief description of tasks to be formed ashore.

2. Afloat:

A brief description of tasks to be performed afloat.

3. Diving Operations:

A brief description of diving operations to be conducted.

IV. *SITE SAFETY ORGANIZATION*

A. Salvage Project Manager: _____

Office: _____

Address: _____

Phone: ( ) _____

B. Salvage Master: _____

Office: _____

Address: _____

Phone: ( ) _____

C. Safety Officer: _____

Office: _____

Address: _____

Phone: ( ) _____

D. First Aid/CPR Certified Personnel:

The personnel listed below are CPR/first aid trained.

Name	Position	Vessel or Group	Qualification

E. Key Personnel

The following key personnel involved in this salvage operation are:

- Federal On-Scene Coordinator (FOSC)
  _____
- Incident Commander (IC)
  _____
- Federal On-Scene Coordinator's Representative (FOSC Rep)
  _____
- Salvage Project Manager
  _____
- Salvage Master
  _____
- Operations Supervisor
  _____
- Diving Supervisor
  _____
- Logistics Supervisor
  _____
- Site Safety & Health Officer (SSHO)
  _____
- Site Safety & Health Supervisor (SSHP)
  _____
- Public Affairs Officer (PAO)
  _____
- Scientific Support Coordinator (SSC)
  _____
- National Pollution Fund Center Case Officer (NPFC CO)
  _____
- US Coast Guard Contract Supervisor
  _____
- State Rep _____
- Local Rep _____
- Other Federal, State & Local Reps
  _____
  _____

- RP's Rep _____
- RP's On-Site Rep
  _____

V. HAZARD ANALYSIS

A. Anticipated Health Hazards

1. General Hazards Ashore:

[ ] Heat Stress	[ ] Overhead Hazard	[ ] Tripping Hazard
[ ] Cold Stress	[ ] Electrical	[ ] Water Hazard
[ ] Noise	[ ] Biological	[ ] Dangerous Plants
[ ] Foot Hazard	[ ] Confined Space	[ ] Dangerous Animals
[ ] Radiological	[ ] Climbing Hazard	[ ] Storm

[ ] Explosive
[ ] Flammable
[ ] Huntavirus
[..]Falling Objects
[ ] Other (Specify)

2. General Hazards Afloat and aboard the casualty:

[ ] Heat Stress
[ ] Cold Stress
[ ] Noise
[ ] Foot Hazard
[ ] Radiological
[ ] Explosive
[ ] Flammable
[ ] Heavy Rigging
[ ] Heavy Lifting
[} Oxygen Deficiency
[ ] Marine Operations
[ ] Shallow Water Operations
[ ] Ship to Ship Transfers
[ ] Helicopter to Ship Transfers
[ ] Electrical
[ ] Biological
[ ] Confined Space
[ ] Climbing Hazard
[ ] Unknown Chemicals
[ ] Dangerous Surfaces
[ ] Tripping Hazard
[ ] Falling Objects
[ ] Overhead Hazard
[ ] Water Hazard
[ ] Helicopter Operations
[ ] Diving Operations
{ } Storm
[ ] Other (Specify)

B. Overall Hazard Evaluation

An evaluation of the overall hazard for each segment of the operation (low, medium, or high), with notes as to any particular hazards that are unique or are unusually prevalent.

Overall Hazard Evaluation		
Operation	**Overall Hazard Level**	**Comment**
Shore Operation	High, Medium, or Low	
Afloat/ Aboard Casualty		
Diving		

VI. ACCIDENT PREVENTION

Prior to the start of work, all hands are required to read this plan and to sign the form acknowledging they have read and will comply with it. In addition, the Safety Officer and supervisors will hold a daily safety briefing in which specific topics regarding the day's work will be discussed. A copy of the Site Safety plan will be available at the job site for reference by all hands.

A. Site Control

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

2. No person shall enter a site without subscribing to this or another appropriate Site Safety Plan.

3. The buddy system is mandatory for everyone on the site.

4. In general, all personnel on the site shall be trained adequately to perform their assigned tasks safely.

5. All personnel entering the site shall be fully informed about the applicable hazards and procedures on site.

6. Heavy equipment operators will receive instructions and shall demonstrate proficiency in the operation of the equipment. Training and qualification will be documented.

7. All divers will be trained on basic emergency pollution response operations with emphasis on the safety requirements and procedures. Training will be documented.

8. While on duty, employees may not use or be under the influence of alcohol, narcotics, intoxicants, or similar mind-altering substances. Employees found to be under the influence of or consuming such substances will be immediately removed from the job site.

B. General Safe Work Practices

1. **Unanticipated Hazardous Conditions:** At any sign of unanticipated hazardous conditions, stop tasks, leave the immediate area, and notify the Safety Officer.

2. **Electrical Storms**: When lightning could occur, all operations shall cease.

3. **High Seas or Surf***:* Work shall be halted in seas or surf high enough to prevent safe work

4. **Eating and Drinking**: Smoking, chewing, eating, drinking, and applying lip balm, sun block, etc. is allowed only in designated areas

5. **Material Handling Procedures:** In compliance with the Work Plan and the Company Safety Manual.

6. **Drum Handling Procedures:** In compliance with the Work Plan and the Company Safety Manual.

7. **Confined Space Entry:** In compliance with the Company Safety Manual. A permit, air monitoring, and rescue plan is required.

8. **Ignition Source and Electrical Protection:** Smoke in designated areas only. Only intrinsically safe equipment is allowed in areas where explosive or flammable liquids of vapors are present.

9. **Spill Containment:** Required for refueling operations and other areas where pollutants or hazardous materials are handled or stored.

10. **Excavation Safety:** Do not enter trenches and/or excavations, until approved by competent person

11. **Illumination:** Work during daylight hours or with illumination per OSHA requirements.

12. **Sanitation:** Sanitary facilities will be provided in work areas. The following apply:

    a. An adequate supply of drinking water shall be available at all times.

    b. Adequate toilet and washing facilities shall be available at all times.

    c. Use of common cup (a cup shared by more than one worker) is prohibited. Unused disposable cups shall be kept in sanitary containers and waste receptacles shall be provided for used cups.

    d. Outlets dispensing non-potable water will be conspicuously posted CAUTION - WATER UNFIT FOR DRINKING, WASHING OR COOKING.

13. **Buddy System:** At all times two persons on-site shall maintain constant contact with one

another.

14. **Clear Access**: All stairways and accesses shall be kept free of materials and obstructions at all times.

15. **Heat Stress/Cold Stress:** Dress appropriately. Take sufficient breaks and drink plenty of fluids. Watch for signs/symptoms of heat or cold stress. Monitoring may be applicable depending on site weather conditions and type of PPE worn.

C. General Safety Precautions

1. Fire Protection

a. Fire-fighting equipment shall be provided and installed in accordance with recommendations of the National Fire Protection Association and U.S. Coast Guard Regulations.

b. When an unusual fire hazard exists or emergencies develop, additional fire protection shall be provided as required by the Safety Officer.

2. Poisonous and Harmful Substances Material Handling, Storage and Disposal

a. When any hazardous substance is procured, used, stored, disposed of, or discovered aboard the casualty or elsewhere on the site, material safety data sheets (MSDS) for the substances shall be available at the work site.

b. All employees shall use protective equipment for protection from poisonous and hazardous substances.

c. Containers of hazardous chemicals will be labeled, tagged or marked in accordance with 29 CFR 1910.1200.

d. All incompatible materials will be segregated and stored properly.

e. All chemicals, to including oils and fuels, will be labeled. This includes any pipelines, hoses and storage containers, including drums.

f. Non-hazardous wastes will be stored separately from hazardous wastes. Containers for both wastes will be marked accordingly and will include a warning not to mix them.

3. Electrical Wiring and Apparatus

a. All electrical equipment shall conform to Underwriters Laboratory Standards.

b. Electrical tools shall have ground fault protection when appropriate.

c. Temporary wiring shall be guarded, buried or elevated to prevent accidental contact by workers or equipment.

4. Hand and Power Tools

a. As required by the Safety Manual caution shall be exercised in the use of all tools.

b. Power tools shall be inspected, tested, and determined to be in safe operating condition prior to use.

c. Safety lashing shall be provided at connections between tool and hose and at all quick makeup connections on hydraulic and pneumatic tools.

