ALASKA DEPARTMENT
OF
ENVIRONMENTAL CONSERVATION

HEALTH AND SAFETY PLAN

Division of Water
Alaska Monitoring and Assessment Program

1st edition, May 2009

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Table of Contents

List of Tables

Background

The purpose of this manual is to provide instruction to the Alaska Monitoring and Assessment Program (AKMAP) for maintaining personal safety while performing duties as employees of the Department of Environmental Conservation. This manual satisfies the relevant requirements of the Occupational Safety and Health Administration (OSHA) at 29 CFR 1910 General Industry Standards, 1915 Shipyard Employment, 1917 Marine Terminals, and 1918 Longshoring, as presented in Appendix A.

This manual outlines standard safety practices AKMAP employees will utilize in various situations: in the office, field, and laboratory. This manual does not cover all situations AKMAP personnel may encounter. For example AKMAP employees, in certain situations may operate a department vehicle, marine vessel or large equipment. The employee is required to possess the proper license or certifications from the appropriate authority (U.S Coast Guard, Alaska Department of Transportation, Federal Aviation Administration, etc) in these circumstances.

This manual will be made available to all AKMAP staff and be updated as needed.

This Health and Safety Plan is effective June 1, 2009.

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Alaska Department of Environmental Conservation
May 2009

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1 General Project Information

1.1 Site Description and Potential Hazards

AKMAP will conduct field work throughout marine, freshwater and wetland regions in Alaska. The vast majority of the area where field work is likely to occur is remote and emergency response is limited. Hazardous conditions throughout Alaska may consist of extreme weather and seas, wildlife, or mechanical failure of marine vessel or equipment.

1.2 Description of Field Work

Field activities to be conducted include coastal and interior environmental assessments. This includes environmental monitoring such as water quality assessment, sediment sampling, habitat assessment, and biological monitoring.

2 Project Personnel

Table 2-1 Coastal Project Personnel

Title	Name	Organization	Phone (907)
Project Engineer	Douglas Dasher	ADEC	451-2172
Dive Master	Stephen Jewett	UAF-IMS	474-7841
Captain	Contract personal		
Employee		ADEC, UA, etc	

2.1 Coastal Project Engineer Responsibilities

The Project Engineer is the principal investigator for field work and responsible for coordinating with the Dive Master and Captain to implement this Health and Safety Plan.

Responsibilities

1. Maintaining and verifying all health questionnaires and certifications,
2. Conducting safety briefings prior to field work,
3. Arranging for health and safety equipment to be available,
4. Coordinating actions to correct new health or safety concerns.
5. Ensuring all personnel submit a Health Questionnaire, Appendix B. Employees with disabilities or precarious health conditions that are not able to fully complete tasks outlined in their job requirements or those that pose an additional risk to field crew safety may not be permitted to conduct field work.

2.2 Dive Master Responsibilities

The Dive Master is a contract employee responsible for health and safety precautions undertaken by all scientific divers. The Dive Master or Chief Dive Safety Officer is responsible for verifying all contract divers maintain:

1. Current medical certifications of medical fitness.
2. Current dive certifications.
3. Current CPR/First Aid certifications.

Responsibilities

1. Emergency administration of oxygen.
2. Ensuring all diving equipment is inspected annually.
3. Ensuring all diving equipment is in proper working order.
4. Ensuring emergency oxygen equipment is available.
5. Conducting site safety briefings prior to field work.
6. Ensures all divers' strict adherence to the University of Alaska School of Marine Fisheries and Ocean Sciences, Scientific Diving Safety Manual 2004 (Appendix C).

2.3 Captain Responsibilities

The Captain will typically be a contract employee and a professional Marine Vessel Operator with supervision over the ship's crew. The Captain is responsible for ensuring safe work practices by all crew members and advising all passengers on board of safety precautions, emergency procedures, and materials. The Captain is also responsible for ensuring contract ship crew members maintain:

1. First aid/CPR certification
2. Basic fire fighting skills
3. Personal survival and social responsibility
4. Onboard drill instructor certification

The Captain and Engineer will have additional training in Advanced Fire Fighting, Radar Observer Unlimited, Automatic Radar plotting aids, and Bridge Resource Management.

Table 2-2 Freshwater Project Personnel

Title	Name	Organization	Phone (907)
Project Engineer	Douglas Dasher	ADEC	451-2172
Field Officer	Terri Lomax	ADEC	269-7635
Employee		ADEC, UA, etc	

2.4 Freshwater Project Engineer Responsibilities

The Project Engineer is the principal investigator for field work and responsible for coordinating with the Field Officer to implement this Health and Safety Plan.

Responsibilities

1. Coordinating corrective action for unforeseen health or safety concerns
2. Maintaining and verifying all health questionnaires and certifications
3. Ensuring all personnel submit a Health Questionnaire. Employees with disabilities or precarious health conditions that are not able to fully complete tasks outlined in their job requirements or those that pose an additional risk to field crew safety may not be permitted to conduct field work.

2.5 Field Officer Responsibilities

The Field Officer is responsible for coordinating field work, crew responsibilities, and implementing this Health and Safety Plan.

Responsibilities

1. Conducting safety briefings prior to field work
2. Arranging for health and safety equipment to be present
3. Ensuring a safe work environment given the environmental conditions
4. Ongoing safety and identification of new hazards to field personnel
5. Taking immediate action once a safety issue has developed

2.6 Employee Responsibilities

All employees are responsible for ensuring safe work practices are performed, maintaining health and safety as the forefront of all field work activities, and notifying the Project Engineer or Field Officer in the event a new or potential hazard is identified.

3 Site Safety and Hazards

3.1 Site Safety Meetings

All individuals participating in a DEC coordinated environmental survey are required to attend site safety meetings and briefings conducted by the Field Officer. Attendance will be documented. The goal of these meetings is to promote a safe workplace and address any safety issues/concerns that arise. The following information will be covered and documented:

1. Project Introduction and orientation
2. Identification of personnel on site responsible for supervision and safety
3. Requirements and responsibilities for accident prevention and maintaining a safe and healthful worksite
4. Hazard communication training
5. Identification of job hazards and means to control hazards
6. Any new or potential hazards, health, and safety concerns encountered since the last briefing.
7. Use and selection of Personal Protective Equipment, PPE
8. Accident reporting responsibilities

Emergency response procedures

3.2 Project Specific Chemical Hazards

Information specific to each chemical hazard will be provided in Material Safety Data Sheets (MSDS), located in Appendix D. Table 3.1 lists the most common chemical hazards employees may be exposed to.

Table 3-1 Chemical Hazards

Potential Site Contaminant	Health Hazard	Route of Entry and Symptoms/ Effects of Exposure	TWA	IDHL
Tritium	Low	Radiotoxicity: Slight radiotoxicity. Beta emitter. Annual Limit for Intake – 80,000 uCi Committed effective dose equivalent (*CEDE*): Tritiated water: 0.064 mrem/uCi of ^{3}H intake. Critical Organ: Body water or tissue. Exposure Routes: Ingestion, inhalation, puncture, wound, skin contamination absorption. Radiological Hazard: External Exposure - None from weak 3H beta. Internal Exposure & Contamination - Primary concern. Environmental Sampling: A large enough dose to cause any significant harm to a person is unlikely from sampling at environmental levels documented to be 5 to 10 pCi/L in marine waters off of Amchitka nuclear test sites. Drinking water standard for ingestion is 20,000 pCi/L.		
Sulfuric Acid	High	Eye: May cause irreversible eye injury. Causes eye irritation and burns. Skin: Causes severe skin irritation and burns. Ingestion: Causes gastrointestinal tract burns. Inhalation: Harmful if inhaled. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema.	1 mg/m³	15 mg/m³

Potential Site Contaminant	Health Hazard	Route of Entry and Symptoms/ Effects of Exposure	TWA	IDHL
		Causes chemical burns to the respiratory tract.		
Formalin	High	Eye: Vapors cause irritation to the eyes with redness, pain, and blurred vision. Higher concentrations or splashes may cause irreversible eye damage. Skin: Toxic. May cause irritation to skin with redness, pain, and possibly burns. Skin absorption may occur with symptoms paralleling those from ingestion. Formaldehyde is a severe skin irritant and sensitizer. Contact causes white discoloration, smarting, cracking and scaling. Ingestion: Can cause severe abdominal pain, violent vomiting, headache, and diarrhea. Larger doses may produce decreased body temperature, pain in the digestive tract, shallow respiration, weak irregular pulse, unconsciousness and death. Methanol component affects the optic nerve and may cause blindness.	0.75 ppm	2 ppm
Isopropyl Alcohol	Medium	Eye: Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. Skin: May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Prolonged and/or repeated contact may cause de-fatting of the skin and dermatitis. May cause irritation with pain and stinging, especially if the skin is abraded. Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Inhalation of vapor may cause respiratory tract irritation. May cause narcotic effects.	400 ppm or 980 mg/m³	2000 ppm

Notes

ppm = parts per million

TWA = time weighted average

IDHL =International Digest of Health Legislation Level

3.3 Site Specific Hazards

Identified potential job site hazards are shown in Table 3.2. New hazards will be addressed in site safety meetings or briefings.

Table 3-2 Site Specific Hazards

Situation	Hazard	Controls
All tasks	Cold Stress	Dress appropriately for weather conditions; layered clothing is most appropriated for cold weather.
	Slip, Trip and Fall	Pathways and work zones must be clear. Practice site cleanup habits-put tools, equipment and gear away after each use.
Heavy Equipment on site	Heavy equipment	Watch overhead loads and avoid work zones. Only designated ground persons will give signals to operators.
	Falling objects	Hard hats will be worn at all times while working with overhead cranes.
Small boat operator	Mechanical failure	Engines will be inspected and serviced annually.
	Capsizing	Safe boat handling practices will be employed. Training will be provided to new or inexperienced operators.
Field collections from small boats	Muscle strain	Proper lifting procedures will be employed and practiced.
	Man overboard	Be aware of sea state, location, and weight distribution. Coast guard approved life vests will be worn by all persons on board.
Lab analysis	Chemical burn	Appropriate personal protection equipment will be worn. Hazardous chemicals will be used sparingly and stored in safe locations.

