CRESP AMCHITKA PROJECT,
Health and Safety Plan
June 8, 2004

EMERGENCY INFORMATION

The Captain of the ship will coordinate any emergency action or evacuation. Evacuations will be initiated through the U.S. Coast Guard Rescue Coordination Center at Kodiak. If necessary evacuation may be arranged through Providence Hospital in Anchorage.

Kodiak USCG Coordination Center/Air Station	907-487-5888
Alaska Rescue Coordination Center (AKRCC)	
Outside Anchorage area	800-420-7230

U.S. Coast Guard (USCG) Rescue Coordination Center

National Center	800-478-5555

Anchorage

Providence Hospital	907-562-2211
Emergency Room	907-261-3111
Air Ambulance: Providence	907-261-3070
Outside Anchorage	800-478-5433
Alaska Regional Hospital: Air Ambulance.	907-248-0617
USCG	907-271-6700

Adak

Emergency	911
Police	907-592-3323
Medical Emergency Room	907-592-8382

Dive Emergency (see Dive Safety Plan for more details)
Diver's Alert Network (DAN) 919-684-8111
If emergency is Decompression Sickness or an Air Embolism, the dispatcher should also contact the nearest Recompression Chamber facility.

Dutch Harbor (private company)

Dan Magone	907-581-1401
Dan Magone (cell)	907-391-1400
V.J. Cross (Magone's lead diver) (home)	907-581-4925
Magone's Shop Forman (cell)	907-391-7993

Anchorage—Providence Hospital

Outside Anchorage	800-478-5433
Recompression Chamber Supervisor:	
Robert Thompson, MD	907- 565-4600
American Marine, 6251 Tuttle Street, Anchorage, Ak	907- 565-4600
Alaska Regional Hospital: Air Ambulance	907- 248-0617

INTRODUCTION

This Health and Safety Plan has been designed to protect all expedition participants from likely and unlikely physical, radiological, biological, and chemical hazards that may be encountered during the CRESP Amchitka Project (June-August 2004).

Health and Safety Plan Acknowledgement is essential. All expedition members will be required to read the Health and Safety Plan, attend a safety briefing on Adak and sign a form (Declaration of Understanding Appendix 1), stating that they understand and will follow the plan. All participants with questions or concerns must talk with Conrad Volz, Dr PH, MPH, Project Manager regarding their concerns. This will be accomplished at safety briefings on Adak. No one will be permitted to leave for Amchitka without signing the Expedition Declaration of Understanding.

Emergency Contact Forms and Procedures -The Emergency Contact Form (Appendix 2) has been developed and sent to all group leaders. All expedition personnel must fill out this form and return it to Xio Waldron. Ms. Waldron will bind copies of all Emergency Contact Forms for Michael Gochfeld MD, PhD, Expedition Safety and Health Director and Conrad D.Volz, DrPH, MPH Expedition Project Manager. A copy of the bound forms will also be kept at CRESP HQ. Should there be any emergency, problem or significant project delay (weather etc.), the Project Manager and/or the Safety and Health Director will inform CRESP HQ. A discussion will occur between Dr's Gochfeld, Volz and the Project PI, Charles Powers, PhD regarding the responsibility for notification of primary and/or secondary personal contacts.

Health Services Questionnaire-CRESP has adopted with modifications the NOAA Health and Safety Questionnaire. It is attached to this plan as Appendix 3. This questionnaire must be completed by each expedition member This form is confidential and should be returned **ONLY** to Dr. Gochfeld by June 1, 2004 at email address gochfeld@eohsi.rutgers.edu / by FAX 732-445-0130 or by mail. Only those cleared by Dr. Gochfeld as fit for sea duty will be permitted on the expedition. Dr. Gochfeld will keep all Questionnaires on file for the duration of the expedition. All records will be kept confidential.