5. Rigging and Lifting

a. All rigging, rigging appliances, tension members, and fittings shall be used within the safety recommendations and safe working load limits of the manufacturer.

b. Wire and fiber rope, hooks, shackles, rings, and other fittings that show excessive wear shall be taken out of service.

c. All hands shall stand clear of wire and fiber ropes that are being hauled or tensioned or that are under tension.

d. Personnel shall not work or pass under the buckets or booms of operating cranes or loaders, except as necessary.

e. Cranes will not be loaded in excess of the certified load.

f. Braking equipment capable of stopping, lowering and holding a load shall be provided.

g. A standard signal system shall be used on all hoisting equipment.

h. Crane operators shall not do anything which will divert their attention while operating cranes.

i. There shall be at least three full wraps (not layers) of cable on the drums of hoisting equipment at all times.

6. Machinery and Mechanized Equipment

a. All machinery shall be operated in accordance with the appropriate Safety Manual and Operating Instructions.

b. Preventive maintenance procedures recommended by the manufacturer shall be followed.

D. Job- and Site-Specific Safety Precautions

This section provides specific safety precautions for the particular job and job site as developed by the Safety Officer and the Salvage Master.

1. Special Safety Precautions.

In addition to the above, the Salvage Master is responsible for any special safety precautions that are to be taken aboard the casualty and for compliance with good salvage safety practice as addressed in the Company Safety Manual.

In like manner, the Diving Superintendent is responsible for special safety precautions in diving operations as for compliance with the appropriate OSHA and US Coast Guard Regulations and for compliance with his company's Safe Practices Manual.

The Vessel Operations Manager is responsible for any special maritime safety precautions suited to the operation and its particular conditions and for compliance with good maritime

safety practice and with the Safety Manuals of the company or company's involved in the operation.

E. Safety Briefings

1. All employees should be made aware of the Accident Prevention Program. They will attend daily safety meetings and should be encouraged to report any dangerous conditions to their supervisors. All personnel shall receive an initial orientation/briefing on the Site Safety Plan which will be documented by means of a signature sheet. A typical Safety Plan Acceptance Sheet is provided as Attachment 3.

2. Field supervisors will conduct safety meetings each day for all workers. A brief of the meeting giving date, time, attendance and subjects discussed shall be retained on site and a copy given to the Safety Officer. As a minimum, the subjects covered shall include:

    - a review of safety hazards and dangerous situations encountered, corrective actions taken, effectiveness of these actions, and any additional recommendations.
    - status of unmet safety recommendations.
    - new hazards or safety requirements and procedures.
    - employee comments/feedback.

3. All visitors to the site, including subcontractors, will receive an orientation/briefing on the Site Safety Plan as applicable to the purpose of the visit or subcontractor work. Subcontractors will be responsible for the safety of their employees and will have a subcontractor safety plan that meets the applicable requirements of this Site Safety Plan. The subcontractor safety plan will be reviewed and approved by the Safety Officer as well as by operational managers before the subcontractor begins work.

4. Copies of forms for acknowledgement of initial briefings and for daily safety briefing records are provided as Attachments 4 and 5.

F. Personal Protective Equipment and Safety Equipment.

1. Employees shall wear clothing suitable for the weather and work conditions; the minimum for field work shall be short sleeve shirt, long trousers, and leather or other protective work steel-toed shoes or boots and hard hats. Foul weather gear appropriate to existing conditions may be worn.

2. Persons involved in activities with potential exposures to hazardous materials will use PPE as prescribed in work plans.

3. Site visitors should be appropriately attired for their visit and if required trained in and equipped with the proper PPE.

4. Life rings shall be provided on each safety skiff and the casualty.

5. All employees working over or adjacent to water shall wear life vests.

6. All floating plant shall be equipped in compliance with applicable Coast Guard regulations.

G. Monitoring Equipment and Procedures

If monitoring of the presence or concentrations of hazardous materials is required by the salvage operator, the monitoring equipment and procedures should be described in this paragraph. A statement that monitoring is required in accordance with procedures and with equipment provided in an attachment is acceptable. If no monitoring is required, a statement should be made to that effect.

H. Decontamination

If decontamination of people and equipment is required by the salvage operation, the equipment and procedures should be described in this paragraph. A statement that decontamination is required in accordance with procedures and with equipment provided in an attachment is acceptable. If no decontamination is required, a statement should be made to that effect.

I. Medical Surveillance

If most on-site personnel in the salvage operation are on the Medical Surveillance Program meeting the requirements of 29 CFR 1910.120, and ANSI Z-88.2, depending on the PPE and site-specific tasks, it should be stated here. It should also be stated if, based on the risk assessment, not all personnel are required to have current OSHA or a medical exam. If, at any time, the risk exceeds the assessment, the Safety Officer will direct personnel to avoid the affected areas.

VII. EMERGENCY PROCEDURES AND FACILITIES

1. Workers and supervisors shall be alert to the dangers associated with the site and the operations at all times. If an unanticipated hazardous condition arises, stop work, evacuate the immediate area and notify the Safety Officer.

2. Telephone numbers or other means of quick communication to the police, Coast Guard and emergency medical treatment shall be posted at the site. Emergency numbers are:

Coast Guard	
Fire /Police/Ambulance	911
Highway Patrol	
Poison Control Center	
CHEMTREC	800 424 9300
Helicopter Services	
Safety Officer	
Salvage Project Manager	
Salvage Master	
Diving Superintendent	

3. Hospitals:

   Closest Hospital: _____
   Distance: _____miles

Name:	
Address:	
Telephone:	
Driving Directions:	

Level of Trauma Care	
Lifeflight Helicopter	YES/NO
Helicopter Landing Facilities	YES/NO, Day/Night

Second Closest Hospital: _____
Distance _____miles

Name:	
Address:	
Telephone:	
Driving Directions:	
Level of Trauma Care	
Lifeflight Helicopter	YES/NO
Helicopter Landing Facilities	YES/NO, Day/Night

Maps of the routes to each hospital are provided as Attachments 6 and 7.

4. A copy of the Accident Prevention and Response Plan will be available at the job site for ready reference by all employees. The plan will be maintained by the Salvage Master and Safety Officer.

5. The Salvage Master _____ will be responsible for communications at the site. The emergency radio channel is _____. This channel is reserved for all emergency communications at the site. The site dispatcher will be responsible for requesting all outside emergency support, including air evacuations.

6. Emergency signals:

   a) Fire/Explosion - 3 short blasts on air horn
   b) Stop work at site and evacuate - Continuous blast on air horn
   c) All clear - Verbal clearance from supervisor
   d) Test - 1 short blast on air horn

7. Supervisors will instruct employees on their work site-specific evacuation plan.

8. First aid kits are provided at all work sites, aboard all vessels and in the Safety Officer's vehicle. The first aid kit at the diving station and recompression chamber shall be appropriately equipped for dealing with diving accidents.

VIII. ACCIDENT REPORTING AND RECORDKEEPING

1. Employers and immediate supervisors are responsible for reporting all injuries and illnesses to the Safety Officer and their operational manager within 24 hours.

2. Injured or ill persons are responsible for reporting all injuries and illnesses as soon as possible.

3. A daily record of all accidents and first-aid treatments shall be maintained on prescribed forms on site by the supervisor for review by the Safety Officer.

4. The Salvage Master will prepare a "First Report of Accident" on all employee injuries and send it to the home office where it will be reviewed and forwarded to the insurance carrier, other appropriate agencies and the contracting officer in a timely manner.

5. Third Party Accidents should be reported to the supervisor immediately. Any aid necessary should be rendered and any operation which might be causing the dangerous condition would cease until it is determined how and why the accident occurred. The accident should be reported to the home office in writing along with sketches, if possible. The home office will notify the proper agencies.

6. All personal injuries and property damage in excess of $250.00 will be immediately reported to the supervisor.

7. All of the job accidents should be recorded on OSHA Form No. 300 which is maintained/posted at the job site.

8. Any follow-up material received at the job site will be sent to the home office for proper handling.

IX. SIGNALS, WARNING SIGNS, AND SIGNALING

1. Only persons who are dependable and qualified by experience with the operations being directed shall be used as signal persons.