4 General Safety Rules

4.1 Preventing Unsafe Conditions

1. Working or driving under the influence of alcohol or drugs is strictly forbidden.
2. Notify your supervisor whenever you are taking any medication that could impair your ability to safely perform work or operate a motor vehicle.
3. It is recommended that teams containing a minimum of 2 persons conduct field work; avoid working alone whenever possible.
4. When it is necessary to work alone, notify another person of your location and when you expect to be back.
5. Use the prescribed personal protective equipment (PPE) for the work you are doing; See Section 5.0.
6. Test all safety devices periodically for proper operation, report any malfunctions to your supervisor.
7. Never defeat the function of a safety device unless approved to do so by your supervisor for a unique operating circumstance or a maintenance procedure.
8. In the rare instances when a makeshift method is necessary as a temporary measure, replace or correct the situation with the appropriate equipment or procedures as soon as possible.
9. While using the makeshift method, mark it so that others will be aware of it and notify personnel in the area of the makeshift method and how to return the equipment or procedure to its original function.
10. When conducting meetings, inform attendees of evacuation routes, exits, mustering points, and personnel accountability procedures.
11. Review all applicable emergency procedures for each location work is performed.
12. When responding to an oil or hazardous materials spill, all personnel (supervisors included) must read, comprehend and sign the site safety plan.
13. If you do not know how to perform a certain task, ask for further instructions before you proceed with the task.
14. When a job or task is completed, the working area should be left in a condition that will not cause injury to others.
15. All work performed by employees must be done in accordance with the Alaska Department of Labor and Workforce Development (ADOL) Safety Codes, Appendix E.
16. A variance must be obtained from ADOL before any safety practice or work procedure can vary from the applicable State safety code.

4.2 Awareness

1. Be alert for hazardous and potentially hazardous conditions at all times.
2. Adequate rest, exercise, and proper diet will help to enhance your health and level of awareness.
3. Concentrate on immediate tasks; avoid distracting yourself with emotions or outside influences.
4. Look out for hazardous conditions others have marked.
5. Be alert for unsafe actions by others.

6. Avoid slipping, tripping or falling.
7. Be especially careful when weather or other conditions create or aggravate hazardous situations.

4.3 Reporting and Correcting Unsafe Conditions

1. Report current and potential safety hazards to your supervisor.
2. If possible to do safely, correct or eliminate any hazardous conditions yourself.
3. Report to your supervisor any measures you have taken to correct safety hazards.
4. If you are unable to eliminate a hazard, clearly mark the hazard, alert others in the area, and inform your supervisor or site safety officer of the hazard so that it may be corrected.

4.4 Reporting Accidents and Injuries

1. Report any accidents or injuries to your supervisor.
2. Your supervisor is responsible for investigating the incident and conducting any necessary follow-up or documentation.
3. Accidents involving a state vehicle, state-leased vehicle, or private vehicles used while performing state work that cause injury to personnel, members of the public, or cause damage to government or private property must be reported.
4. All vehicular accident details must be submitted in writing to the supervisor within 24 hours of the incident, Appendix F Liability Accident Notice.

4.5 Recourse for Serious Injury, Illness, or Death

1. In the case of serious injury, illness, or death, the Human Resources section will be notified.
2. The Human Resources section will contact the Division of Risk Management to initiate a workers' compensation claim.
3. Workers' compensation is the remedy for all state employee work related injury, illness, or death claims.
4. The Division of Risk Management contracts with an independent claims adjusting firm to administer these claims.

4.6 Authorized Personnel, Volunteers

1. Due to the hazardous and remote situations encountered during field work only project personnel are authorized to be on site, conduct field work, and/or transport gear and crew between field locations. Project personnel can consist of state, contract, or university employees.
2. Volunteers can be authorized by the Division Director, they must be legal adults and able to fully comply with this Safety Plan. See Appendix G for the authorization form.

5 Personal Protective Equipment (PPE)

5.1 PPE Commonly Provided by AKMAP

AKMAP personnel are required to wear, use, and properly maintain appropriate PPE

1. Mustang (anti-hypothermia) suits
2. Mustang float coats
3. Hard hats
4. Eye protection
5. Ear protection
6. Rain gear (also used for skin protection)
7. Rubber boots/gloves
8. Survival kits
9. Flares/tow ropes, brooms/brushes (used in state vehicles)
10. Escape packs
11. Communication equipment
12. First aid kits

5.1.1 Personal Protection – Eyes

AKMAP employees may be involved in many situations where eye protection is necessary (e.g. shoreline activities where high-pressure water hose use would result in flying debris). All workers must wear approved safety glasses when the potential for eye injury exists. Individuals must wear splash proof goggles when they are handling or in the immediate vicinity of hazardous chemicals. Contact lenses should not be worn in locations where the possibility for chemical splash up exists.

5.1.2 Personal Protection – Feet

AKMAP personnel may need to walk in water, on slippery beaches or on uneven surfaces. Shoes and/or boots with ankle support, steel toes and nonskid soles are recommended. Consideration must be given to surfaces covered with snow or ice. Suitable socks must be worn and extra socks should be available. Employees must comply with the specific footwear requirements of facilities in which they will be working, such as the use of steel-toed boots.

5.1.3 Personal Protection – Head and Face

Hard hats will be worn whenever a head injury hazard exits. These hazards could occur on boats where booms are used and onshore where high-pressure water hoses are in use. Employees must comply with any specific headwear requirements of facilities in which they will be working, such as the mandatory use of hard hats.

5.1.4 Personal Protection – Hearing

Hearing protection is issued to AKMAP staff in the form of earplugs. These are small and light in weight and should be carried while in the field. Earplugs should be used while riding in small aircraft.

5.1.5 Personal Protection – Personal Floatation Device (PFD)

AKMAP personnel may spend time over and on water. During winter operations, Oct. 1 - Apr. 1 (specific winter conditions encountered may begin before and extend after these dates), the

Fitzwright, Wright's Exposure Suit, or Mustang Suit, or float coat should be worn by all personnel flying in DEC leased aircraft. From Apr. 1 to Oct. 1, it is suggested that a float coat be carried on all over-water flights. The Mustang Suit, or float coat must be worn at all times when riding in skiffs. The Fitzwright or Wright's Exposure Suit should be worn on all over-water helicopter flights. Precautions for donning and wearing Personnel Flotation Devices will be as noted in survival training classes.

5.1.6 Personal Protection – Clothing

It is the employee's responsibility to wear clothing appropriate to the conditions. Employees who do not wear the proper level of protective clothing will not be allowed to work in hazardous conditions. The Department will provide clothing under certain circumstances such as for extreme cold weather, or where flame-resistant material is necessary. Wearing jewelry is not recommended as it could damage personal flotation devices, interfere with the performance of duties, or increase the potential for injury. Clothing that comes into contact with hazardous material should be washed or disposed of appropriately as soon as possible.

5.2 PPE Maintenance and Storage

Maintenance of PPE can vary from user care to maintenance required by contractor services. NOTE: Any maintenance must be done in accordance with manufacturer instructions.

5.2.1 Basic User Maintenance

1. Avoid contamination as much as possible.
2. Keep all PPE as clean as possible, washing when necessary.
3. Replace defective parts.
4. Avoid exposure to temperature extremes.
5. Clean and disinfect PPE, where appropriate.

5.2.2 Contractor Maintenance

1. Maintain survival and exposure suits.
2. Mustang (equivalent) anti-hypothermia exposure suits should be inspected at least annually when the possibility for use exists.

5.2.3 Storage

1. Store contaminated reusable items separately from clean items.
2. Each storage (warehouse) area must be clearly marked to indicate which items are stored at that location.
3. All protective clothing must be folded or hung in accordance with manufacturers' directions.
4. Storage areas should be free from dust, extreme temperatures, sunlight, excessive humidity, and damaging chemicals and have the capability of being secured.
5. Damaged or unserviceable items should not be stored with serviceable items.
6. An inspection of each storage area should be conducted at least once every six months. A memo-for-record or other document should be maintained to indicate when a storage area was inspected.

5.3 PPE Donning and Doffing

Donning and doffing procedures will be included in mandatory training and refresher courses. These procedures will follow the manufacturer's recommendations as well as EPA and Nation Institute for Occupations Safety and Health publications.

6 Office and Warehouse Safety

6.1 Office Safety

1. Keep police, fire, poison control, and medical emergency phone numbers posted near your telephone.
2. Know the evacuation procedures in the event of fire.
3. Know what actions to take in the event of an earthquake.
4. Know the evacuation procedures in the event of a tsunami.
5. Know where the first aid kits are located.
6. Know the location and how to use fire extinguishers.

   NOTE: All fire extinguishers found in DEC facilities are adequate for all types of fire affecting those facilities.
7. Be familiar with fire survival techniques.
   a. If caught in a smoke-filled area, crawl on the floor and take short breaths through your nose. If possible hold a damp cloth in front of your face.
   b. Before opening a door, touch it to check its temperature. If it is hot, do not open it.
   c. Do not use elevators to evacuate; use stairs.

6.2 Warehouse and Storage Area Safety

1. Be familiar with the Office Safety Guidelines and apply them to the warehouse and or storage area.
2. Warehouse and storage areas will be kept neat and free of obstacles to entrances and exits.
3. Warehouses shall have posted smoking and nonsmoking areas.
4. A nonskid surface must be provided on ramps and walkways where there is a potential for slipping.
5. Appropriate fire extinguishers, showers (eyewash) and other safety equipment must be available.
6. Each warehouse and storage area should have operating guidelines that outline emergency actions to be taken in case of an accident (fire, destruction of facility, etc.)
7. All warehouse personnel must be completely familiar with the provisions of this safety plan, Hazard Communication, and Emergency instructions.

6.3 Chemical Storage

1. Separate areas must be identified and marked for the storage of hazardous materials.
2. Highly volatile or malodorous materials, such as gasoline, must not be stored in warehouses. Appropriate outdoor storage should be provided.
3. A Material Safety Data Sheets (MSDS) must be kept on site for each chemical stored.
4. MSDS for hazardous materials must be consulted to determine storage procedures.
5. The Fire Department must be notified of chemicals and other hazardous materials stored in the warehouse.
6. Appropriate placards identifying hazardous materials must be posted on the exterior of the facility/storage area.

6.4 Proper Lifting Technique

Safe lifting is a skill that can be learned. Picking up loads by exerting the arms and shoulders comes naturally. However, doing what “comes naturally” is a leading cause of the spinal strains and sprains that account for over 93 percent of all industrial back injuries. The legs are several times more powerful than the back—and far less susceptible to lifting injuries. Proper training can prevent many major disabling injuries.

6.4.1 Plan the Lift

Ask for assistance or find a moving dolly if the load feels too heavy or looks too bulky. Check the floor for slippery spots or possible tripping hazards. Decide on your carrying route and destination before lifting. SPREAD YOUR FEET to a width that feels comfortable - about 10" to 20" for men, 8" to 12" for women. Place foot, whichever you prefer, forward and alongside the load and the other behind to provide support, and thrust to the lifting motion. Place your feet close enough to the load so that your legs (not your back) become the “levers.” BEND YOUR KNEES to a right angle and extend them forward. Squat down, keeping your back nearly vertical. Don’t stoop over.

6.4.2 Grip

Get a good grip by extending your fingers and hands around the corners of the load. Tilt the load in the opposite direction and get a hold on the other corner. Press your palms against the corners to reduce strain on your fingers and arms. Don’t flex your elbows or raise your shoulders—this could strain the upper arms and chest.