1.0 General Project Information

The Consortium for Risk Evaluation with Stakeholder Participation (CRESP) is undertaking a scientific assessment regarding the possibility of current or future leakage of radionuclides from the three test shot cavities on the island. Three underground nuclear tests (*Long Shot* 1965, *Milrow* 1969, and *Cannikin* 1971) were detonated on Amchitka, with *Cannikin* at 5 megatons representing the largest United States underground nuclear test. Amchitka is in a region of high tectonic and volcanic activity, and a variety of stakeholders have voiced the need to conduct this assessment prior to the proposed termination of the Department of Energy's Environmental Management responsibility for the island. Amchitka is currently part of the Alaska Maritime National Wildlife Refuge and is administered by the U.S. Fish and Wildlife Service. But although USFWS is the landlord, the DOE retains responsibility for radiation wastes.

Accordingly CRESP (2003) developed a Science Plan to conduct this assessment which was approved by the Department of Energy (DOE), the State of Alaska's Department of Environmental Conservation (ADEC), the U.S. Fish and Wildlife Service (USFWS), and the Aleutian Pribilof Island Association (APIA). The main part of the plan will be implemented in 2004 with three expeditions which will perform a series of oceanographic and geologic surveys using modern technology as well as extensive biological sampling to obtain

specimens representative of all trophic levels and subsistence and commercial foods from Amchitka and reference sites.

The main focus of CRESP's scientific investigation is on the coastal and marine environment. Studies of the Amchitka terrestrial environment have been completed recently (Dasher et al. 2002). This HASP will parallel the CRESP-Amchitka Implementation Plan, including transportation within chartered vessels to and from assessment sites where the sampling will be obtained, using the same paragraph structure, facilitating cross-reference.

1.1 Purpose of the Safety and Health Plan

A Health and Safety Plan (HASP) details the preventive, intervention and communication aspects of a project that are necessary to fully anticipate and provide for the protection of those involved in the activity and to meet applicable regulations and laws. It serves as both a training guide, a reference manual, and also as contract acknowledged by all expedition participants. It is predicated on the underlying principle that occupational diseases and injuries are preventable and that good planning, careful oversight, training, and participant responsibility combine to assure that work is conducted safely.

The HASP covers routine activities as well as contingencies for managing emergencies.

A HASP is a "living" document and may be modified as new information, procedures, equipment or personnel become involved in the project. Any changes to the HASP must be conveyed to all expedition personnel affected by the change.

1.2 Project Scope and Activities

The following list identifies the components of the 2004 CRESP Amchitka project and identifies the individuals responsible for each activity. Transportation between home-Anchorage-Adak will be by commercial air carrier.

Travel between Adak, Amchitka and reference sites will be on the *Ocean Explorer*. General Maritime Operations and Authority of the *Ocean Explorer* are under the jurisdiction of its Captain. All safety procedures are determined by the *Ocean Explorer* and all personnel will be familiarized with those procedures. Collections from the "NOAA Trawler" {name of ship} will be under the jurisdiction of its captain.

1.2.1 Assembly and Disassembly on Adak Island

Parties will arrive and depart from Adak Island on Alaska Airlines. Transportation will be provided by:
Mary Nelson
Adak Car Rental
P.O. Box 1932
Adak, Alaska 99546
907-592-3492
Parties may rent 8 person vans and pick-up trucks , which carry up to 6 passengers.

Cargo transport from Alaska Airline's Cargo will be performed by Zac's Enterprises:
Brian Moline
Zac's Enterprises
P.O. Box 2050
Adak, Alaska
907-592-0147
zacsenterprise@yahoo.com

Zac's will also provide all transport of cargo to and from the housing condo's and also to and from the space rented in the Aleut Corporation Warehouse (the white building) located on the second dock in the harbor.
Zac's will move pallets loaded by CRESP personnel to the ship for mechanical or hand loading.
All parties landing on Adak should contact John Highstone, Caretaker of Adak Housing to be informed of the location of CRESP housing. Mr. Highstone also is the ground crew for the arriving plane so he is always there at arrival. Also, Mary Nelson has been informed of the arrival of all groups that need vehicles.
Internet access has been arranged in Condo 149 Charlie. To access

- Plug computer into phone line.
- Click on start-run and enter **inetwiz.**
- On Internet Communication Wizard choose Phone Line Option.
- Number for Corecom insert is 907-592-0195.
- Our user name is CRESP and Password is Amchitka.