2. Warning signs shall be placed to provide adequate warning of hazards to workers and the public. They shall be removed when the hazards no longer exist.

3. Signs, tags, and labels shall be provided to give adequate warning and caution of hazards and instruction and directions to workers and the public.

4. Emergency signals:

    a) Fire/Explosion - 3 short blasts on air horn
    b) Stop work at site and evacuate - Continuous blast on air horn
    c) All clear - Verbal clearance from supervisor
    d) Test - 1 short blast on air horn

5. Verbal communications will be used among team members to communicate with one another on-site. If this communication is not possible, the hand signals listed below will be used.
    a) Hand gripping nose - Unusual smell detected.

b) Thumbs up - Okay: I am all right or I understand.
c) Thumbs Down - No, Negative
d) Grip partner's wrist or both hands around waist. Leave the area immediately.

6. Off-site communications available on site include cellular telephones and radios.

SITE SAFETY AND HEALTH PLAN (SSHP)

ATTACHMENTS

Number	Title	
1	Site Plan	Job Specific
2	Work Plan	Job Specific
3	Safety Plan Acceptance Sheet	Sample attached
4	Initial Safety Briefing	Sample attached
5	Daily Safety Briefing	Sample attached
6	Hospital Route Map	Job Specific
7	Hospital Route Map	Job Specific

SITE SAFETY AND HEALTH PLAN

ATTACHMENT 3 - Safety Plan Acceptance Sheet

For

Salvage of M/V _____ at_____

I have read and agree to abide by the contents of the Site Safety and Health Plan and I have attended the Safety Briefing for the aforementioned site.

NAME	OFFICE	SIGNATURE	DATE
Person Presenting the Safety Briefing:			

ATTACHMENT 4—Initial Safety Briefing Checklist
(Check Subjects Discussed)

Site Name: Salvage of M/V at Date/Time:

General Information

_____ Purpose of Job/Visit
_____ Identify Key Site Personnel
_____ Training and Medical Requirements

Specific Information

_____ Site Description / Past Uses
_____ Results of Previous Studies
_____ Potential Site Hazards
_____ Safety Procedures
_____ Site SOPs
_____ Site Control and Communications
[ ] Emergency Hand Signals
_____ Emergency Response
[ ] Location of First Aid Kits
[ ] Emergency Phone Numbers and Location
[ ] Location of Nearest Medical Facility and Location of Map to Facility
_____ PPE and Decontamination

Stress the following during the briefing: ***If an unanticipated hazardous condition arises, stop work, evacuate the immediate area, and notify the Safety Officer.***

ATTACHMENT 5—Daily Safety Briefing Checklist

Salvage of M/V at Date/Time:_____

Subjects Covered

Attendees:

_____
Briefer

APPENDIX C

DIVING OPERATIONS

1.0 Basic Requirements

1.1 Diving operations shall be conducted in accordance with the requirements, standards and regulations of the Occupational Safety and Health Administration (OSHA), the Hazardous Waste Operations and Emergency Response (HAZWOPER) standards and the U.S. Coast Guard (USCG) as are appropriate and applicable to the location and mode of dive planned.

1.2 The number of divers has been selected to assure operations can be safely conducted within diving time/depths limits. The diving crew will be required to mobilize all diving safety equipment, including appropriate decompression chambers. All diving tasks will be carefully planned and tested. Tools and fixtures will be developed to assist divers and reduce inherent safety risks as much as possible.

1.3 The Salvage Master shall ask and shall receive assurances form the Diving Superintendent that the diving operation will be conducted in accordance with all applicable regulatory requirements including verification of diver logbooks, proper equipment and fitness to dive.

1.4 The Salvage Master shall develop a site specific checklist to ensure that procedures are followed in the conduct of diving operations.

2.0 Planning of Diving Operations

2.1 A detailed plan of diving operations including the contingency plan will be presented by the Diving Superintendent and will be discussed between the Diving Superintendent and the Salvage Master and agreed upon by all partied prior to the commencement of diving operations. The plan should include:

- a description of the underwater work to be done;
- the location of the work;
- the number and time of the dive or dives;
- the number of divers that will be in the water at any one time;
- the number of dive attendants that will be on duty while divers are down;
- the signal system that will be used to communicate with the divers;
- a list of requirements to be met by the dive vessel (shutdowns, lockouts, lookouts, boats, energy sources, tools, lines etc.);
- a set of contingency plans to deal with foreseeable emergencies;
- this plan will include the location and phone number of the nearest hyperbaric chamber.

2.2 A copy of the plan shall remain on board the dive vessel.

3.0 Conduct of Diving Operations

3.1 In accordance with appropriate regulations, applicable signals and shapes will be displayed during the diving operations. Where required, appropriate warning devices such as buoys, flags, lights, etc. shall be displayed to define the restricted access limits of the diving operations. Where appropriate a NOTICE TO SHIPPING will be issued.

3.2 The Salvage Master, in consultation with and approval of the Diving Supervisor, will ensure that the propulsion machinery, sea-suction and underwater discharge mechanisms, cathodic protection system or any other mechanism that could pose a threat to the safety of the divers are secured in such a manner as to render the work site safe for diving operations.

3.3 A general announcement is to be made informing all personnel that diving operations are taking place, and a notice to this effect posted in a suitable location in the engine room. The appropriate machinery lockout procedures must be taken and logged.

3.4 A Diving Operations Checklist (see sample checklist below) will be completed prior to the commencement of the actual dive and the return of divers and the completion of diving operations shall be logged immediately upon completion. The checklist is divided into three components – personnel, equipment and operations. This checklist is intended to provide a basic compliance indication consistent with the minimum health and safety requirements for commercial divers.

SAMPLE DIVING OPERATIONS CHECKLIST

PART ONE – PERSONNEL

1.0 Designated On scene person-in charge — **Name** _____ ☐

Signature_____

2.0 Diving Supervisor — **Name** _____ ☐

Signature_____

3.0 Dive Team is qualified to conduct assigned tasks and consists of the person in charge, dive tender and line-tended diver ☐

4.0 All Dive Team members have required certification: ☐

- **Current CPR and First Aid Certification** ☐

PART TWO – EQUIPMENT

1. **Air compressors must be equipped with a volume tank with a check valve, a pressure gauge, a relief valve and a drain valve.** ☐
2. **Air tanks for air compressors are located away form areas containing exhaust fumes or other hazardous materials.** ☐
3. **An air purity analysis certificate is available for review at the dive location.** ☐
4. **Surface-supplied helmets have a non-return valve, an exhaust valve and a two-way communications system.** ☐
5. **Breathing gas supply hoses have a working pressure equal to or greater than the working pressure of the total breathing system, have a bursting pressure four times or more the working pressure, and evidence of annual testing to 1.5 times their working pressure has been supplied.** ☐
6. **Each diver has a depth gauge.** ☐
7. **A diving ladder or stage is available to assist entry and exit.** ☐
8. **A diving bell is available for use for divers with an in-water decompression time greater than 120 minutes.** ☐
9. **A diver's safety harness, with a positive buckling device capable of distributing the pulling force of the umbilical is available for use in surface-supplied dives.** ☐

10. **Weights are equipped with a quick release system.** ☐

11. **Decompression chambers are properly equipped, maintained and approved for use by appropriate authorities.** ☐

12. **The decompression chamber has:**

- **pressure relief device;** ☐
- **two-way communications between compartments and outside;** ☐
- **a pressure gauge in each compartment;** ☐
- **view ports;** ☐
- **sufficient illumination to allow gauges to be read;** ☐
- **an interior fire extinguishing system;** ☐
- **a system to override interior breathing and pressure supply controls.** ☐

PART THREE – DIVING OPERATIONS

1. **Detailed Diving Operations Plan is available on site.** ☐

2. **Contingency Plan in the event of an emergency is available on site.** ☐

3. **First aid equipment, including hand held resuscitator is available on site.** ☐

4. **A pre-dive safety briefing and equipment inspection has been conducted.** ☐

5. **Appropriate warning devices (buoys, flags, lights, etc.) are displayed to define the restricted access limits of the diving operations.** ☐