6.4.3 Keep you back straight

Lifting with the back straight distributes pressure evenly over the spinal discs and lower back muscles. Now “lock” your back muscles so that your spine is rigid. TUCK YOUR CHIN IN and raise your head so that the entire spinal column, not just the neck, is straightened. This will automatically raise your chest and put your shoulders in a better position for arm action. Keep your chin tucked in throughout the lifting movement, then let it return to normal as you reach the standing position.

6.4.4 Make a smooth lift

Keep your body’s weight in proper balance. The thrust of your feet and the leverage of your knees will move your body forward and upward—pushing the load up by your leg muscles. For a split second, you may feel a bit off balance—but you can quickly regain balance by bringing your rear leg forward as the lift is completed. Always use a smooth motion (don’t jerk) to lift the load to a carrying position. Keep the load close to your body. One leg may be used to support the load if necessary. If the load is exceptionally heavy, lift it first to your knee, and from there, in a smooth motion, to the carrying position.

6.4.5 Turning

Turn by changing the position of your feet. Never twist your body. This could stress the lower back.

6.4.6 Lowering

To lower a load to the floor, simply reverse the lifting procedure described above. Never lean over while lowering a load.

6.4.7 Stacking

“Chest High” is a safe rule to follow when stacking a load. Stacking at greater heights may cause serious strain. By using pallets or some other steady platforms, lifts can be made in stages if the stack must be made higher than chest height. Other lifting hazards include splinters, nails and jagged edges. Check for these before lifting. Gloves protect the fingers against sharp edges. Make sure your hands and fingers are free and won’t be pinched when you put the load down.

7 First Aid

7.1 First Aid Definition

First aid is defined as the "immediate and temporary care" given to the victim of an accident or sudden illness until medical services are available. Effective first aid takes common sense and knowledge of a few simple rules. AKMAP personnel should seek professional medical assistance for injuries, except minor cuts or abrasions, as quickly as possible.

7.2 Required First Aid Training

AKMAP personnel are required to maintain and provide documentation of current First Aid/CPR with Automatic Electronic Defibrillator (AED) training.

7.3 First Aid Equipment Supplied by AKMAP

AKMAP will make first aid kits, blood borne barrier kits and AEDs available to field crews.

NOTE: Maintaining isolation from blood-borne pathogens and other bodily fluids and substances when rendering first aid is extremely important. Care should be taken by the first aid provider to protect him or herself from direct contract with these substances.

7.4 Submission of Health Questionnaire

All employees and contract field crews must submit a Health Questionnaire (Appendix B) to the Project Engineer. Any employee with disabilities or precarious health conditions who are not able to fully complete tasks outlined in their job requirements or that pose additional risk to field crew safety may not be permitted to conduct to field work.

7.5 Cold Stress

Exposure to cold stress can result in injury and if left untreated can lead to the loss of limbs and/or death. Cold injuries are generally caused by environmental factors such as wind, rain, snow, low temperatures, or cold metal. Poor blood circulation, caused by medication or wearing tight-fitting clothing, may also be a contributing factor to cold stress.

7.5.1 Hyperthermia

7.5.1.1 Symptoms

1. General feeling of cold.
2. Shivering (note: not all victims will shiver).
3. Shivering intense enough to hamper the ability perform rudimentary tasks or walk.
4. A feeling of euphoria (victim may discard clothing as he/she feels hot).
5. Unconsciousness.
6. Death.

7.5.1.2 Treatment

1. Get victim out of cold/wet clothes.
2. Cover victim with blankets or put in a sleeping bag to prevent further loss of body heat.
3. Apply WARM heat (NOT HOT).

4. Body to body heat is preferred.
5. Apply warm towels.
6. Apply wrapped warm rocks or potatoes.
7. If possible, give warm fluids (no alcohol or caffeine) to raise body temperature.
8. Get medical attention.

7.5.1.3 Prevention

1. Eat a well-balanced, high calorie diet.
2. Keep hydrated – drink plenty of fluids (avoid alcohol or caffeine).
3. Wear wool or synthetic clothing.
4. Wear loose, layered clothing.
5. Always wear a hat.
6. Seek shelter when you begin to feel cold.

7.5.2 Foot Immersion

Excessive exposure of feet to water

7.5.2.1 Symptoms

1. Swelling of the feet.
2. Pain.

7.5.2.2 Treatment

1. Remove wet footwear.
2. Dry and warm feet.

7.5.2.3 Prevention

1. Keep feet dry.
2. Change socks frequently.

7.5.3 Frostnip

Minor freezing of the tips of ears, nose or cheeks.

7.5.3.1 Symptoms

1. Intense feeling of cold.
2. Skin turns a white/grayish color.

7.5.3.2 Treatment

1. Warm affected areas.

7.5.3.3 Prevention

1. Protect areas (facemask)

7.5.4 Frostbite

Freezing of flesh, typically hands and feet, can be extremely dangerous if left untreated

7.5.4.1 Symptoms

1. An early symptom may be sharp stinging sensation.
2. Skin will appear pale and feel hard.
3. Blisters may appear in 1- 2 days.

4. Serious frostbite can result if the flesh is frozen completely to the bone.

7.5.4.2 Treatment

1. If the frostbite is minor, apply warmth (NOT HEAT) such as warm towels or a hot water bottle wrapped in towels.
2. For serious frostbite, seek medical attention. DO NOT attempt to thaw the frozen part if there is any chance the body part can refreeze.

7.5.4.3 Prevention

1. Dress warmly.
2. Stay inside whenever possible.

7.5.5 Wind-Chill Factor

The wind-chill factor is the cooling effect of the combination of particular temperatures and air speeds on exposed human skin. Warm, wind-resistant clothing is necessary for personal comfort and health. Following is a chart showing the equivalent wind-chill for selected temperatures and wind speeds (the chart was revised in 2001).

Table 7-1 NWS Wind Chill

Wind Speed (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times 15 min 10 min 5 min

$$Wind\ Chill\ (°F) = 35.74 + 0.6215(T) - 35.75(V^{0.16}) + 0.4275(T)(V^{0.16})$$

Where, T = Air Temperature (°F) V = Wind Speed (mph)

7.6 Heat Stress

Exposure to heat stress can result in injury and if left untreated can lead to injury and/or death. When the body is unable to cool itself heat related illness can occur. Heat injuries are generally caused by environmental factors such as sun light, direct heat, or humidity; or physical factors such as physical

exertion, intolerance of hot environments, or dehydration caused by medication, alcohol, caffeine, or inadequate liquid intake.

7.6.1 Heat Exhaustion

Overheating of the body.

7.6.1.1 Symptoms

1. Headaches, dizziness, lightheadedness or fainting.
2. Weakness and moist skin.
3. Mood changes such as irritability or confusion.
4. Upset stomach or vomiting.

7.6.1.2 Treatment

1. Rest victim in a cool, shaded area.
2. Give cool fluids; do not give alcohol or caffeine.
3. Give salty snacks as tolerated.
4. Loosen or remove clothing.
5. Apply water to skin.

7.6.1.3 Prevention

1. Know signs and symptoms of heat related illnesses; monitor yourself and co-workers.
2. Block out direct sun or heat source.
3. Use cooling fans or air-conditioning; rest regularly.
4. Drink lots of water; about 1 cup every 15 minutes.
5. Wear lightweight, light colored, loose fitting clothing.
6. Avoid alcohol, caffeinated drinks, and heavy meals.

7.6.2 Heat Stroke

A medical emergency that can result in death, immediate medical attention is required.

7.6.2.1 Symptoms

1. Dry, hot skin with no sweating.
2. Mental confusion or losing consciousness.
3. Seizure or convulsions.

7.6.2.2 Treatment

1. Call 911 immediately if you suspect heat stroke.
2. Move victim to cool, shaded area.
3. Loosen or remove clothing.
4. Provide cool drinking water.
5. Fan or mist the person with water.

7.6.2.3 Prevention

1. Know signs and symptoms of heat related illnesses; monitor yourself and co-workers.
2. Block out direct sun or heat source.
3. Use cooling fans/air-conditioning; rest regularly.
4. Drink lots of water; about 1 cup every 15 minutes.
5. Wear lightweight, light colored, loose fitting clothing.

6. Avoid alcohol, caffeinated drinks, and heavy meals.

8 Water Operations

8.1 Water Operations

AKMAP personnel may be required to board vessels in their line of work, as passengers and operators. Alaskan waters are cold and dangerous. It is imperative that all personnel follow the guidelines below to maintain safety.

8.2 General Safety Rules

1. All federal, state and local regulations will be strictly observed at all times.
2. Make sure Personnel Flotation Devices (PFD) are fastened; or zipped in the case of float coats.
3. Always make use of the Buddy System when operating or riding any kind of boat.
4. All personnel engaged in boating activities will receive a safety briefing that includes responsible skiff operation.
5. During winter months, all personnel operating or riding in skiffs from berthing boats to shore, shore to berthing boats, or transferring from boat to boat will at minimum wear Mustang suits.
6. All personnel on berthing boats must receive safety training specific to that boat. The captain must be requested to provide this training. Training should include information concerning evacuation, survival suits, life boats, fire, and communications.
7. Captains of leased boats will provide survival suits for each passenger.
8. Alcohol and drugs are forbidden on all boats.
9. Swimming from boats is prohibited except in an emergency.
10. The boat captain is in charge of all operations on the boat.
11. All persons working on boats will wear hard hats and PFDs as appropriate on decks.
12. Personnel should carry survival items in their PFD, Mustang suit or outer garments such as a signal mirror, whistle, and waterproof match case with matches, etc.
13. In any accident where multiple victims are in the water, all involved should lash themselves together. This will provide a larger target for search vessels or aircraft to locate and will prevent a semiconscious person from drifting away.

8.3 Man Overboard

A person overboard is an emergency that requires immediate response. Personnel working on deck during response operations must maintain awareness in order to prevent accidents from happening. If a person falls overboard, the following steps will be accomplished:

1. A person witnessing a man overboard event will throw a life ring or other floating object in the proximity of the person and shout, “Man overboard!” as loudly as possible until others onboard have registered the situation.
2. The person witnessing the man overboard will continue to keep the person in sight, and point in the direction of the person overboard.
3. A call on the radio working frequency will be made: “THIS IS THE (name of vessel), WE HAVE A MAN OVERBOARD ON OUR (PORT or STARBOARD) SIDE.”
4. On hearing the report of a man overboard, the vessel captain will immediately turn and approach the person, bringing the person alongside the vessel on the leeward (downwind) side. The on-scene person in charge will be notified of the emergency and order all operations to stop.

Once the person is recovered and aboard the recovery vessel, that vessel will proceed to the nearest dock facility to obtain medical attention for the person.