If you have problems in connection call Corecom at 907-563-1191

Other important people and numbers on the island are:

- Steven Hines, City Manager-Phone 907-592-4500. He will provide fax service and the fax number is 907-592-4262. Mr. Hines is also in charge of all Alaska Air Cargo. He will need to be informed on demobilization of the number of ice chests that will require shipment to Newark as well as other in and out shipping needs.
- Ron Sniggeroff, Aleut Hunter- Ron knows Adak and has fished all his life. He can aid in the Dry Run of Equipment on Adak Island. Number 2-3522.
- Ray Nelson- Will rent skiffs for equipment checks on Adak Island- His number is 907-592-8354.

The number for CRESP HQ on Adak Island is 907-592-2399.

Groups arriving on Adak will be assigned a Condo by the project manager. If the project manager is at sea, condo assignments will be the responsibility of the Safety and Health Director.
While on Adak, each party must report their daily itinerary to the project manager and the safety and health director. No one is permitted to use vehicles or venture on trails without the expressed consent of the project manager and safety and health director.

1.2.2 On Island Transportation See attached ATV document

1.2.3. CTD Sampling, Bathymetry, and Sediment and Water Sampling

A. Physical Hazards

This sampling involves lowering sampling instruments to the sea bottom. The major physical hazards from this operation include being caught in the instrument lines as they are being fed out and the pinching of body parts especially fingers in winches as the samples are mechanically brought to the surface.
To assure that no person is caught in lines as they are fed out or that if a mishap occurs secondary safety measures will be taken, the following work procedure will be followed:

1. Line coils will be located a minimum of 5 feet from the operator. The operator will be equipped with a knife if self rescue is necessary.
2. The operator will always be working with a buddy (who is equipped with a knife) who will stand at least 10 feet from the operation; this buddy will observe the operation and will be in contact with the bridge by radio. If an entanglement should occur the buddy will:

- Inform the bridge.
- If possible attempt to cut the main instrument line as it drops off the pulley to the sea.
- Stay away from entanglement.
- Keep the operator in sight at all times and help guide the boat to the operator.

To assure that no body part is caught in a pinch point on the winch, the following procedures will be used:

1. The operator will not put any body part within 3 feet of the winch when it is operating.
2. The buddy will be in contact with the bridge and will be stationed at the power cut off of the winch. If a problem occurs the buddy will immediately cut power to the winch and will relieve pressure on the line by cutting the sampler line on the sea side of the pulley.

B. Radiological Hazards

It is possible, especially if water or sediment samples are taken in areas where the CTD scanning shows significant salinity differences, that samples or equipment will show activity above background. All samples and equipment will be scanned using the gamma scintillation counter before being brought on board the ship. If samples show activity above background, wipe sampling of the sampling instrument/equipment will occur with filter paper. The filter paper will be counted in the G-M Pancake counter for alpha, beta and gamma activity. Samples that have a higher than background level of activity will be kept in lead lined bags that sufficiently attenuate any excess (over background) activity. If a sample is found to have activity in excess of the standards set forth for safety as described in the radiological hazards section, a decision will be made to leave the immediate area and mark this area unsafe for diving. At this point an attempt will be made to determine the extent of area that contains this level of radioactivity.

1.2.4 Magneto-tellurics (MT)

(a) DIGGING
Installing the MT station involves digging the following holes:

- 4 electrode holes, each 6” deep
- 2 trenches for magnetic sensors (called induction coils) 6” deep, 6” wide, 4 feet long)
- 1 vertical hole for magnetic sensors (3” deep with post-hole digger)

Any activity that involves walking off-road through vegetation will require visual inspection and sweeping by with a metal detector.

All digging will be preceded by visual inspection of the ground surface and by metal detector sweeping. The entire deployment pattern of each MT data point will be inspected and swept before digging and laying of electrical wiring can proceed.

All diggings will be done carefully with small shovels, and pick-axes. Small amounts of soil will be removed and metal detection performed at different depths as the process proceeds

When digging, eye protection and gloves will be worn at all times.
If any metal objects are found, no further digging within 15feet of the metal object will occur. The site(s) of any metal objects will be marked with a flag and the GPS coordinates noted on the Safety Log.

(b) MT electrodes contain minor amounts of lead chloride and will not be touched without gloves. Hands will be washed prior to eating.