6. **The designated on-scene person in charge maintains a dive log.** ☐

SCUBA DIVING

7. **Scuba diving must be conducted in depths less than 130 fsw, within the no-decompression limits an din currents less than 1 knot.** ☐

8. **A standby diver is available while the scuba diver is in the water.** ☐

9. **The scuba diver is either line-tended or accompanied by another diver with continuous visual contact.** ☐

10. **In physically confining space, scuba diver must be line tended by another diver from the underwater point of entry.** ☐

11. **Scuba diver is carrying a reserve breathing gas supply.** ☐

SURFACE -SUPPIED AIR DIVING

12. **Surface-supplied air diving must be conducted at a depth of 190 fsw or less.** ☐

13. **Each diver must be continuously tended.** ☐

CONTAMINATED WATER DIVING SAFETY CHECKLIST

1. Conduct a Hazard Evaluation which will include: • **a sampling study before diving if contaminant is unknown to establish 3 zones of contamination – support or cold zone, contamination reduction zone, exclusion or hot zone;** • **determination of degree and extent of contamination;** • **determination of duration of potential exposure to contaminant;** • **determination of environmental exposure due to geographic location (i.e. thermal conditions, depth, current speed, weather forecast, etc.).**	☐
2. Approved Medical Monitoring Program for divers and personnel potentially exposed to contamination.	☐
3. Preparation of site specific safety plan and assignment of safety officer.	☐
4. Testing of diving equipment to ensure: • **each piece of equipment including umbilical and connectors are compatible with contaminants;** • **diving system materials matches durability;** • **diving system leak test is conducted prior to dive** **Review diving equipment durability, material permeation rate, potential break-through time.**	☐
5. Ensure that divers and topside personnel are trained to conduct contaminated water diving, including: • **decontamination procedures;** • **dry suit diving (donning, doffing and emergency procedures);** • **leak testing procedures;** • **maintenance, repair and proper use of contaminated water diving systems;** • **sampling procedures;** • **emergency procedures;** • **HAZWOPER training plus annual refresher).**	☐
6. Backup team or standby divers are equipped and trained to the same standards as the entry team.	☐
7. Decontamination system is set up and manned by trained responders.	☐
8. An evaluation process is in place to measure the effectiveness of the decontamination system.	☐
9. The disposal plan for contaminated equipment and contaminated wastes is approved by the Salvage Master.	☐
10. Comprehensive records are maintained, including: • **medical surveillance records;** • **a detailed description of exposures to hazardous substances;** • **complaints following exposures to hazardous substances;**	☐

• **a complete log of response actions;** • **equipment maintenance records.**	

Attachment (g): R/V CAPE FLATTERY HAZARD IDENT REFERENCE

HAZARD IDENTIFICATION REFERENCE

PERSONAL PROTECTION EQUIPMENT

QUESTIONS	ANSWERS
Is the appropriate personal protective equipment (PPE) specified for the task/job?	Review methods to specify PPE requirements.
Do the employees know that wearing PPE is required?	Review job procedures. Improve job instruction.
Do the employees know how to use and maintain the PPE?	Improve job instruction.
Is the current PPE adequate?	Review PPE requirements. Check standards, specifications and certification of the PPE.
Is there emergency equipment specified for this job?	Provide emergency equipment as required.
Is the emergency equipment readily available?	Install emergency equipment at appropriate locations.
Is the emergency equipment being used properly	Incorporate use of emergency equipment in job procedures.
Is the emergency equipment functioning properly?	Establish inspection/monitoring system for emergency equipment. Provide for immediate repairs or defects.

R/V CAPE FLATTERY

HAZARD IDENTIFICATION REFERENCE

EQUIPMENT

QUESTIONS	ANSWERS
Look for defects in equipment/tool(s) / material contribute to hazardous conditions	Review procedure for inspecting, reporting, maintaining, repairing, replacing, or recalling defective equipment/tools/ material used.
What are the hazardous condition(s)?	Perform job safety analysis, improve employee ability to recognize existing or potentially hazardous conditions. Provide test equipment, as required to detect hazard. Review a change or modification of equipment, tool or material.
Are employees informed of the job procedures for dealing with the hazardous conditions?	Review supervisory responsibility. Improve supervisor employee communications. Take action to remove or minimize hazard.
Equipment inspection procedure(s) to detect the hazardous conditions.	Develop and adopt procedures (for example, an inspection system) to detect hazardous conditions. Conduct test.
Are the correct equipment, tools and material going to be used?	Specify correct equipment, tools, and material. Review purchasing specifications and procedures.
Are the correct equipment, tools and material readily available?	Provide correct equipment, tools, and material. Review purchasing specifications and procedures. Anticipate future requirements.
Do the employees know where to obtain equipment, tools, and material required for the job?	Review procedures for storage, access, delivery, or distribution. Review job procedures for obtaining equipment, tools, and material.
Will substitute equipment, tools, and material used in place of correct one?	Provide correct equipment, tools, and material. Warn against use of substitutes in job procedures and in job instruction.
Will the location/position of equipment/material/ employee(s) contribute to a hazardous condition?	Perform job safety analysis. Review job procedures. Change the location, position, or layout of the equipment. Change position of employee(s). Provide guardrails, barricades, barriers, warning lights, signs, or signals.

R/V CAPE FLATTERY

HAZARD IDENTIFICATION REFERENCE

ENVIRONMENT

QUESTIONS	ANSWERS
What are the hazardous conditions?	Perform job safety analysis. Improve employee ability to recognize existing or potential hazardous conditions. Provide test equipment as required to detect hazard. Review any change or modification of equipment/tools or materials.
Reporting the hazardous conditions(s)?	Train employees in reporting procedures. Stress individual acceptance of responsibility.
Are employees informed of the job procedure for dealing with the hazardous conditions?	Review job procedures for hazardous avoidance. Review supervisory responsibility. Improve employee-supervisor communications. Take action to remove or minimize hazard.
Should the employees be in the vicinity of the equipment/materials?	Review job procedures and instruction. Provide guardrails, barricades, barriers, warning lights, signs, or signals.
Will the hazardous condition be created by the location/position of equipment/material visible to employees?	Change lighting or layout to increase visibility of equipment. Provide guardrails, barricades, barriers, warning lights, signs, or signals, floor stripes, etc.
Will there be sufficient workspace?	Review workspace requirements and modify as required.
Will environmental conditions be a contributing factor (for example: illumination, noise levels, air contaminant, temperature extremes, ventilation, vibration radiation)?	Monitor or periodically check environmental conditions as required. Check results against acceptable levels. Take action for those found acceptable.

R/V CAPE FLATTERY

HAZARD IDENTIFICATION REFERENCE

PEOPLE

QUESTIONS	ANSWERS
Would employees deviate from the known job procedure?	Determine why? Encourage all employees to report problems with an established procedure to supervisor. Review job procedure and modify if necessary. Counsel or discipline employee. Provide closer supervisor.
Are employees mentally and physically capable of performing the job?	Review employee requirements for the job. Improve employee selection. Remove or transfer employees who are temporarily, either mentally or physically, incapable of performing the job.
Will any tasks in the job procedure be too difficult to perform?	Change job design and procedures.
Is the job structured to encourage or require deviation from job procedures (for example: incentive)?	Change design and procedures.

ATTACHMENT (h): TRAINING QUALIFICATION GUIDELINES

The following guide is provided to assist on-site supervisory personnel to determine qualifications for personnel entering control areas. In general all personnel must have adequate training to do their jobs safely. This includes the fundamentals of site safety, and further includes safety conscious operational training (e.g., how to deploy boom safely by boat). An ongoing training program to reinforce and build upon previous training is also required (i.e., annual refresher training). It is not necessary to receive all training in a single block of time or restrict it to a single training event.