9 Motor Vehicle Operations

9.1 General Safety Rules

With the exception of "slips, trips, and falls," the most dangerous situation faced by employees is the operation of an automobile or light truck.

1. All operators of motor vehicles must practice defensive driving.
2. Certificates of registration and other required documents should be carried in vehicles at all times.
3. All drivers must abide by state, federal and local traffic regulations.
4. All occupants of state, state-leased, and personal vehicles used for state business must wear seat belts.
5. Picking up hitchhikers is prohibited.
6. A driver should make it a habit to look around the vehicle for potential hazards before entering it and putting it into motion.
7. Use spotters when operating a vehicle in confined areas.
8. Whenever possible, park so backing up is not required.
9. Never operate a vehicle when physically unfit, such as being tired.
10. Never operate a vehicle if impaired by alcohol, medication, or drugs.
11. Follow manufacturer's instructions when using jacks to change tires. NEVER crawl under a car that is elevated on jacks.
12. Clean windows of all frost, ice, or dew before driving. Remove heavy accumulations of snow off of the vehicle (including the roof).
13. Do not engage in other activities such as dialing a cellular telephone or reading reports while driving. Driving is a full time operation.
14. Getting in and out of a vehicle while it is in motion is prohibited, as is riding anywhere on the vehicle not designed for passengers.
15. Do not get out of a vehicle when the engine is running, or drive a vehicle with a door open.
16. Do not add fuel to the vehicle while the engine is running.
17. Flammable liquids are not to be carried in vehicle trunks or luggage compartments.
18. Spare auto batteries should not be stored or transported in the trunk of a vehicle.
19. Precautions must be taken to ensure that aerosol containers, including engine starting fluids and de-icers, are not exposed to heat.
20. Aerosol containers should not be carried in the same compartment as two-way radio transmitters.
21. Engine starting fluid must not be carried inside the passenger compartment.
22. EXCEPT IN EMERGENCIES, gasoline must not be carried inside passenger cars or truck cabs. When an emergency requires that gas be carried inside a vehicle, it must be carried in an Underwriters Laboratories (UL) approved container that is sealed tight to prevent leakage of gasoline or gasoline vapors.
23. Do not let poisonous carbon monoxide fumes accumulate. Garage doors must be opened for ventilation whenever a motor vehicle engine is running. Carbon monoxide fumes are odorless and invisible.
24. Open a vent window to prevent carbon monoxide poisoning when a vehicle is idle and the engine is running to provide warmth.
25. Do not carry loose items, such as hard hats or glasses, on a vehicle dashboard.
26. Wear safety glasses while driving State vehicles on gravel roads.

9.2 Inspections

To be made by the driver of the vehicle before operating the vehicle.

1. Tires
2. Exterior (for damage)
3. Oil, fuel and water levels
4. Check the ground for possible fuel/oil leaks
5. Lights (park, drive, signal, reverse, headlights, high beam)
6. Emergency items (flares, tow rope, jumper cables, etc.)
7. Steering
8. Front end alignment-tire balance (check while driving)

9.3 Servicing

1. The Alaska Department of Transportation and Public Facilities (ADOTPF) will determine servicing requirements such as oil changes, lubrication, and tire replacement (winter/summer) for State vehicles.
2. The operator will ensure that fuel, oil, and coolant are kept at recommended levels.
3. During winter-severe cold conditions, the fuel level should never be allowed to drop below one-half tank.
4. The operator should ensure tires are inflated to proper pressure levels.
5. ADOTPF or a state-contracted repair agency should be contacted for vehicle repairs,
6. Minor repairs such as changing tires, light bulbs, and fuses may be completed by the operator.

9.4 Jump Starting

Personnel must use extreme care if an emergency requires them to “jump start” another vehicle.

1. Safety glasses should be worn.
2. One cable should be attached to the power terminal (normally the positive [+] terminal) of the dead battery. The other end should be attached to the power terminal on the booster battery.
3. Attach the remaining cable to the ground terminal of the booster battery.
4. Take the remaining end of the ground jumping cable and attach it to the engine block or frame of the vehicle. DO NOT attach the ground cable clamp to the ground terminal of the dead battery.
5. Once a vehicle with a dead battery has been started:
6. Remove the ground cable from its engine block or frame.
7. Remove the other end of the cable from the ground terminal (booster battery).
8. Remove the power cable from the booster battery.
9. Remove the power cable from the “dead” battery.
10. NOTE: Refer to the vehicle operator’s manual for specific instructions as manufacturers may specify alternative procedures.

9.5 Additional Instructions for Light Trucks

DEC personnel will not generally be operating any truck larger than a one-ton pick-up.

1. Truck beds must be kept free of oil and grease.
2. Truck and tire load capacity must not be exceeded.
3. If a load extends past the tailgate, a flag must be attached to it to alert other drivers.
4. All tools/equipment should be carried outside the cab, secured firmly.
5. Personnel should not stand on the bed of the truck while it is moving.

9.6 In the Event of an Accident

An accident involving any state owned, rented, or leased vehicle must be reported as soon as possible to the supervisor, and the required Liability Accident Notice form must be filled out (Appendix F).

10 Field Travel Preparation and Safety

10.1 Field Travel Preparation

Before going into the field, personnel should thoroughly plan and prepare for the field work. This should include:

10.1.1 Mapping/Transport Review

1. Obtain contour maps of the area you plan to enter and familiarize yourself with the area.
2. Review maps for routes of access to site and identify what transportation means are required.
3. Review maps for possible camping sites.
4. Talk to people who are familiar with the area about any special considerations.
5. Take maps with you into the field.
6. Have a compass and a GPS to aid in navigation.

10.1.2 Travel Plan / Schedule

1. Prepare a concise travel, emergency, and non-emergency communication plan and leave it with your supervisor.
2. Produce copies of your travel plan and distribute them to your project leader and co-workers.
3. In the field always inform your supervisor where you are going and when you will return if you are leaving the campsite.
4. Before conducting field work, AKMAP must submit a Trip Plan (Appendix H) to the Program Manager.
5. Have the right personal protective equipment readily available (Section 5.0); and properly equip your vehicle if driving (Section 11.11).

10.1.3 Communications

1. Prepare for your communications needs.
2. Daily radio and/or telephone communications are mandatory unless other suitable arrangements are made.
3. Each field crew must have the capability for twenty-four (24) hour, seven (7) days per week emergency communication.
4. If expected radio contact is not made on schedule, the department will automatically begin search procedures.

10.1.4 Water

1. Prepare for your water needs.
2. Examine maps for possible places to obtain water.
3. Bring methods to make to water safe to consume, i.e. a filter capable of removing pathogens or means of boiling your water. Two major water borne pathogens in Alaskan freshwaters are *Giardia lamblia* and *Cryptosporidium spp*.
4. Bring vessels in which to store potable water.

10.1.5 Food Rations

Crew Leaders should select food rations to assure a well-balanced diet.

10.1.5.1 Food Selection and Storage

Selection should be based on the permanency of the camp, transportation access and potential for interaction with bears. For temporary camps, avoid products contained in glassware and consider purchasing freeze-dried foods and other non-perishables.

Purchase perishables just before a trip and take efforts to maximize food storage life.

Careful wrapping, freezing, chilling using ice chests and selecting nonperishable foods all help reduce the hazard of food spoilage. When there is limited storage at a campsite, foods more likely to spoil should be eaten first.

10.1.5.2 Freeze-Dried Foods

Freeze-dried foods eliminate the concern for spoilage and should be considered for supplementing camp food supplies. A variety is available.

10.1.5.3 Canned Foods

Always inspect canned foods and emergency rations before using. Destroy canned food which has been subjected to freezing and/or shows evidence of damage, e.g., leakage, rust, swells, weaknesses or dents in the can or canned food which appears spoiled, has mold growth or is abnormal in appearance, taste or odor.

10.1.6 Food Contamination

If there is any doubt about the wholesomeness of a food, destroy it. Closely examine all food before eating. Destroy any food which is abnormal in appearance, taste or odor. Dispose of foods in a manner that will not attract bears.

10.1.7 Medical Aid/Supplies

Each camp must have a complete first-aid kit available. Consult with your project leader, Area or Regional Safety Officer or a medical professional to determine the type and adequacy of kit needed, e.g., whether it should be a minimal first aid kit or a field trauma kit.

10.1.8 Other Important Supplies

Supplies you will find most important any time you go into the Alaskan wilderness are:

1. Bug Repellant. Take an AMPLE supply.
2. Sunscreen. Take a supply of sunscreen personnel will be regularly exposed to sunlight for extended periods.
3. Firearms. See Section 12.0

10.2 Field Safety

Many environmental hazards exist in Alaska; below, selected hazards are outlined.

10.2.1 Poisons

10.2.1.1 Carbon Monoxide (CO)

Carbon Monoxide is a colorless, odorless, tasteless, deadly gas produced by incomplete combustion. Improperly adjusted gas-fired appliances and heaters in your tent, boat or camper may produce levels of carbon monoxide that can be fatal. Check the burners of your ovens, range, heaters and

lights. A lazy, yellow flame is an indication of a poorly adjusted burner. The flame should be blue in color. Be sure there is constant and adequate ventilation whenever you are using a gas-fired appliance. Purchase and use a battery powered CO alarm in dwellings where heaters generating CO will be used. Know the signs of Carbon Monoxide poisoning: headache, nausea, general malaise, vertigo, poor judgment, and inability to perform.

10.2.1.2 Poisonous Plants

There are a number of poisonous plants in Alaska. Poisoning can occur through eating or touching. Do not harvest or eat any wild plant until you have identified it in a botanical reference and have verified it is safe to touch and/or consume. Paralytic Shellfish Poisoning (PSP). Alaska has a significant problem with shellfish infected with concentrated poisonous toxins. As eating infected shellfish can cause death, use extreme caution before eating any shellfish. Consider mussels and butter clams "off-limits" (never eat them).

10.2.2 Bacterial/Parasitic Infestations

10.2.2.1 Tularemia (Rabbit Fever)

Tularemia is a bacterium infecting some Alaska Snowshoe Hares. Normal cooking will kill this bacterium. Individuals may become infected with Tularemia when cuts on their hands come into contact with the blood or meat of an infected hare during food preparation.

10.2.2.2 Trichinosis

Trichinosis is a parasite infestation in some Alaska bear, walrus and seal. It may cause serious illness to humans. Thorough cooking of the meat of these animals kills the parasite.

10.2.2.3 Insects

Most insects are annoying, leaving bites that swell and itch from a few days to two weeks. Stinging insects inject venom which may cause painful swelling. Excessive scratching can cause infections. As some insects can bit through clothing, double layering clothing is recommended, as this will prevent most bites. Be aware of anyone in your party allergic to stinging insects. Make sure they carry an allergy "Sting Kit" and know how to use it.