(c) The DC resistivity system uses voltages on bare metal electrodes up to 200 V. The operator must ensure that all field crew have moved away from electrodes before switching current on. Before the operator switches the current on the operator will inform the crew to move away from the electrodes. One whistle blast will signal that the crew members move at least 20 feet away from electrodes. Once the operator has visually verified that all personnel are away from the electrodes he/she will issue three whistle blasts indicating that all personnel must not move and that the current will be turned on within 5 seconds.

Most digging on the island will be superficial, less than 1 foot in depth. Any trench exceeding 2 ft in depth will have a 1ft x 2 ft bench profile to prevent cave-ins. There is no anticipation of any confined space activity.

1.2.5 Base Camp Construction. A Base Camp will be constructed for the expedition. A total of 7 people will be staying at this base camp, which will consist of 4 -3 person three season tents, a tarped cooking and eating area, an area for storage of gasoline for cooking and ATV usage, an area for stationing of generators and land vehicles and two latrine trenches.

The sleeping area will be located on the heights above Constantine Harbor on tundra that has been swept for unexploded ordinance. Tents will be pitched so that the main opening is opposite the prevailing northwest winds. All tents will be anchored using dead-man/ buried snow pegs to maintain the integrity of the campsite during inclement weather. All land based expedition members will be issued Therm-A-Rest ground pads (reducing thermal heat loss to the ground) as well as sleeping bags, which are rated to +20 degrees Fahrenheit. Sleeping bags are filled with a synthetic fiber, which retains over 50% of its insulating capacity even when wet. This tent/ground pad and sleeping bag arrangement reduces the chances for hypothermia. Four extra sleeping bags will be stationed at base camp for use in an emergency or for evacuations.

The tarped cooking and eating area will be at least 20 feet from the nearest tent. Fire extinguishers will be on hand for cooking fires and stove gloves provided to prevent burns from handling hot cookware.

The generators, land vehicles and fuel supply will be located on a hard paved surface, at least150 ft from the tent area. The gasoline fuel supply (5-7.5 gallon plastic containers) will be located on a berm with raised sides to prevent release of spillage into the underlying surface. Land vehicles will be at least 50 ft from the gasoline supply and will be covered by plastic tarps. The generators will be located near the land vehicles (within 30 feet); they will also be bermed and covered by a waterproof tarp when not in use.

Two latrines will be constructed to the southeast and southwest of the tent camp. These will be trench latrines, original construction to be 5 ft long by16 inches deep. A metal detector will be employed to scan for unexploded ordinance before the trench is dug. Persons using the latrine will be instructed to cover waste with at least 6 inches of soil after each use. The trail to each latrine will be carefully inspected for unexploded ordinance, concertina wire, rommel spikes and other impediments and hazards before it is constructed and authorized for usage.

1.2.6 Biological Sampling---Marine

1.2.6.1 Intertidal

The intertidal may be accessed by small boat from sea or vehicle from land in which case the relevant transportation safety sections apply. All work will involve a buddy system.

All persons must have appropriate cold weather gear and footwear to prevent hypothermia. Because of frequent rains, polyester insulation is preferred. Wet suits or comparable neoprene material must be worn for wading in the intertidal.

All activities will require a buddy system within visual contact. Entry into the intertidal requires carefully chosen pathways and a support stick. Non-skid rubber soled waders with spikes or wet suit boots are required to minimize the risk of slipping on kelp or wet rocks. A cycling-type of plastic head protection is required at all times in the intertidal zone.

1.2.6.2 Subtidal

All work will adhere to the Dive Safety Manual attached to this HASP. All work will be done with a buddy system. All dives will be less than 30 m and of variable duration. No decompression will be needed. Work will be done from shore or from small skiffs. Boating safety procedures of the *Ocean Explorer* will be followed.

1.2.6.3 Biological Sampling/Fishing

The Patrick team will be guided by the small boat safety
provisions of the *Ocean Explorer*

On land activity will follow vehicle safety rules. Use of firearms will follow the Firearms section of this HASP (1.2.10). All work will involve a buddy system. All field work will require a checkout with Volz or Burger and two forms of communication.