A. Regulatory requirements. OSHA's HAZardous Waste OPERations (HAZWOPER) Standard sets basic requirements for training of personnel. These requirements are dependent on the operations (general/routine operations, emergency response operations, or post-emergency response operations); on the individual's duties (e.g., first responders, general site workers, supervisors, special short term operations, technicians, etc.); and on the degree of exposure (e.g., minimal exposure, unknown exposures, etc). Requirements may change as operations progress from emergency phase (first responders) to post-emergency phase (cleanup phases). At the same time the degree of exposure risk is also changing with time (e.g., as high vapor pressure products which might pose an inhalation hazard evaporate from the weathering oil, or as the hazards become better characterized).

A.1. General requirements for EMERGENCY PHASE response operations (e.g., spill control measures conducted prior to recovery). Specific requirements are found in 29 CFR 1910.120(q)(6).

A.1.a. LEVEL 1--First Responder (awareness).

(1) This level is characterized as personnel that might discover a release and who are simply expected to report the incident.

(2) Sufficient training, or proven experience in specific competencies is required.

(3) NOTE: For USCG personnel this level is general met by USCG RTC Yorktown marine safety training.

A.1.b. LEVEL 2--First Responder (operations).

(1) This level is characterized by responding in a DEFENSIVE manner and generally without being exposed to risk (e.g., does not attempt to stop a leak).

(2) Level 1 competency plus 8 hours of additional training, or proven experience in specific competencies is required.

(3) NOTE: This level is general met by basic USCG Strike Team Training protocol.

A.1.c. LEVEL 3--HAZMAT Technician.

(1) This level is characterized by AGGRESSIVE response to stop a release (i.e., expecting some risk of exposure).

(2) Requires 24 hours of level 2 training and additional competencies.

(3) NOTE: This level is general met by basic USCG Strike Team Training protocol.

A.1.d. LEVEL 4--HAZMAT Specialist.

(1) This level is characterized by responding with and in support of technicians, but which have specialty knowledge/ competencies.

(2) Requires 24 hours of level 3 plus additional competencies.

(3) NOTE: This level is general met by basic USCG Strike Team Training protocol plus advanced competencies such as response EMT qualification.

A.1.e. LEVEL 5--On-scene Incident Commander.

(1) This level is for personnel that may be called upon to assume supervisory (incident command) responsibilities ON- SCENE.

(2) Requires 24 hours of level 2 training plus proven experience in additional competencies.

(3) NOTE: For non-entry supervision, this level is general met by USCG RTC Yorktown MSPOC or PODC training, plus OJT, and designation as OSC rep by cognizant COTP (for non-entry personnel). For purpose of entry supervision this level is general met by basic USCG Strike Team qualification, plus OJT, and Response Officer (RO) or Response Supervisor (RS) designation.

A.1.f. SPECIAL--Skilled support and specialists.

(1) Skilled support personnel (29 CFR 1910.120(q)(4)) are those skilled in operations needed to perform special tasks that can not reasonably be expected to be performed safely by regular emergency responders.

(a) EXAMPLE: Crane operators.

(b) TRAINING: Initial site briefing including protective equipment they will be using and hazards involved.

(2) Specialists (29 CFR 1910.120(q)(5)) are those personnel that will provide

technical advice/assistance with regard to the specific hazards or operations.

(a) EXAMPLE: Pesticide applicator.

(b) TRAINING: Demonstrated competency in their area of specialty.

A.2. General requirements for POST-EMERGENCY response operations (e.g., product recovery operations) are described in reference (b) at 29 CFR 1910.120(q)(11) which simply refers to the training requirements for GENERAL HAZARDOUS WASTE OPERATIONS (i.e., routine controlled sites) per 29 CFR 1910.120(e). The regulations require initial training, management/ supervisory training, and annual refresher training. NOTE: Emergency phase operations (such as offloading product from damaged tanks) and post-emergency phase operations (such as beach cleanup work) may take place at the same time.

A.2.a. Initial training. There are two categories of initial training depending on the degree of exposure and the amount of time expected to be spent on site.

(1) General site workers. General site workers (e.g., general laborers or equipment operators) must have:

40 hrs off site,
24 hrs supervised field experience, & 8 hrs annual refresher.

(2) Minimal hazard workers. Routine site workers who work in areas that have been monitored and fully characterized such that exposures are within permissible limits (and published limits or other hazards); OR

site employees who are on site only occasionally for a specific limited task, and who are unlikely to be exposed over permissible exposure limits (or published limits) may be trained as follows:

24 hrs off site,
8 hrs supervised field experience, & 8 hrs annual refresher training.

A.2.b. MANAGEMENT/SUPERVISORY TRAINING. On-site managers and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations shall have the same initial training as the personnel they supervise. They then must receive at least another 8 hours of training in hazardous waste operations management:

(1) 40 hrs off site (may be reduced to 24 hrs if all employees supervised are permitted to be trained at this level),

24 hrs supervised field experience (may be reduced to 8 hrs if all employees supervised are permitted to be trained at this level), and

8 hrs of hazardous waste operations management.

(2) NOTE: For NON-ENTRY supervision, this level is general met by USCG RTC Yorktown MSPOC or PODC training, plus OJT, and designation as OSC rep by cognizant COTP
(for non-entry personnel).

(3) NOTE: For ENTRY supervision this level is general met by basic USCG Strike Team qualification, plus OJT, and Response Officer (RO) or Response Supervisor (RS) designation.

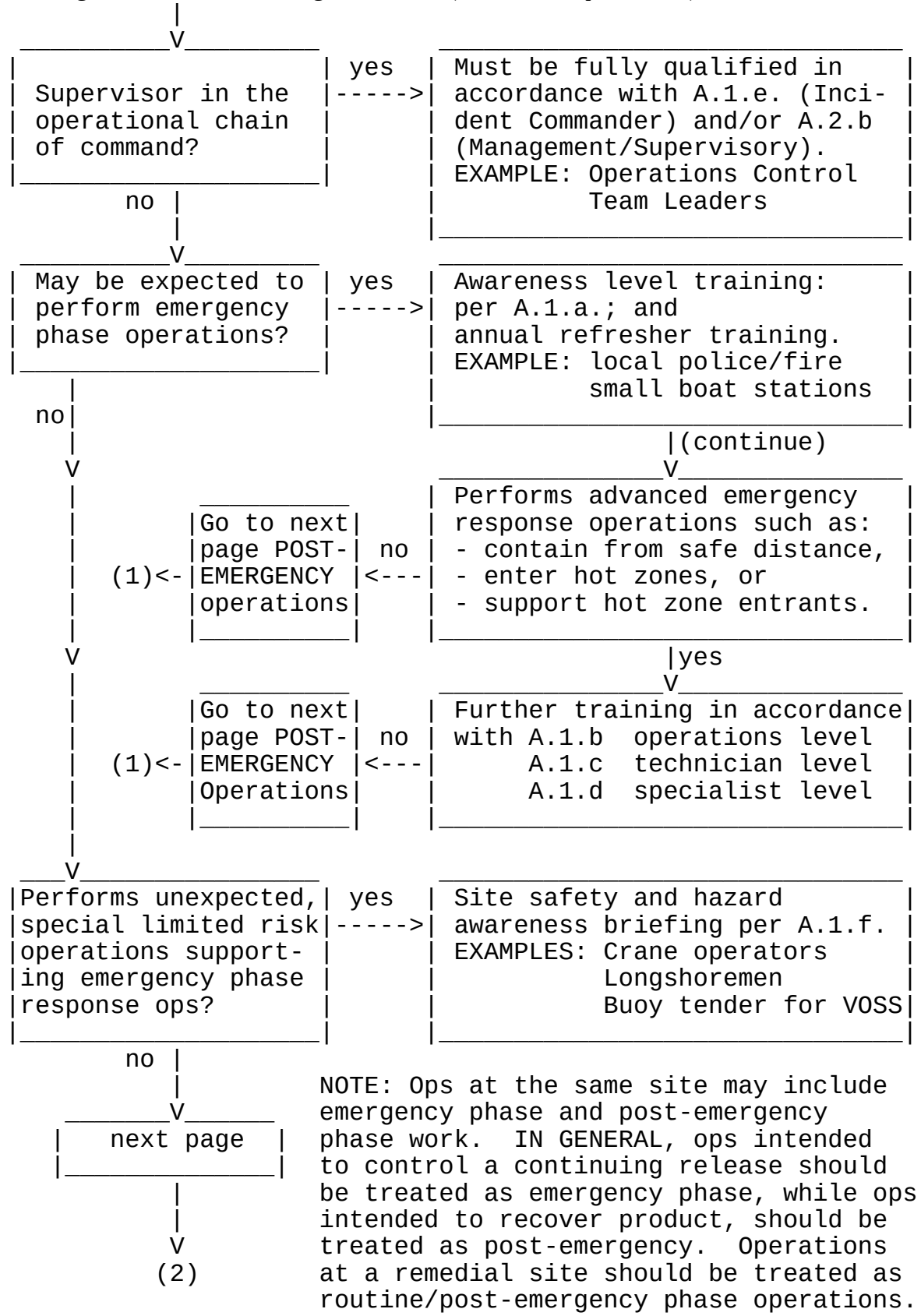
A.2.c. Training requirements for OIL SPILL RESPONSE personnel working during post-emergency phase operations have been published by OSHA (OSHA Compliance guideline CPL 2-2.51 (11/5/90) "Inspection Guidelines for Post-Emergency Response Operations Under 29 CFR 1910.120").