10.2.2.4 Bears

10.2.2.4.1 General Bear Rules

It is illegal to feed bears in Alaska, intentionally or by leaving food or trash unprotected at the campsite. Do not camp on bear trails or near other areas of high bear use. If you smell decomposing meat while on a trail, stop. It may be a bear's food cache and the bear may be near the site. Leave immediately. Do not panic. Do not approach any bear, especially one with cubs. Once a bear is seen, do everything to avoid contact.

10.2.2.4.2 Don't Crowd Bears

All bears have a certain "critical space". If you get too close, you may provoke an attack.

10.2.2.4.3 Don't Surprise a Bear

Bears see almost as well as humans, but trust their noses and ears more. When hiking in bear country, make noise as you travel to avoid surprising bears. You can tie a bell or a can of rocks on you pack, whistle, or sing. If possible, walk with your back to the wind. These precautions will warn bears of your approach and give them time to move away. A startled bear can be a dangerous bear.

10.2.2.4.4 Bear Encounters

If a bear approaches, STOP! Remain calm. Attacks are rare, as most bears are only interested in food, protecting their cubs, or maintaining their personal space. Give the bear every opportunity to avoid you by identifying yourself. Let the bear know you are human. Talk to the bear in a normal to loud voice. Wave your arms above your head. If a bear cannot tell what you are it may come closer or stand on its hind legs to get a better look and smell. Such behavior should not be misinterpreted as a prelude to an attack. Bears often make bluff charges, sometimes within feet of their adversary. Continue waving your arms and talking. If the bear gets too close, raise your voice aggressively, bang pots and pans or use any noisemaker. Never imitate bear sounds or make high-pitched noises or squeals. If a Bear is within the effective range of the available pepper spray bear deterrent, spray the bear in the face. If any members of the party have firearms, get out of the space between those persons and the bear should they need to fire at and kill the bear.

10.2.2.4.5 Brown Bear Attack

If a brown bear actually makes contact, fall to the ground and play dead. Lie flat on your stomach or curl up with your hands behind your neck. Typically, a brown bear will break off its attack once it feels the threat has been eliminated. Remain motionless for as long as possible. If you move, a brown bear may attack again and you must play dead again.

10.2.2.4.6 Black or Polar Bear Attack

If a black or polar bear attacks you, resist in any manner possible, since they are more likely to attack you as a food source.

11 Emergency Preparedness and Survival

11.1 Winter Driving

11.1.1 Winter Driving Preparedness

Personnel traveling between field work locations and other cities, towns or villages should begin with a full tank of fuel and have an emergency kit that includes the following:

1. Winter sleeping bag.
2. Spare winter clothing.
3. Cellular telephone.
4. Three day supply of non-perishable food.
5. Three day supply of water, or means of obtaining water, i.e. boiling snow.
6. Signaling cloth strips (red or orange).
7. Candles and matches.
8. Shovel.
9. Flares.*
10. Tow rope.*
11. Fire extinguisher.*

* Mandatory equipment for DEC State vehicles.

11.1.2 Winter Driving Emergency

If you become stuck or stranded and cannot free the vehicle.

1. Remain with the vehicle unless you are absolutely sure you can reach help in a short time.
2. Use a cell phone to call for a tow truck, alert emergency services to your location and predicament, and alert your supervisor.
3. Turn on the emergency flashers.
4. Mark your vehicle's position with a piece of cloth.
5. If necessary, run your engine sparingly for heater use in order to conserve gas.
6. While the engine is running, open a vent window and clear the space around the tail pipe of snow to prevent a buildup of carbon monoxide.
7. Get into a sleeping bag before you get cold.

11.2 Earthquake Safety

The movement of the ground in an earthquake is seldom the direct cause of death or injury. Most earthquake casualties result from falling objects and debris, splintering glass and fires.

11.2.1 During an Earthquake

1. Keep calm. Do not panic or run.
2. Stay where you are. If you are outside, stay outside. If you are inside, stay inside.
3. When inside take cover under a desk, table or against inside walls or doorways. Stay away from glass, windows, and outside doors.
4. Candles, matches, and other sources of open flame or spark should not be used either during or after the tremor. Put out all fires. Gas leaks could occur.
5. If you are outside, move away from buildings and utility lines.
6. Once in the open, stay there until the shaking stops.
7. Don't run between or near buildings.
8. The greatest danger from falling debris is just outside doorways and close to outer walls.

9. If you are in a moving car, stop as quickly as safety permits and stay in the vehicle.
10. When you resume driving, watch for hazards created by the quake such as fallen objects, downed electric wires, broken bridges, or undermined roadways.

11.2.2 After an Earthquake

1. Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury.
2. Check utility lines for damage. If you smell gas shut off the main gas valve. Leave the building and report damage to utility officials.
3. If electrical wiring is shorting, shut off power at the main meter box.
4. If water pipes are damaged, shut off the flow at the main valve. Emergency water may be obtained from sources such as hot water tanks, toilet tanks, and melted ice.
5. Check chimneys for cracks and damage. The initial check should be made from a distance. Approach chimneys with great caution.
6. Stay away from and out of severely damaged building. Aftershocks can bring them down without warning.
7. Stay off the telephone, except to report an emergency. Turn on your radio or television to get the latest emergency information.
8. Do not go sightseeing. It is likely you will interfere with emergency service personnel.
9. Prepare yourself and your shelter for additional earthquake shocks.

11.3 Tsunami Safety

A tsunami (or tidal wave) is actually a series of waves caused by an underwater disturbance normally associated with an earthquake. When you hear that an earthquake has occurred, stand by for a tsunami warning.

If a tsunami is imminent:

1. Personnel involved in shoreline operations should seek high ground if they are not evacuated by aircraft.
2. Response Center communication operations must notify any personnel that are in boats, on shore or in-flight.
3. Boat captains should go to deep water.
4. Stay out of dangerous low-lying areas until a competent authority issues an “All Clear”.
5. A noticeable rise or fall of coastal water sometimes heralds an approaching tsunami. This is “nature’s tsunami warning” and should be heeded.

11.4 Survival Priorities

In the event you find yourself in a survival situation due to medical emergency, equipment failure, becoming lost, vehicle break down, aircraft accident, or any other situation where the life of one or more persons is at risk, the survival of those persons becomes the first and only priority. Follow the priority list given below:

Recognition – Recognize that a survival situation is at hand. Do not panic. Try to call for help using a radio and or cell phone.

Inventory – Go through the supplies you have with you, open survival kits. Determine any first aid needs and treat any injuries.

Shelter – Find or build suitable shelter. Build a Fire to keep warm.

Signals – Prepare and or use signals to alert potential rescuers of your location, i.e. mirrors, signal fires, ground signals, whistles, etc.

Water – Obtain a source of drinking water.

Food – Obtain a source of food, i.e. small game, fish, birds, insects, identifiable berries, etc.

Play – Prevent boredom and depression.

12 Firearm Safety

12.1 Firearms Policy

At the time of this edition, AKMAP does not issue department firearms. However, personnel may choose to carry personal firearms into the field. All field personnel who choose to carry personal firearms into the field will be given firearm safety instruction before going afield. Approved training courses include those given by ADF&G, NRA, and 4H.

12.2 Training

1. Project leaders will be responsible for ensuring field personnel are proficient with firearms.
2. All personnel on a work site must know how to safely handle every firearm at the site.
3. Personnel who are not comfortable with their knowledge the firearms will be given proper training provided by the Project Leader.
4. All personnel working within a group that has been given the responsibility of bearing firearms shall posses the ability to effectively use those firearms.
5. All personnel will be aware of and adhere to ADFG policies regarding wildlife taken in defense of life and property.

12.3 Safe Handling

1. Follow all Federal, State, and Local Government laws concerning firearms.
2. Keep the muzzles of all firearms pointed in a safe direction at all times.
3. Never point a firearm at any person.
4. Do not put your finger on the trigger of a firearm at any time except when discharging the weapon.
5. Always open the bolt and check to be sure the firearm is unloaded before handling or handing the firearm to someone else.
6. When receiving a firearm from someone else always open the bolt and check that the firearm is unloaded.
7. Never carry a rifle slung across your back while in bear country as the rifle is almost inaccessible in a surprise encounter. Firearms should always be readily accessible in situations that encounters with dangerous wildlife are likely.
8. Load a round into the chamber only when confrontation with dangerous wildlife appears imminent. As soon as the danger has passed, remove any live round from the chamber.
9. In the event wildlife must be killed in defense of life or property, notify your supervisor and take the required actions outlined in ADFG policies.
10. Any employee should report to their supervisor a situation where horseplay, inability to use, or lack of knowledge might be endangering fellow workers concerning firearms.

12.4 Maintenance

1. Check the barrel periodically during the day to make sure it is free and clean of foreign particles.
2. A small cleaning kit should be carried with the firearm to clear debris from the barrel.
3. Firearms will be cleaned after each day of use.
4. Make sure firearms are sighted in properly before taking into the field and are periodically checked to ensure their accuracy

12.5 Storage

1. Store firearms with bolts open so they can dry and be clearly seen as unloaded.
2. Keep parts of firearms and their appropriate ammunition separate so they will not get mixed up.

13 Aircraft Safety

13.1 Safety Before Flight

1. Follow the pilot's instructions when loading gear into the aircraft.
2. Personnel should pay close attention to all pre-flight safety briefings given by the pilot(s). Know the location and use of fire extinguishers, life raft, survival gear, and the Emergency Position Indicating Radio Beacon (EPIRB). Also know the preferred impact position and the emergency exit procedures.
3. Supervisors must brief the pilot on the mission so he/she can prepare a concise flight plan.
4. Passengers have the right to reject a flight that they feel is unsafe. Employees should have the training and knowledge to assess aviation weather information and make an informed "go/no-go" decision.
5. Passengers who feel that they have been put in danger during a flight should contact the local FAA Flight Standards District Office (FSDO) to discuss the matter. This could save someone's life. This is particularly important if, during a flight in a single-engine commercial aircraft, the plane entered the clouds, a situation prohibited for most single-engine commercial operations.

13.2 Safety During Flight

1. Seatbelts and shoulder harnesses (if so equipped) must be worn snugly on all flights.
2. Hearing protection should be worn on all aircraft.
3. Passengers should not move about the aircraft without permission of the pilot.
4. Passengers should wear clothing appropriate to the current climatic conditions; during winter months, thermal underwear and suitable cold weather outer clothing should be worn. Spare clothing should be taken.
5. Fitzwright or Wright's pilot suits must be worn on all helicopter flights over water. Mustang suits or float coats should be worn on flights over water in small fixed-wing aircraft.