1.2.7. Biological Sampling---terrestrial

1.2.7.1 Biological Sampling/Marine Mammal Take and Salvage

This will be a diverse activity involving small boats and/or vehicles and the pertinent safety procedures will be applied.

Collecting by SCUBA in the subtidal and intertidal zones

The safety procedures for these operations are detailed in the Dive Safety Plan to be appended to this HASP.

1.2.7.2 Bird Take

All work will involve a buddy system. Bird breeding colonies will be located using information and maps provided by the U.S. Fish and Wildlife Service, by circumnavigation of the island by ship, and by enclosed vehicle. Travel to the north end of the island will be accomplished by a crew-cab 4-wheel drive pickup truck. A four-

wheel drive utility vehicle with a heated cab may be substituted if a pickup truck is not available.
Main hazards are vehicular accidents on the unfamiliar road, which has not been maintained. Slow vehicular speed will be necessary in order to safely anticipate rough road conditions and possibly out-of-date road signs. Slips, trips, and falls on irregular terrain must be anticipated and avoided.

1.2.8 Rifle and Shotgun Safety Birds will be taken using a 12-gauge shotgun with #5 stainless steel shot pellets. Marine Mammals including Harbor Seals and Sea Otters will be taken using both 30-30 and 30-06 caliber rifles with mounted and sighted scopes. Rifles will be field tested for accuracy at a rifle range, During sighting operations at the rifle range the rifle operator will wear hearing and eye protection and swill follow the rules and regulations of the rifle range concerning gun safety.

Storage of Rifles and Shotgun on Board the *Ocean Explorer*
Rifles
The rifles and shotgun and all ammunition will be kept in a locked steel case on board the Ocean Explorer at all times. Keys to this locked case will be held by Dan Volz and the Captain of the *Ocean Explorer*. Entry to the gun case will only be given when the days planned activities include an authorized use of a weapon (authorized in writing on the daily activity log by Joanna Burger, Michael Gochfeld and Dan Volz) to accomplish collection of specimens.

At the conclusion of each day's collection effort all weapons and ammunition will again be stored in the locked gun case. It is the responsibility of Dan Volz to insure that weapons issued for the days sampling are collected and stored properly.

No one will be permitted to carry handguns or unauthorized weapons on board the Ocean Explorer. This is a breach of maritime policy, adopted by the B&N Fleet of Vessels. An announcement relative to this matter will be made as expedition members board the vessel. If handguns are found over the course of the voyage they will be confiscated by the Captain and safely impounded.

Use of Weapons in the Field
Weapons will be transported to collection areas (to be predetermined during the morning daily activity briefing) unloaded. Weapons will be loaded only when specimens for collection have been identified at a distance using binoculars or telescope [if available]. Weapons will be kept on safety until the moment of firing. Once loading occurs, the hunter will take a position in the front of the boat (for marine mammal collection) or ahead of scientists (for bird collection). Shooters will wear eye and hearing protection. A shot will only be taken if the all personnel are behind the shooter and if feasible, outside a 45degree arc established from the midpoint of the shooters body. Additionally, no shot will be taken unless there is verification by a second person of the target specificity and background objects safety. Immediately after specimen collection the weapon will be unloaded and safely stored for transport to the ship. No unspent ammunition will be cached or discarded. All used cartridge cases or shotgun shells will be collected and returned to the ship and treated as waste material.

1.2.9 Climb Safety

Certain bird nest sampling may involve accessing nests on slopes or stacks that will require climbing equipment and secure anchor. All such work will involve a buddy system. Only persons who have been checked out and have proper equipment will be involved in this endeavor.

1.2.10 Biological Sampling Rat Take

Rattraps will be set near camp and in areas where rat runways or evidence of rat predation are found. Setting snap traps requires caution and must be done with gloves to avoid injury.

Dead rats will be removed using vinyl gloves and will be stored in zipped plastic bags on ice for transport to the Mother Ship.

1.2.11 Biological Preparation, Sample Dissection and Compositing

Samples will be collected and transported to the ship following a chain of custody. Specimens will be screened with hand-held radiation detectors. Radiation readings will be recorded. On the ship sample bags will be opened onto a working surface covered with a sheet of aluminum foil (dull-side up). Workers will wear vinyl gloves and will also wear a steel mesh glove when slicing with fillet knives. Shears and saws will be available for cutting bone. Use of dust masks and safety glasses is optional. Hard hats are not required in the laboratory area.