(1) Reduced training for these operations is considered a non-serious violation of the regulations (i.e., a "de minimis" violation).

(2) In general 4 hours of training is expected to be adequate to meet this "de minimis" criteria (depending on state requirements as determined by the cognizant Regional Response Team (RRT)). Other requirements must also be met (e.g., adequate supervision by fully trained personnel).

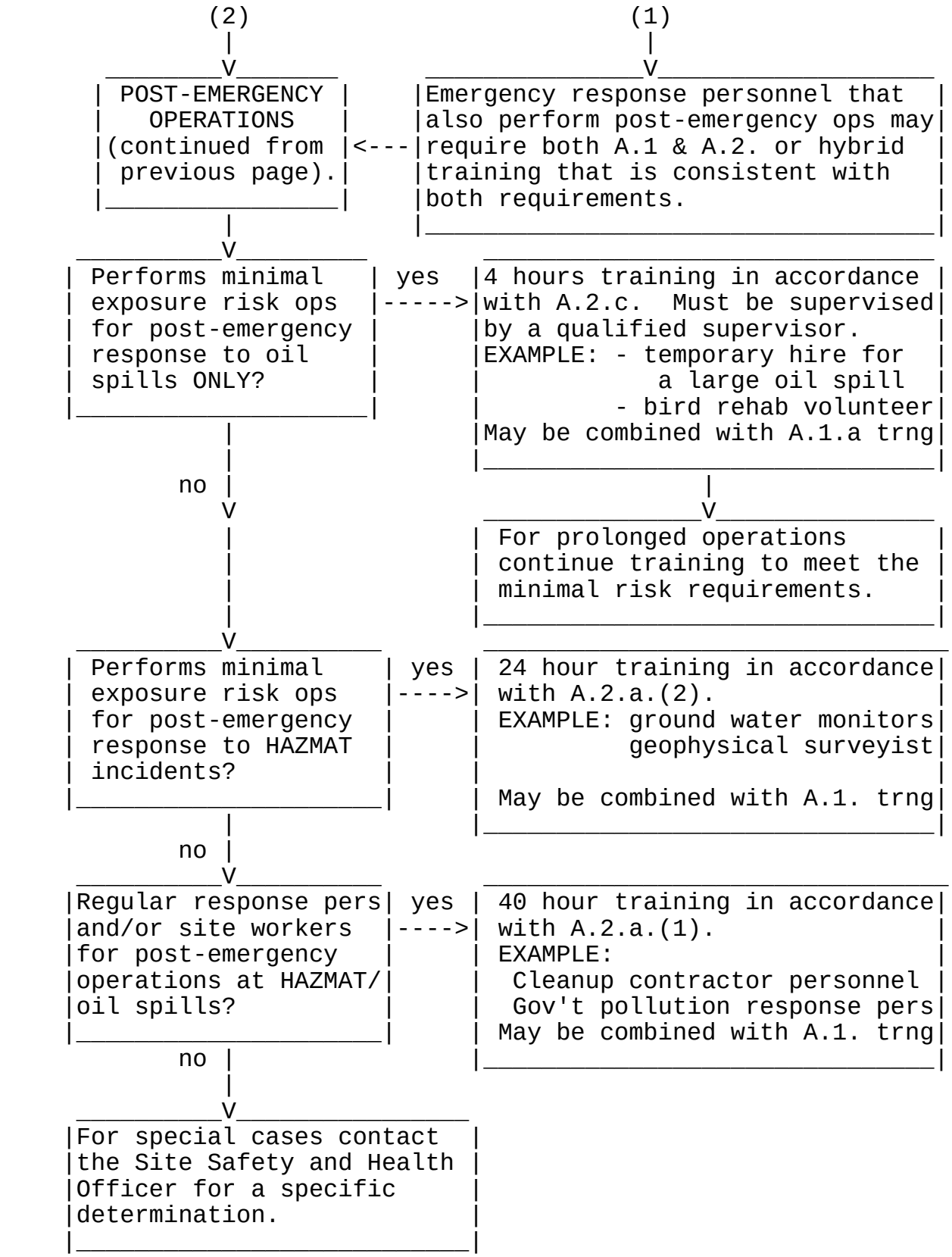
(3) Continuing training should be pursued to bring these personnel up to a level of qualification in accordance with A.2.a.(2) above. This should include safety conscious operational training (e.g., "safe work practices for oily bird rehab."

B. Decision guide for on-site training assessment (minimum requirements):



NOTE: Ops at the same site may include emergency phase and post-emergency phase work. IN GENERAL, ops intended to control a continuing release should be treated as emergency phase, while ops intended to recover product, should be treated as post-emergency. Operations at a remedial site should be treated as routine/post-emergency phase operations.

C. Decision guide for on-site training assessment (continued):



ATTACHMENT (i): HAZARD INFO FOR OILS (WITHOUT BENZENE)

12/04

Some oils that generally do not contain benzene (except as a minor constituent or contaminant), include: kerosenes, diesels,
military JP5, commercial JET A, bunker C, & fuel oils (1 thru 6).

(1) These oils are composed of an indefinite petroleum distillate content typically including PolyAromatic Hydrocarbons (PAHs). The concentration of these products will vary widely depending on the source of the oil, weathering, and aging.

(2) HAZARD DESCRIPTION: May cause dermatitis by skin contact; nausea by inhalation; and eye irritation by contact. Benzo(a)pyrene is a skin contact hazard and potentially may cause skin cancer with chronic skin contact.

(3) BASIC PRECAUTIONS: Wear chemical resistant clothing as necessary to protect against skin or eye contact; periodically change protective clothing that has oil on it; immediately change clothing that is showing evidence of oil penetrating to your skin; and wash skin with soap and water when changing into street clothing, before eating/drinking, or when exiting to a contamination reduction zone. Flush eyes with water if oil gets in them. If ingested do not induce vomiting--contact a physician.

Attachment (j)

Staging Area Vessel Loading Plan

Task: Load out of vessels. Forklift ops. Boom Truck Ops/ On vessel ops.

Safe Operations: Safe operation is critical when dealing with load out/in and crane operations. This plan addresses the safe and secure handling of loads and providing site safety as an addition to the Site Safety Plan.

Boomtruck Operations: Loads will be lifted with spotter dockside and aboard vessel. Communication and visual contact will be maintained as loading operations are underway. Signals between crane operator, ground crew and boat load master shall be worked out prior to loading. All hands on deck shall be made aware that loading operations are in progress and should take appropriate precaution. Tag lines will be used at the discretion of the boom truck operator and safety.

Forklift Operations: Driver shall have appropriate operator license. Attention shall be given when backing and operator should pay special attention to ice and other dockside hazards.

PPE required: Gloves, Hard Hats, Steel toed boots and reflective vest.

Lighting: Proper lighting is necessary during darkness. It shall be up to the operator/ and vessel master to determine if auxiliary light is required to operate safely.

Attachment (k)

Blood-borne Pathogen Exposure Control Plan

1. The potential for exposure exists when encountering human remains. Care should be exercised when dealing with human remains. Universal Precaution is the standard for treating all potentially infectious material. All body parts including blood, tissue and material should be properly handled.