13.3 Safety After Flight

1. No person shall leave an aircraft until given approval by the pilot (no person should exit or board a fixed-wing aircraft until the propeller has stopped).
2. Care must be taken when leaving aircraft as ground/aircraft surfaces can be slippery - when deplaning a float plane; the water depth may be deceiving.
3. If forced to make an emergency landing on water, passengers should remain inside the aircraft unless it begins to sink or tip. Take emergency kits and life rafts when exiting the aircraft.

13.4 Special Considerations for Helicopters

1. Fitzwright or Wright's pilot suits will be worn on all helicopter flights over water.
2. Do not approach a helicopter until given approval by the pilot.
3. Always approach a helicopter in crouched position.
4. Don't walk up slope when under the arc of the rotor.
5. Approach a helicopter from the front (45' angle), always in full view of the pilot.
6. REMAIN CLEAR OF THE REAR OF THE HELICOPTER. NEVER WALK NEAR OR UNDER THE TAIL BOOM OR TAIL ROTOR.
7. Do not carry any objects above head level when entering/leaving a helicopter.
8. Remove hats and secure glasses and other loose objects when entering/leaving a helicopter.
9. If you must load or unload material while the rotors are moving, be conscious of your position at all times.

10. While in flight, never open doors or throw objects from the aircraft.
11. All loose gear within 100 feet of the landing area should be secured due to rotor downwash.
12. Keep clear of landing zone until helicopter has landed.

13.5 Special Considerations for Fixed Wing Aircraft

1. Stay away from the propeller on parked aircraft. A magneto may not be properly grounded and may cause the engine to start or kick back.
2. A Mustang suit or jacket should be worn when flying over water.

13.6 Authorized Passengers of State Chartered Aircraft

1. Employees of the state government;
2. Members of the Boards of Fisheries and Game;
3. Employees of the U.S. government working with the department on joint projects;
4. Contracted consultants of the state; who are employed, by contract to conduct environmental studies;
5. Volunteers of the state; who have completed the Volunteer Service Agreement (Appendix H) and received approval from the Program Manager.

13.7 Aircraft Emergencies

13.7.1 Before Impact

1. Do not interfere with the pilot(s), who will be trying to save the aircraft.
2. Make sure your seatbelt/survival suit is secured.
3. Remove and secure loose object such as pens, glasses, or cameras.
4. Review location and use of life raft.
5. Be prepared to activate the EPIRB
6. Check location and use of fire extinguishers.
7. Review exit procedures.

13.7.2 After Impact

1. Do not leave the aircraft until all movement has ceased.
2. Open doors only as previously directed by the pilot—helicopter on-water procedures may not allow the passenger door to be slid open as this action may puncture the floats (if activated).
3. Use the exits as explained by the pilot(s).
4. Assist in the rescue of other passengers and crew.
5. Place life raft(s) outside the aircraft, holding on to the lanyard. Activate as previously instructed by the pilot.
6. Secure survival equipment.
7. Prepare for survival situation as outlined in Section 11.4.

14 Training

14.1 Importance of Training

Training is an important factor in ensuring the safety of personnel. It is the policy of the Division that each employee shall be provided with sufficient relevant training to ensure that his or her work is performed in the safest manner possible.

14.2 Project Engineer Responsibilities

Each Project Engineer must be familiar with any State or federal requirements applicable to the work being performed by his or her employees. Project Engineers should also keep informed of potential staff training opportunities and work to promote and facilitate appropriate training for their employees.

14.3 Employee Responsibilities

Employees must meet the applicable safety-training requirements of the U.S. Department of Labor's Occupational Safety and Health Administration. These may include Hazard Communication, HAZWOPER and annual refresher, and/or other specific training courses, depending on the specific duties of the responder. It is the responsibility of each employee to maintain his or her own file of original training certificates and to submit copies of those certificates as necessary to document compliance with applicable requirements.

14.4 Hazardous Waste Training

The federal requirements for hazardous waste operations and emergency response can be found at 29 CFR 1910.120. In general, the requirements are presented as generic guidelines and are not intended as a complete training curriculum for any specific employer. Site-specific training programs must instead be developed on the basis of a needs assessment.

14.5 Training Program and Record Keeping

Each program will develop and maintain its own training policy, taking into account these and other guidelines as applicable. In each case, relevant staff training records should be maintained, both to demonstrate compliance with any OSHA training requirements and to document that personnel have received adequate training. Training records should either include copies of certificates received or indicate where documentation for the training exists. It is the responsibility of each employee to maintain his or her own file of original training certificates and to submit copies of those certificates as necessary to document compliance with applicable requirements.

14.6 AKMAP Personnel Required Training

1. First Aid/CPR with AED – maintain current certification
2. Small boat safety – Minimum every 4 years.
3. Cold water survival – Minimum every 4 years.
4. Survival suit donning – Yearly, if engaged in work requiring survival suits.

14.7 AKMAP Personnel Recommended Training

1. Bear safety
2. Enclosed aircraft water survival

3. Gun safety, if authorized for use – Every 4 years.

15 Emergency Planning

15.1 Emergency Planning Responsibility

The Project Engineer is responsible for the following:

1. Emergency and safety plans are updated periodically.
2. Before beginning any activities local emergency service providers will be documented.
3. Verify local emergency contacts.
4. Inventory and check site emergency equipment and supplies
5. Establish emergency signals, evacuation routes, and on site and off site assembly points.
6. Review emergency procedures or personnel injury.
7. Show field teams where emergency response equipment is located.
8. Brief new workers on the emergency response plan.
9. All project personnel should complete the Field Emergency Contact Form (Appendix I), and example is shown in table 15.1.

15-1 Emergency Contacts

Phone Contacts	
Emergency (Ambulance, Police, Fire, other emergency situation)	911
Alaska State Troopers	907-786-8500
Alaska Tsunami Warning Center	907-745-4212
Poison Hotline	1-800-222-1222
Search & Rescue	907-428-7230
Marine Contacts	
US Coast Guard	1-800-478-5555 (cell phone *CG)
M/V Tiklak	
R/V Norseman	
Emergency Radio Frequency	
Channel 16	US Coast Guard Distress Channel
Other Contact Numbers	
AKMAP Satellite Phone	907-928-0647
Douglas Dasher, Section Manager	907-451-2172 work, 907-347-7779 cell
Terri Lomax, Field Officer	907-269-7635 work, 907-727-8949 cell
Project Personnel	

16 Confined Space

16.1 Applicability and Content

The Department of Environmental Conservation, Division of Water employees may encounter work places that have confined spaces that may cause death or serious injury to employees who may enter them. The following is developed to provide awareness training to personnel to 1) Recognize characteristics of confined spaces; 2) Understand the hazards of confined spaces; 3) Recognize and understand the health effects of hazardous atmospheres.

As a general policy, the Division of Water personnel are not to enter confined spaces that are defined as permit required. Entry into permit required confined spaces typically requires dedicated and specialized monitoring and testing equipment, personal protective equipment, rescue equipment, specific entry and rescue procedures, and training that must be followed to ensure the employees health and safety.

If Division of Water employee duties or operations change that require entry into permit required confined spaces, the employee and/or supervisor will notify the Program Manager and obtain approval from the Division Director. If the Director approves; a workplace hazard assessment will be accomplished and additional training and certification will be required before the employee may begin duties that require entry into permit required confined spaces. Typically, all options will be explored to have the task completed without required entry by the employee. Adherence to this policy is mandatory for all supervisors and employees within the Division of Water.

16.2 Definitions:

Confined Space – A space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit; and,
- Is not designated for continuous human occupancy.

Permit Required Confined Space – A confined space that:

- Contains or has a potential to contain a hazardous atmosphere; or,
- Contains a material that has the potential for engulfing an entrant; or,
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section; or,
- Contains any other recognized serious safety or health hazard.

Acceptable Entry Conditions – The conditions that must exist in a permit space to allow entry and to ensure employees can safely enter into and safely work within a permit required confined space.

Entry – The action by which a person passes through an opening into a permit required confined space. Entry is considered to occur as soon as a part of the entrant's body breaks the plane of an opening into the space.

Entry Permit – The written or printed document that allows and controls entry into a permit space.

Entry Supervisor – The person responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry.

Hazardous Atmosphere – An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following conditions:

- Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL) or lower explosive limit (LEL);
- Airborne combustible dust at a concentration that meets or exceed its LFL or LEL, (this may be approximated as a condition in which the dust obscures vision at a distance of five feet or less);
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- Atmospheric concentration of any substance for which a dose of permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or Subpart Z, Hazardous and Toxic Substances;
- Any other atmospheric condition that is immediately dangerous to life or health.

Non-Permit Confined Space – A confined space that does not contain or have the potential to contain any hazard capable of causing death or serious physical harm.

Prohibited Condition – Any condition in a permit space that is not allowed by the permit during the time when entry is authorized.

Testing – The process by which the hazards that may confront entrants are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

16.3 General Confined Space Awareness Training

Confined spaces can be found in many industrial settings, from steel mills to paper mills, from shipyards to farms, and from public utilities to the construction industry. Common types of confined spaces are: boilers, pits, manholes, lift-stations.

The safety hazards associated with confined spaces can cause serious injury and death if they are not dealt with properly. The hazards found in any confined space are generally determined by what is stored inside the space, by what process is taking place inside the space, and by the items surrounding the space. Types of safety hazards you may encounter when entering a confined space can generally be categorized as either atmospheric hazards or physical hazards.

ATMOSPHERIC HAZARDS

Atmospheric hazards include things such as oxygen deficiencies, dusts, chemical vapors, welding fumes, fogs, and mists that can interfere with the body's ability to transport and utilize oxygen, or that have negative toxicological effects on the human body.

Before entry into most confined spaces, a multi-gas meter is commonly used to determine levels of oxygen, carbon monoxide, hydrogen sulfide, and the concentration of combustible gas. Other types of meters and sensors are available to detect concentration of specific gases (chlorine, sulfur dioxide, etc.) if needed.

The most common atmospheric hazards associated with confined spaces are:

- Oxygen Deficiency
- Oxygen Displacement
- Flammable Atmospheres
- Toxic Gases

Oxygen Deficiency: Low levels of oxygen can be caused by the consumption of oxygen during open flame operations such as welding, cutting, or brazing. In addition, low levels of oxygen can be present in manholes that are located near garbage dumps, landfills and swampy area where fermentation has caused the consumption of oxygen.

Oxygen Displacement: Some types of gases will "push" or displace oxygen from a confined space. An example of this is nitrogen. Nitrogen is commonly used to purge some types of tanks. If a person were to enter into the space before the nitrogen was properly removed and vented from the tank, death could result in a matter of minutes.

Flammable Atmospheres: Three components are necessary for an atmosphere to become flammable: fuel, oxygen, and a source of ignition. Some confined spaces may contain solvents, fuel oil, gasoline, kerosene, etc. which provide the fuel for combustion. In order for an atmosphere to become flammable, it must have the proper mixture of fuel and oxygen. If the concentration of a specific gas is below the lower explosive limit (LEL) it is too lean to burn. If the concentration is above the upper explosive limit (UEL) it is too rich to burn.