Workers may use stools to avoid prolonged standing. A minimum of 10 min breaks are required each hour. Total duration of work in field and laboratory shall not exceed 15 hours per day.

1.2.12 Biological Sample Storage

Specimens will be stored in standard electric freezers with documentation and chain of custody forms. Access to freezers must be documented on at least a daily basis. Care must be taken in opening freezers since loads may shift. Food will not be stored in the biological specimen freezers.

1.2.13 Offloading and Shipment of Samples

Handling of loaded coolers and other heavy equipment usually requires two persons and coordinated handling to avoid musculoskeletal injuries. Back belts will be available, but are not required. NIOSH does not recognize back belts as effective prevention, but empirical observations indicate that they are often helpful.

1.2.14 NOAA Trawl Boat Activity

All activities on the Trawl boat will follow the health and safety procedures of that vessel. Specimen preparation procedures will adhere to section 1.2.14 of this document.

1.2.15 Base Camp Sanitation and Housekeeping

Human waste

Latrine construction has been detailed above; all human waste will be covered immediately with at least 6 inches of dirt. If this is found to be an insufficient depth the trench will be filled to its entire depth of 16 inches. If rats continue to pose a problem concerning human waste trenches will be dug to a deeper depth and immediately filled or as a last resort a pit will be dug and human waste will be contained in kitchen garbage bags and brought back to an area remote from the camp location and kept in a secure plastic garbage can, double lined with contractor size refuse bags. All waste in this last case will be removed from the island and shipped to Adak for proper disposal.

Housekeeping
All food for land operations will be kept in plastic garbage cans, lined with contractor refuse bags. Types of food will be segregated in these cans by kitchen bags and large freezer bags. No food will be kept outside the garbage cans or in tents. Food will only be removed from storage for preparation and immediate consumption. The kitchen area will be kept free of unused and excess food, even small pieces of food will be policed for storage in refuse containers, All pots/pans and individual mess items will be washed immediately and stored in kitchen boxes.

1.2.16 Base Camp Refuse Disposal Two secure plastic garbage cans will be at the base camp location and all refuse generated by the land crew will be deposited in these cans for evacuation and disposal in Adak. No material will be left on Adak from any operation. All scientific and waste material will be removed from the island. A line search by expedition members to find residual refuse at the base campsite will be performed after camp demobilization. Pectoral documentation of base camp construction and demobilization will be made.
Fueling Operations The Ocean Explorer will carry all gasoline needed for on board operations, outboard motor use, generator use and land based vehicle use. Gasoline will be stored and dispensed on the Ocean Explorer per their Marine Safety Policy Statement. Ships crew following their protocols will do all on board gasoline dispensing from the Ocean Explorers 500 gallon tank.

Expedition personnel will be involved in the transport of gasoline to the base camp area and by boat for outboard motor refueling. There will be no smoking in skiffs or inflatables at any time and no open ignition sources, regardless of the amount of fuel being transported. Expedition personnel will exercise great caution when refueling land – based vehicles and generators. A funnel will be used in all refueling operations and care will be taken not to spill or overflow when refueling. All refueling operations will be done using the buddy system, with one member removed from the operation and with immediate access to a fire extinguisher.

Refueling at sea presents a far greater hazard, for if a fire or explosion were to occur, expedition members might need to abandon ship. To the greatest extent possible all refueling of outboard motors will be done on a beach. If this is not possible refueling will be performed with great care, to avoid spillage or overflow to hot surfaces. A fire extinguisher will be available on board skiffs and inflatables at all times.

1.2.17 Operation of Mobile Equipment Land –Based Vehicles
Land-based vehicles will include 2 covered Polaris Rangers (with a small flatbed) and 2 - 4 wheeler ATV's. All project personnel riding in these vehicles will wear a helmet and eye protection at all times.

All persons using ATVs must be "checked out " by Dr. Volz including operating details, safe speed, and guidance. ATVs behave differently from trucks and must be treated with respect and always operated at a safe speed. They are prone to tip on slopes and must be operated up slope as much as possible.