2. A minimum of rubber surgical gloves should be worn when transferring body material into a body bag or appropriate biohazard bag. That material shall be transferred to Dutch Harbor in accordance with Recovery Plan for missing crew members memo dtd 13DEC04.

3. In the event that material may contaminate decks or surfaces of operational assets, proper cleaning procedures will be conducted to mitigate the spread of any potentially infectious material. Surfaces should be cleaned with a sanitizing/ disinfecting solution.

4. A sanitizing/ disinfecting solution should be a solution capable of disinfecting on contact. A solution of 200 ppm Cl solution will suffice for this purpose. This solution can be created by adding approximately ½ cup of bleach to one (1) gallon of water.

5. All infectious material shall be contained in a marked biohazard bag and stored properly until identified and or claimed by the proper authorities.

6. Body bags have been provided from the local authorities and area available during flight ops. They are stored in the hanger in the interim.

Attachment (l): # DECONTAMINATION OF OIL SPILL PPE

Personnel with contaminated clothing and equipment shall leave the Work Area by following the check marked decon procedures:

___ Wipe off or clean oily equipment and PPE clothing.

_____

_____

___ Inspect PPE clothing for rips or other damage. Inspect the inside of PPE clothing for signs of oil penetration. Discard PPE if it is damaged or oil is observed on the inside of the PPE.

_____

_____

___ Store oily equipment in contaminated equipment storage.

_____

___ Store lightly oiled PPE clothing in labeled lockers.

_____

___ Discard oily articles in appropriate trash bins as per waste management plan.

_____

___ Remove, clean, and inspect respirators.

_____

___ Store cleaned respirators in respirator storage.

_____

___ Place cloth coveralls in laundry basket or discard if excessively dirty.

_____

___ Wash face and hands with soap and water.

_____

_____

_____

Check marked equipment will be used for decontamination areas:

___ decon shelter

___ banner tape for setting off "Contamination Reduction Zone" or "Warm Zone"

___ placards and markers for setting off "Contamination Reduction Zone" or "Warm Zone"

___ saw horses, wood stakes, hammers, and nails

_x__ area for new/clean equipment storage

_x__ area for new PPE storage

_x__ area for clean cloth coverall storage

___ hangers for oily PPE clothing

___ lockable storage for street clothing

___ waterless soap

_x__ soapy water for respirators

_x__ sterilizing solution for respirators

_x__ plain water for respirators

_x__ clean plastic bags for respirator storage

_x__ towels and / or paper towels

_x__ sorbent pads

_x__ cleaning rags

_x__ lined bins for oily debris

_x__ trash cans and trash bags for other debris/garbage

___ _____

___ _____

___ _____

___ _____

ATTACHMENT (la): **DECON LAYOUT**

EQUIPMENT NEEDED FOR OIL DECON

STATION 1: EQUIPMENT DROP / OUTER GLOVE WASH & RINSE:

___ Folding table
___ Small plastic tub with scrub brush, filled with soapy Water (outer glove wash)
___ Small plastic tub filled with water (outer glove rinse)
___ Chem wipes, spray bottle, paper towels (equipment decon, at equipment drop)
___ OTHER:_____

STATION 2: OUTER BOOT WASH/RINSE:

___ 2'x 3' plastic tub, with boot brush assembly and scrub brush, filled with soapy water (outer boot wash)
___ 2'x 3' plastic tub filled with water (outer boot rinse)
___ OTHER:_____

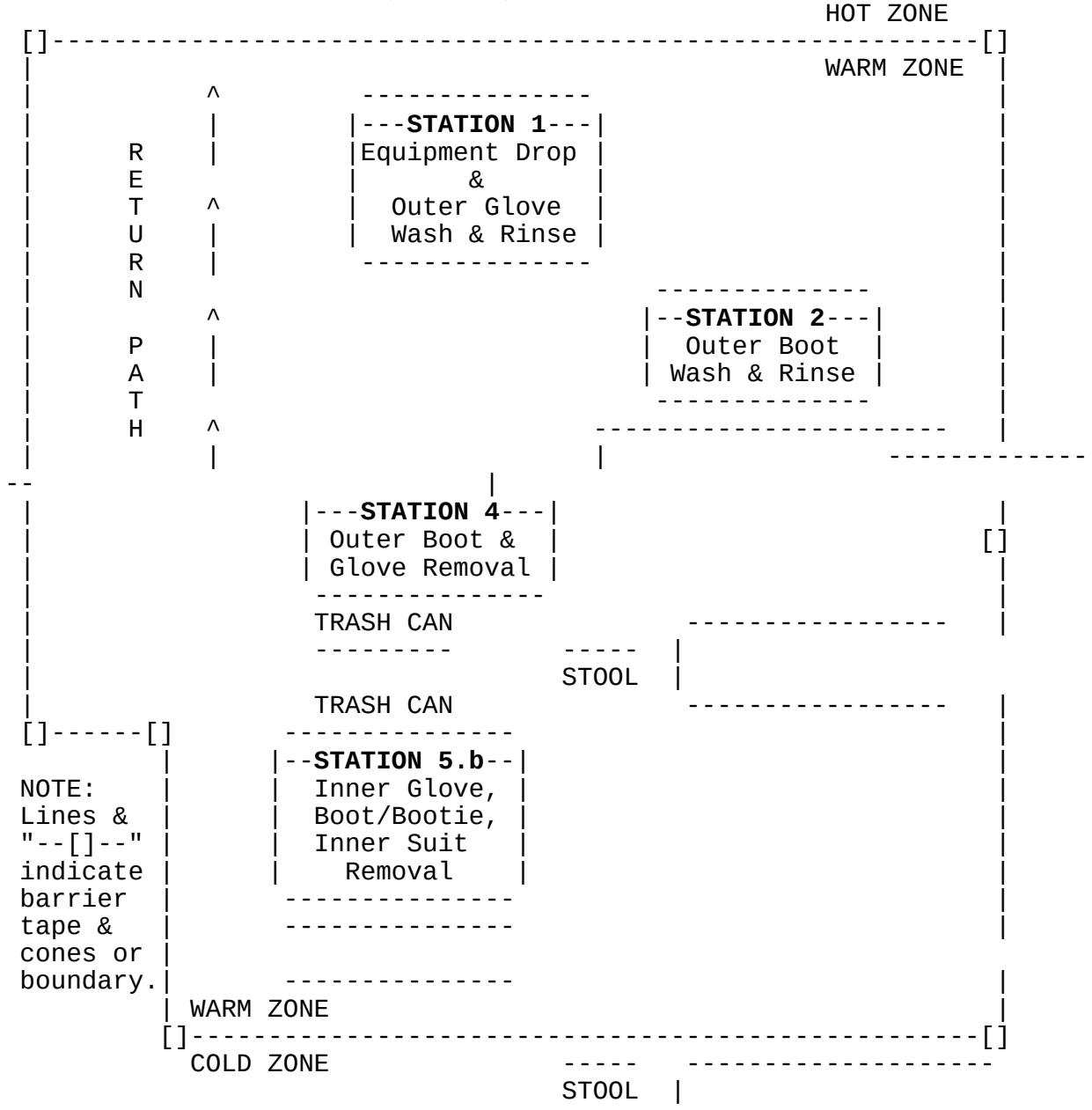
STATION 3a: OUTER BOOT/GLOVE REMOVAL:

___ Garbage can
___ OTHER:_____

STATION 3b: GLOVE/BOOT/BOOTIE REMOVAL:

___ Garbage can

PHYSICAL LAYOUT (LEVEL D)



ATTACHMENT (m): COLD STRESS CONSIDERATIONS (LONG FORM)

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.

I. FACTORS AFFECTING COLD EXPOSURES.

A. Important factors contributing to cold injury:

- exposure to humidity and high winds,
- contact with moisture or metal,
- inadequate clothing,
- age, and
- general health.

Physical conditions that worsen the effects include:

- fatigue,
- allergies,
- vascular disease,
- smoking
- drinking, and
- certain specific drugs or medicines.

B. 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.

C. 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 by radiation, convection, conduction, and evaporation.

D. Environmental factors include wind and humidity, as well as temperature. The faster the air movement, the greater the effects of cold exposure.