Toxic gases: Toxic gases can be present in a confined space because the type of manufacturing process uses toxic substances as part of the production process, or biological and chemical "breakdown" of the product being stored in a tank, and from maintenance activities (welding) being performed in the confined space.

Common types of toxic gases encountered in confined spaces are:

Hydrogen Sulfide - "sewer gas" a colorless gas with the odor of rotten eggs. Excessive exposure has been linked to many confined space deaths. Hydrogen sulfide causes a loss of our sense of smell, causing people to mistakenly think that the gas has left the space. Hydrogen sulfide inhibits the exchange of oxygen on the cellular level and causes asphyxiation.

Carbon monoxide - is an odorless, colorless gas that is formed by burning carbon based fuels (gas, wood). Carbon monoxide inhibits the body’s ability to transport oxygen to all parts of the body.

Solvents - many solvents, such as kerosene, gasoline, paint strippers, degreasers, etc. are not only flammable, but if inhaled at high concentrations can cause central nervous system (CNS) effects. CNS effect can include dizziness, drowsiness, and lack of concentration, confusion, headaches, coma and death.

PHYSICAL HAZARDS

The other major type of hazard found in confined spaces is physical hazards.

Physical hazards can be considered as hazards that cause the body to become physically stressed. Unlike atmospheric hazards, physical hazards can be detected through your senses of (touch, sight).

Examples of physical hazards are:

Engulfment: Some operations such as trenching result in confined spaces. Shoring systems are necessary to protect these spaces and reduce the chance for cave-ins. A trench is a narrow excavation below the ground. Trenches are typically deeper than they are wide; however, the width of a trench is less than 15 feet. A shoring system consists of a structure that supports the sides of an excavation and is designed to prevent cave-ins. Note the standard (OSHA 29 CFR 1926.652) does not require the installation and use of a protective system when an excavation is made entirely in stable rock or is less than 5 feet deep and a competent person has examined the ground and found no indication of a potential cave-in.

Other hazards: Other hazards that must be considered are: moving and rotating equipment, electrical energy, hot or cold conditions, wet or slick surfaces, and excessive noise.

How do I determine if I'm dealing with a "Confined Space"?

In order for a work area to be defined as a confined space it must meet all three of the following criteria:

1. *Limited Openings for Entry and Exit*. A confined space may be difficult to enter and perform repair work, or general maintenance. If something goes wrong while you are inside a confined space, escape/rescue may be difficult. Just because a work area has more than one way of escape, does not necessarily mean it is not a confined space. If the space has limited ways to get in and out, it could be a confined space. A open top tank would have limited openings for entry and exit.
2. *The Space Is Not Intended For Continuous Human Occupancy*. This means that the space was designed to hold something other than people. Examples include tanks and manholes.
3. *The Space is Large Enough for You to Enter and Conduct Work*. If you cannot fit your body into the space you cannot become trapped inside.

In order for something to be defined as a confined space, it must meet all three of the above criteria. According to the Occupational Safety and Health Administration (OSHA) if a space does not meet all three of the above definitions, it is not considered a confined space.

Types of Confined Spaces

There are many different types of confined spaces. Some confined spaces may be very dangerous and can be immediately dangerous to your life and health upon entry. Other types of confined spaces may be less dangerous and have little chance of causing you harming upon entry.

Permit confined spaces – are the most hazardous and require a qualified person to completed a safety checklist, simply called a permit, before you enter into the space.

A permit is a written safety checklist that is completed before you can enter into the confined space. A permit ensures that all the hazards are removed from the confined space before you enter.

Confined space permits ask questions such as:

- What is the purpose of entry?

- How much time will be spent working inside the confined space?
- Who are the people authorized to enter the space?
- Who will be the attendant that stays outside the confined space?
- What are the atmospheric conditions in the confined space?
- What are the methods of communication between people inside the confined space and people outside the space?
- What kinds of equipment are being provided and used for safe entry?
- Are there any additional safety checklists that need to be completed, such as a welding or burning permits?
- How have you have eliminated the hazards before you enter the confined space (lockout / tagout, forced air ventilation, etc.)?
- Permits should be kept outside the confined space while you are completing work inside the space. Once the confined space work is completed and the confined space is sealed, the permit should be canceled and forwarded to the proper supervisor.

Non-Permit Confined Spaces

When a certain confined space is called "Non-Permit", it means that the space does not (or could not) contain hazards that could cause death or serious harm. When you enter into a Non-Permit confined space, you do not have to complete a written safety check list before you can start your work.

Examples of Non-Permit confined spaces are: equipment closets, crawl spaces under houses, machinery cabinets, ventilated tunnels, and drop ceilings.

Hazards:

Permit Required Confined Spaces - A permit required confined space is a space that has one or more of the following characteristics:

- It contains, or could contain a hazardous atmosphere. An example would be a gasoline storage tank that has just been emptied, or a sewer manhole.
- It contains a material that could engulf the person entering into the space. An example would be a grain silo.
- It has an inwardly converging wall or a floor that slopes downward and tapers to a small cross section. An example would be a large hopper that slopes to an auger that removes sawdust.
- It contains any other recognized serious safety hazard. An example would be electrocution, or moving equipment.

Emergency and Rescue Procedures

Confined space accidents are rare, but when accidents happen in a confined space they are usually fatal. Two major factors that lead to fatal injuries in confined spaces are:

1) Failure to recognize and control the hazards associated with confined spaces.

2) Inadequate or incorrect emergency response. When the emergency response is usually a spontaneous reaction to an emergency situation, this can lead to multiple fatalities.

For Division of Water employees, the golden rule of confined space rescue is: "NEVER ENTER A CONFINED SPACE TO RESUCE SOMEONE"; attempts to rescue a person from a confined space should only be made from outside the confined area. Acceptable methods of rescue include the use of retrieval equipment, such as lifelines, tripods, etc. and calling 911 to reach emergency personnel. There have been many documented cases of multiple fatalities due to improper entry procedure and rescue attempts.

Example of a Confined-Space Emergency

On September 15, 1986, the victim and two other workers were planning to install a sewer line from a building to the main sewer line in the street at a construction site. The sewer vault was entered through a manhole in the middle of the street. The manhole was 2 feet in diameter and 15 feet deep.

In an effort to measure the length of the sewer line snub, the victim entered the manhole and descended a fixed ladder to the bottom. The sewer line snub extended from the vault, 15 feet towards the construction site. Upon reaching the bottom of the sewer he complained of a strong odor and then passed out. The other two workers that remained outside entered the manhole and attempted to rescue the victim.

However, before they could reach the victim, they both became dizzy and exited the manhole. Several unsuccessful rescue attempts by the co-workers delayed notification of the fire department rescue squad for approximately 20 minutes. Once the rescue squad was notified, it arrived in 5 minutes. Rescue squad personnel entered the sewer using self-contained breathing apparatus, life lines, and other personal protective equipment. The victim was removed approximately 8 minutes after arrival of the rescue squad. Attempts to resuscitate the victim were unsuccessful. The victim was then transported to the local hospital where he was pronounced dead.

CONCLUSIONS

The above described employees were not trained in confined space entry, and as a result did not realize that the manhole was a confined space and was a hazardous place to enter. The victim did not test the air conditions before entry, did not complete an entry permit, did not use a blower motor to ventilate the area, and no rescue equipment was available to retrieve the victim from the space. In addition, the workers outside the space did not immediately call the rescue squad and wrongly attempt rescue of the victim.

After reading the above described scenario you can see why it is so important to test the air in a confined space before you enter and to properly complete and follow the instructions on an entry permit. Also, in the above described situation, the two workers who entered the space in a rescue attempt could have easily become victims.

Again, NEVER ENTER A CONFINED SPACE TO RESCUE AN INJURED CO-WORKER.

REFERENCES

1. Alaska Department of Labor and Workforce Development Safety Codes. Alaska Administrative Code, Title 8 Labor and Workforce Development, Part 4 Occupational Health and Safety Division. http://www.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=[jump!3A!27t!2E+8!2C+p!2E+4!27]/doc/%7B@42748%7D? . Oct 2008.
2. Basic Hunter Education. Study Manual Provided by the Hunter Information and Training Program, Alaska Department of Fish and Game. 2007.
3. Dzugan, Jerry and Susan Clark Jensen. Water Wise: Safety for the Recreational Boater. Fairbanks: University of Alaska Sea Grant.
4. OSHA Standards. 29 CFR 1910, Occupational Safety and Health Standards; 29 CFR 1915, Shipyard Employment; 29 CFR 1917, Marine Terminals; 29 CFR 1918, Longshoring. http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=0&p_keyvalue=&p_status=CURRENT . Oct 2008.
5. Safety in Bear Country Society. "Staying Safe in Bear Country". Handout provided by the Alaska Department of Fish and Game. July 2008.
6. Safety Manual. Division of Spill Prevention and Response. Alaska Department of Environmental Conservation. 5th Edition, August 2003.
7. School of Natural Sciences. "Field Health and Safety Plan". SNR Employee Safety. 2007. University of Nebraska-Lincoln. http://snr.unl.edu/safety/healthsafety.asp . May 2007.
8. Scientific Diving Safety Manual. University of Alaska, Scientific Diving Program. http://www.sfos.uaf.edu/dive/manual/divemanual-entire-04.pdf . 2004.
9. Standard Operating Procedure. "Personal Protective Equipment Program". Spill Prevention and Response Division, Alaska Department of Environmental Conservation. July 1991.
10. Standard Operating Procedure. "II-004 Aircraft - Authorized Passengers" July 1988, "III-700 Safety Policy and Standards" May 1997, "III-700E Standard Operating Procedures for Pilots" May 1995, "III-710 Office/Warehouse Safety" May 1997, "III-720 Field Camp Safety" March 1994, "III-730 Aircraft Safety for Passengers" April 1988, "III-731 Emergency & Survival Equipment Required in Aircraft" April 1988, "III-740 Boating Safety" May 2002, "III-750 Vehicle Safety" March 1993, "III-760 Laboratory Safety" Nov 1994 , "III-770 Small Tool Handling" March 1993, "III-780 Firearm/Bear Safety" (formerly titled "Firearm Safety") March 1993. Administrative Services Division, Alaska Department of Fish and Game.