Either Joanna Burger, Michael Gochfeld or Dan Volz must authorize the use of land-based vehicles at the daily activity and safety conference. Specific directions for travel to and from collection sites or study areas will be outlined during these conferences,

deviations from these instructions can only occur with the prior approval of the Project Manager, Safety and Health Director and Lead Biological Scientist.

At no time will expedition members be permitted to use these vehicles for recreation. Land-Based Vehicles will be operated within the safety limits prescribed by the manufacturer. No vehicle will be used in areas of extensive hillocks, extreme slopes or cliffs where there is a high potential for a vehicle to flip or turn-over. Vehicles will be operated at safe speeds at all times, which will depend on weather, road and/or off-road conditions.

For added protection, in the event of changing weather conditions, each land-based vehicle leaving base camp (Magneto telluric Phase) or Constantine Harbor (Biological Collection Phase) will be required to carry the following items, in sufficient quantity for all team members, in waterproof dry-bags:

- Tents and tarps
- Sleeping Bags and Therm-A-Rest Ground Covers
- Water sufficient for 24 hours of intake
- Food-Power bars or equivalent
- 2-way radios for intragroup communication
- A VHF or UHF handset or Satellite Phone
- First Aid Kit ##

Adequate back-up gasoline is also required to be taken. Gasoline needs will be calculated during morning activity and safety briefings.

1.2.18 Medical Services

A. Emergency Services: The remote nature of this research expedition makes it necessary to pre-arrange for emergency evacuation procedures to off-island health facilities. In the event of needed emergency evacuation, as determined on site by the expedition health and safety personnel (Gochfeld and Volz), in consultation with the ship captain and the destination hospital, an airlift will be arranged. The primary point of contact will be the U.S. Coast Guard (see emergency contact information at the beginning of this document).

B. On site emergency services of a very limited nature will be provided, where indicated, to prevent damage to, stabilize and maintain the injured or ill individual(s). All land-based expedition personnel will have basic training in first aid and CPR – and will be supported by automated external defibrillator equipment. The *Ocean* Explorer crew includes paramedics and emergency medical technicians. Additional information on shipboard services are provided in the *Ocean Explorer* manual.

C. General care: Dr. Gochfeld will be available on the second expedition to provide health support and advice, operating under guidance, if indicated, (via telecommunication) of an Alaska-licensed physician at a hospital. All research personnel will have necessary immunizations (tetanus within the last 10 years). Individuals will fill out a health questionnaire, to be evaluated by Dr. Gochfeld, and may be required to provide written medical clearance by their own physician. Any prescribed medications that need to be taken on this trip will be the responsibility of the participant, and will be listed on the medical questionnaire. All injuries or illnesses will be promptly communicated to Dr. Gochfeld, and will be logged.

1.3 Management Structure, Key Project Personnel and Responsibilities

Table 1 illustrates the Key Project Personnel for each of the research tasks.
Stop Work Authority STOP-WORK authority is divided between two distinct authorities.
Maritime Safety
The Captain of the ship has the authority and the responsibility to stop all or any part of the expedition without consultation with or without approval of any other person on board or on shore. Furthermore the Captain may at any time:

- Order all expedition personnel below deck.
- Deny launching of skiffs or inflatables for any purpose and for any reason.
- Order all launched boats and personnel back to the *Ocean Explorer*.
- Order that the *Ocean Explorer* be moved regardless of collection implications.
- Order the *Ocean Explorer* to a port of his choosing at any time, regardless of implications to fulfill the objectives of the expedition.

The captain may also determine which side of Amchitka is safe to work on.

Expedition STOP-WORK
The order to STOP WORK and evacuate a specific area or abort the expedition entirely is a very serious decision but is a decision that must rest with one person. This authority and responsibility rests with Dan Volz, CRESP/Amchitka Project Manager. It is the responsibility of the following expedition principals to bring information that bears on STOP-WORK or Immediately Dangerous to Life and Health (IDLH) conditions and decisions to Dan Volz's attention immediately.