II. 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 which can be life threatening.

A. Hypothermia is an abnormally low body temperature caused by exposure to cold in air or in water. Hypothermia results as the body looses 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 wind chill, the effective temperature can be significantly lower.

B. Pain in the extremities may be the first warning of dangerous exposure to cold. Severe shivering must be taken as a sign of danger requiring removal from the cold exposure.

C. 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 are some symptoms which 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.

D. HANDLING COLD STRESS AND HYPOTHERMIA VICTIMS.

1. A worker should go immediately to a warming shelter if any of the following symptoms occur:

- pain in the extremities (or frostnip),
- onset of heavy shivering,
- excessive fatigue,
- drowsiness, or
- euphoria.

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

2. The main objective in handling potential cases of hypothermia is rewarming 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.

Alcohol 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.

3. If medical help is not immediately available:

Keep the person quiet, but keep them awake, if possible. Avoid unnecessary movement. If it's necessary to move a hypothermia victim, use a litter - the exertion of walking could aggravate circulation problems.

4. 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. Don't rewarm the core and the extremities at the same

time. The sudden return of the cool blood pooled in the extremities to the heart can cause shock.

E. WATER IMMERSION VICTIMS. Flotation is the most important factor in water immersion survival, but may not be available if not provided in advance (see protective clothing notes below).

1. It is especially important to keep your head dry.

2. Avoid thrashing about and assume the HELP position (Heat Escape Lessening Posture) by crossing wrists over chest and drawing 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.

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

F. HYPOTHERMIA SUMMARY:

HYPOTHERMIA

SYMPTOMS

- 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
- Uncoordination
- Diminished dexterity and judgement

Possible Causes

- Exposure to low air temperatures
- Exposure to high winds
- Water immersion
- Inadequate clothing
- Allergies
- Recent alcohol consumption
- Smoking
- Prescription medications
- Exhaustion
- Dehydration

Treatment

- 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 the person
- Pack neck, groin, armpits with warm towels
- Don't rewarm extremities and core at the same time
- Give sweet warm drinks to conscious person
- Remove person to medical facility

III. OTHER COLD STRESS INJURIES:

A. FROSTBITE

Symptoms

- Whitened areas on skin
- Burning sensation at first
- Blistering
- Affected part cold, numb, and tingling

Possible Causes

- Exposure to cold
- Age (very young or old)
- Underlying disease

Treatment

- Cover the frozen part
- Provide extra clothing and blankets
- Bring person indoors
- Place the part in warm water or rewarm with warm packs
- If no water is available, wrap gently in a sheet and blanket or place frostbitten fingers under armpits
- Discontinue warming when the affected part becomes flushed and swollen
- Exercise part after rewarming but do not allow the person to walk after the affected part thaws
- Give sweet warm fluids to conscious person
- If feet are affected, put on dry socks over footwear
- If cheeks are affected, cover cheeks with warm hands
- Do not rub the part with anything
- Do not use heat lamp
- Do not use hot water bottles

- Do not place part near hot stove
- Do not break blisters
- Obtain medical assistance ASAP

B. CHILBLAIN

Symptoms

- Recurrent localized itching, swelling, and painful inflammation of the fingers, toes, or ears
- Severe spasms

Possible Causes

- Inadequate clothing
- Exposure to cold and moisture
- Underlying disease

Treatment

- Remove to warmer area
- Consult physician

C. FROSTNIP

Symptoms

- Skin turns white

Possible Causes

- Exposure to cold

Treatment

- Remove to warmer area
- Refer to treatment for frostbite

D. ACROCYANOSIS

Symptoms

- Hands and feet are cold, blue, and sweaty

Possible Causes

- Exposure to cold
- Inadequate clothing
- Underlying disease

Treatment

- Remove to warmer area
- Loosen tight clothing
- Consult physician

E. TRENCH FOOT

Symptoms

- Edema (swelling) of the foot
- Tingling, itching
- Severe pain
- Blistering

Possible Causes

- Exposure to cold and dampness

Treatment

- Remove to warmer area
- Refer to frostbite treatment
- Consult physician

F. RAYNAUD'S DISEASE

Symptoms

- Fingers turn white and stiff
- Intermittent blanching and reddening of the fingers and toes
- Affected area tingles and becomes very red or reddish purple

Possible Causes

- Exposure to low air temperature and high winds
- Inadequate clothing
- Underlying disease

Treatment

- Remove to warmer area
- Consult physician

IV. EVALUATING COLD EXPOSURE HAZARDS

A. 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 evaluation.

B. 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.

C. 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 follows:

5 mph -light flag moves,
10 mph - light flag fully extended,
15 mph - raises newspaper sheet,

20 mph - blowing and drifting snow.

D. Table 2 in the Cold Stress section of the latest edition of the American Conference of Governmental Industrial Hygienists (ACGIH) TLV booklet estimates effective temperature using actual temperature and wind speed. This booklet also provides additional guidelines for controlling cold exposure hazards.

V. PREVENTING COLD STRESS

A. 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.

B. 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 drinks and soups should be available at the work site for fluid replacement and caloric energy.

C. 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. Workers should be encouraged to take frequent breaks in warm shelters at temperatures below 20 degrees F. 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 can be used.

D. INDOOR/OUTDOOR WIND BREAKS & SHELTER. The work area should be shielded if the air velocity at the job site is increased by wind, drafts, 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.

E. 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.

F. PROTECTIVE CLOTHING/EQUIPMENT.

1. General Considerations.

35 F. Workers exposed to air temperatures of 35 degrees or lower who become immersed in water or whose clothing gets wet should be given dry clothing immediately and treated for hypothermia.

30 F. At temperatures below 30 degrees, metal handles of tools should be covered with thermal insulating material. Unprotected metal chair seats should not be used.

-25 F. In addition to the common sense approach of providing adequate warm clothing; continuous exposure of skin should not be permitted when the wind chill factor results in an equivalent temperature of -25 degrees Fahrenheit.

2. 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.

a. Outer layer should be windproof and waterproof. Wool, for example, is a very useful insulator for undergarments but looses much of its insulating value as an outer garment. These outer layers should not prevent sweat evaporation.

b. Dirty or greasy clothing loses much of it's insulative value. Air pockets are crushed or filled, and heat can escape more easily.

c. Denim is not a good protective fabric. It is relatively loosely woven allowing moisture to enter, and this also body heat to escape.

d. Any interference with the circulation of blood reduces the amount of heat delivered to the extremities. All clothing should be loosely worn and unrestrictive.

3. 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.

a. UNDESIRABLE EFFECTS. The desired insulating effect of clothing is negated if clothing interferes with the evaporation of sweat from the trunk of the body, or when the skin or clothing is wet. CPC ensembles typically interfere with the evaporation of sweat. Protective

clothing (for cold or chemical protection) also add to the workload/fatigue of workers. When cold stress is a concern, care should be exercised in selecting ensembles which contribute to cold stress without meaningful chemical exposure protection. This is particularly true for those parts of the ensemble protecting the trunk of the body.

b. 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.

4. 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.

5. ENSEMBLE OPTIONS. The following items should be considered for addition to worker ensembles in cold environments:

__ 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.

__ 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.

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

__ Felt-lined, rubber-bottomed, leather-topped boots, with a removable insole (for heavy work).

Or, with chemical protective boots, air insole cushions and felt liners (steel toes/shank boots should be avoided unless needed for specific safety concerns).

__ Wool shirt or sweater over a cotton shirt.

__ Wool knit cap (watch cap), or (if hard hats are required) specially made hard hat liners.

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

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

__ Insulated gloves.

60 degrees F, or lower, for sedentary work,
40 degrees F, or lower, for light work, and
20 degrees F, or lower, for moderate work.

0 degrees F, or lower, wool mittens should be used instead of gloves.

6. ENSEMBLES FOR WORK WHEN WATER IMMERSION MAY OCCUR.

a. Flotation (personal or throwable devices) are extremely important to avoid unnecessary swimming which will increase the rate of body heat loss.

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

c. Preposition throwable floatation devices in boats or work areas near water.

7. 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. Wind resistant. 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