Appendix A – OSHA Standards

1. 29 CFR 1910, Occupational Safety and Health Standards
2. 29 CFR 1915, Shipyard Employment
3. 29 CFR 1917, Marine Terminals
4. 29 CFR 1918, Longshoring
5. http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=0&p_keyvalue=&p_status=CURRENT

Appendix B – Health Questionnaire

ADEC HEALTH QUESTIONNAIRE

Name: _____ Agency: _____
Last First MI

Birth Date: _____ Sex: M F

Home Address _____ Phone (W) _____
_____ (H) _____

Field Dates _____ SSN No. (optional) _____
Citizenship _____ Passport No. _____
Next of Kin _____ Next of Kin Relationship: _____
Address of Next of Kin: _____
Emergency Contacts (name and phone #):
#1 _____ #2 _____
_____ _____
Medical Insurance Company: _____ Policy No. _____

HEALTH INFORMATION

General State of Health: ☐ Excellent ☐ Good ☐ Fair ☐ Poor
Presently under the the care of a physician? ☐ No ☐ Yes
Name of physician and phone number : _____
Month/Year of most recent Physical Exam? _____

List current medications (prescription and non-prescription):
☐ None
1 _____ 4 _____
2 _____ 5 _____
3 _____ 6 _____

List allergies:
☐ None

	allergy	reaction
1		
2		
3		
4		

List ALL active Health Problems:
☐ None
1 _____
2 _____
3 _____
4 _____

Major Surgeries / Hospitalizations / Emergency Room visits (include year)
☐ None
1 _____
2 _____
3 _____
4 _____

List Any Dietary Restrictions:
☐ None
1 _____
2 _____

Appendix C – Scientific Driving Safety Manual

University of Alaska, Scientific Diving Program. 2004. Scientific Diving Safety Manual. http://www.sfos.uaf.edu/dive/manual/divemanual-entire-04.pdf

Appendix D – Material Safety Data Sheets (MSDS)

Appendix E – Alaska Department of Labor and Workforce Development (ADOL) Safety Codes

Alaska Administrative Code

Title 8 Labor and Workforce Development, Part 4 Occupational Health and Safety Division

http://www.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=[jump!3A!27t!2E+8!2C+p!2E+4!27]/doc/%7B@42748%7D?

Appendix F – Liability Accident Notice Form

STATE OF ALASKA
DEPARTMENT OF ADMINISTRATION
Division of Risk Management
PO Box 110218
Juneau AK 99811-0218
Phone (907) 465-2180

LIABILITY ACCIDENT NOTICE

☐ Auto ☐ Other

DEPARTMENT	SECTION	LOC. CODE	DIRECTOR
DIVISION	REGION	LOC. NAME	SUPERVISOR

STATE EMPLOYEE STATE EMPLOYEE STATE EMPLOYEE STATE EMPLOYEE

LAST NAME	FIRST NAME	INITIAL	SPECIAL I.D. OR SOCIAL SECURITY NO.
ADDRESS	ZIP	RESIDENCE PHONE	BUSINESS PHONE
WHERE CAN EMPLOYEE BE CONTACTED?			WHEN?

ACCIDENT ACCIDENT ACCIDENT ACCIDENT

DATE & TIME OF ACCIDENT OR LOSS A.M./P.M.	LOCATION OF ACCIDENT (INCLUDING CITY & STATE)	POLICE TO WHOM REPORTED
DESCRIPTION OF ACCIDENT OR LOSS (USE REVERSE, IF NECESSARY)		

STATE VEHICLE - AUTO ONLY STATE VEHICLE - AUTO ONLY STATE VEHICLE - AUTO ONLY

VEHICLE NO.	YEAR	MAKE	MODEL	VIN (VEHICLE IDENTIFICATION NO.)	PLATE NO.
STATE OWNED ☐ OR LEASED ☐		ADDRESS OF LESSOR			PHONE
NAME OF DRIVER	AGE	ADDRESS OF DRIVER			PHONE
WAS DRIVER A STATE EMPLOYEE? YES ☐ NO ☐		PURPOSE OF USE		USED WITH PERMISSION? YES ☐ NO ☐	
DESCRIBE DAMAGE		REPAIR ESTIMATE $	WHERE CAN VEHICLE BE SEEN?		WHEN?

PROPERTY DAMAGE PROPERTY DAMAGE PROPERTY DAMAGE

OWNER	ADDRESS	PHONE
OTHER DRIVER ( ) SAME AS OWNER	ADDRESS	PHONE

DESCRIBE PROPERTY (IF AUTO: MAKE, YEAR, PLATE NO.)	OTHER CAR OR PROPERTY INSURED YES ☐ NO ☐	COMPANY OR AGENCY NAME & POLICY NO.
DESCRIBE DAMAGE	REPAIR ESTIMATE $	WHERE CAN CAR BE SEEN?

INJURED INJURED INJURED INJURED INJURED INJURED

NAME ADDRESS PHONE	EXTENT OF INJURY	AGE	STATE VEH. PASS	OTHER VEH. PASS	PED.

CLAIMANT: NON-AUTO CLAIMANT: NON-AUTO CLAIMANT: NON-AUTO

OCCUPATION	EMPLOYED BY	ADDRESS OF EMPLOYER

PROBABLE DISABILITY WEEKS	RETURNED TO WORK ☐ YES ☐ NO	WHY ON PREMISES	STATE VEH.	OTHER VEH.	OTHER

WITNESS WITNESS WITNESS WITNESS

NAME ADDRESS PHONE
REMARKS

DATE	REPORTED BY	REPORTED TO	SIGNATURE(PREPARED BY)

02-919 (12/96) COPIES TO SUPERVISOR, RISK MGMT

Appendix G – Volunteer Service Agreement

VOLUNTEER SERVICE AGREEMENT

This Agreement is entered into between the State of Alaska, Department of _____ (State) whose address is _____ and _____ (Volunteer) whose address is _____.

WHEREAS, the Volunteer desires to participate as an unpaid worker in the following program _____ (Program) at _____ (Division, facility or location); performing the following activities _____ alongside, but not displacing State employees and, WHEREAS, the State desires to allow the Volunteer to participate in said Program,

NOW, THEREFORE, the parties agree as follows:

The Volunteer agrees to participate without compensation for his/her activities in the Program under the direct supervision of State employee _____ (Supervisor).

For the duration of the Volunteer's participation in the Program, the State agrees to provide to the Volunteer medical coverage and disability compensation, in amounts comparable to that afforded employees under the Alaska Workers' Compensation Act (AWCA), if the Volunteer suffers injury, illness or death that arises out of, and occurs while acting within the course and scope of performance of his/her volunteer duties. It is agreed that weekly compensation for disability or death will be based on the minimum rate of compensation under AS 23.30.175**.** It is agreed that compensation or medical coverage will not be provided when the volunteer may be eligible for coverage by any other health or disability policy, insurance, payment or benefit, (inc. Medicaid, Medicare, Social Security, or pension) or workers' compensation coverage by another employer. Dispute**s** regarding payment of compensation and medical benefits under this agreement are agreed to be decided by the Alaska Workers' Compensation Board without stipulating to the Board's jurisdiction. The State is not subject to AWCA penalty, interest, SIF, or other payment in regard to the Volunteer.

The State agrees to defend, indemnify, and hold harmless the Volunteer in the same manner and to the same extent the State protects its employees from any claim, demand, suit for property damages or personal injury including death allegedly caused by the Volunteer's activities if the Volunteer: a) at the time of the occurrence was acting in good faith within the course and scope of his/her volunteer duties in accordance with the directions of the Supervisor; b) the Volunteer provides immediate notice to the State of any claim; and c) the Volunteer cooperates in the defense and does not stipulate to any judgment or settlement without the State's approval.

The Volunteer understands the State does not insure loss or physical damage to its employee's personal vehicle, equipment, or other personal property used while performing state work; nor will the State provide property insurance coverage for loss or physical damage to any Volunteer's personal vehicle, equipment, or other personal property used while performing his/her volunteer duties.

In consideration of the benefits received from participation in the Program and the protection offered by this Agreement, the Volunteer: 1) accepts the remedy provided by the State, and dispute resolution by the Alaska Workers' Compensation Board, as his/her sole legal remedy from the State if the Volunteer suffers injury, illness or death arising out of, and occurring while acting within the course and scope of, his/her volunteer duties; 2) transfers his/her right to recover from others who may be responsible for the injury, illness, or death to the State and/or its assigns upon payment of compensation or medical expenses by the State; and 3) agrees to cooperate and to do everything necessary to enable the State and/or its assigns to enforce the right to recover from others.

The Agreement is effective on the day when signed by the person designated below as the Program Director and filed with the Division of Risk Management.

The Volunteer acknowledges he/she has read this Agreement, understands it and agrees to be bound by its terms.

SIGNED by VOLUNTEER: _____ **DATE:** _____

Volunteer Name: _____

Home Telephone Number: _____ Activity Site Telephone Number: _____

Program Supervisor: _____

Title: _____ Telephone Number: _____

Program Director: _____

Title: _____ Telephone Number: _____

Will Volunteer be Traveling? YES __ NO __ If *YES*, indicate mode with "S" *for* **State-owned** or **"P"** *for* **Personally-owned: Vehicle _____ Plane _____ Boat _____ ATV _____**

copy - Department/Program copy – Volunteer copy - Division of Risk Management Revised 9/21/04

Appendix H – Trip Plan

Alaska Department of Environmental Conservation
Alaska Monitoring and Assessment Program

Name: Date:

TRIP DETAILS

Depart		Return	
Date:	Time:	Date:	Time:

Going to: Via:

Return Via: Latest Time of Return:

VEHICLE DESCRIPTION

Make: Model: Color:

Year: License Number:

OTHER INDIVIDUALS IN VEHICLE

Name: Name:

Name: Name:

SURVIVAL EQUIPMENT (check as appropriate)

____ Flares	____ Flashlight	____ Jumper Cables	____ Food
____ First Aid Kit	____ Emergency Water	____ Shovel	____ Tent
____ Sleeping Bag	____ Towing Strap	____ Fire Starter	____ Signaling Device

COMMUNICATIONS EQUIPMENT

____ VHF Transceiver (hand held)	____ Immarsat
____ VHF Transceiver (vehicle)	____ Iridium Phone
____ Cellular Phone	____ Satellite Phone

CALL IN SCHEDULE

Will report in by _____ (means of communication) at the following times:

_____ _____

_____ _____

_____ _____

NOTIFICATION

If not returned by _____ (time/day), call: _____

Appendix I – Field Emergency Contact Form

Phone Contacts	
Emergency (Ambulance, Police, Fire, other emergency situation)	911
Alaska State Troopers	907-786-8500
Alaska Tsunami Warning Center	907-745-4212
Poison Hotline	1-800-222-1222
Search & Rescue	907-428-7230
Marine Contacts	
US Coast Guard	1-800-478-5555 (cell phone *CG)
M/V Tiklak	
R/V Norseman	
Emergency Radio Frequency	
Channel 16	US Coast Guard Distress Channel
Other Contact Numbers	
AKMAP Satellite Phone	907-928-0647
Douglas Dasher, Project Engineer	907-451-2172 work, 907-347-7779 cell
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