- Michael Gochfeld, Amchitka Project, Safety and Health Director
- Joanna Burger, Lead Biological Scientist
- Stephen Jewett, Dive Master
- Mark Johnson, Lead Oceanographic Scientist
- Martyn Unsworth, Lead Magneto tellurics Scientist

Each lead scientist has the prerogative to stop work of his/her project team if weather or other conditions render work unfeasible or dangerous.

This is particularly true of the Diving. Dr. Jewett has the responsibility to halt diving until conditions improve.

1.4 Dan Volz will consult as appropriate and as much as can be expected under specific circumstances with all project principals concerning issuing an order to Stop work, either temporarily or to evacuate. He will attempt to consult with the Projects Principal Investigator, Charles Powers PhD and/or with CRESP Associate Director Barry Friedlander MD, concerning the reasons for a specific site STOP-WORK or evacuation order. But the order to STOP-WORK or evacuate rests entirely with him and once a decision is made all expedition members will follow his directives, Dan Volz will than communicate the expedition's specific needs to the Captain and he will proceed as directed.

1.4.1 **Individual Responsibility**

Each individual has the right to refuse hazardous duty that in his or her judgment carries a high risk of bodily harm. The dive safety manual specifically address this issue in section 2.34.1

"It is the responsibility of the diver to terminate the dive, without fear of penalty, whenever he/she feels it is unsafe to continue the dive, unless it compromises the safety of another diver already in the water"

1.5 Disclaimer

This HASP attempts to identify and predict possible health and safety problems that may arise during the CRESP Amchitka Project. It follows standard HASP formats and incorporates procedures to minimize risk to participants. Participants are expected to be familiar with the provisions that are relevant to their activities and to adhere to them.

Workers' Compensation

It is understood that all expedition participants are employees or students of their respective Universities and are covered under their respective workers' compensation provisions once CRESP has issued a subcontract to their university. The Institute for Responsible Management, the Consortium for Risk Evaluation with Stakeholder Participation, the Director and the senior scientists (Burger, Gochfeld, Jewett, Unsworth, Johnson, Patrick) will act in good faith to protect the safety and health of all expedition members and are not liable for illness, injury or their consequences.

1.6 Daily Coordination and Safety Meetings A key feature of a HASP is the daily coordination and briefing sessions. Each day's work includes a work plan designating personnel, targets, locations, methods, special equipment and communication. The work of each group will be briefly reviewed, hazards identified, and safety precautions explained. The minutes of these meetings will be documented on a Plan of the Day form (Appendix 4).

1.7 Emergency First Aid/CPR/AED Training

Each land-based expedition participant will be trained in CPR (Cardio-pulmonary Resuscitation) and AED (Automated External Defibrillator). An AED will accompany land-based expeditions. Personnel who will remain on the ship need not have CPR/AED certification since that will be subsumed by the ship's crew.

2.0 Hazard Analysis

Radiation: Although Amchitka Island was once highly contaminated with radioactive materials and chemical hazards, the Department of Energy has reported that the surface contamination has been removed. Accordingly we do not expect to encounter hazardous chemicals or surface contamination. While the annualized general public exposure limitation (DOE) is 100 mrem, this research project will have as a guideline an Occupational Exposure Limit (OEL) which should not permit participant exposures to exceed 10% of the annualized dose (i.e., maximum of 10 mrem) throughout the expedition. The bathymetry study will include water and sediment samples and such samples will be screened for radiation above background using hand-held instruments. Such screening will be conducted in areas where the biological sampling will take place, prior to divers beginning their collections. Water and sediment are to be collected in approximately 100 gram samples. No high levels of radiation are expected, however all samples will be screened with hand held sodium iodide and Geiger-Muller counters, with set action levels defined (see table 1), to assure the safety of those handling the materials and the adequacy of safety controls throughout handling, processing, shipping, analysis and disposition.

Physical Hazards: There are many hazards common to general workplaces, which are particularly dangerous on this expedition, because of the remoteness of Amchitka. This includes the possibility of slips, trips, falls, which require recognition of hazardous areas or obstacles conducive to slipping. Lacerations and abrasions, contusions, overexertion, sprains, strains, hypothermia are all hazards likely to be encountered on Amchitka, while the possibility of hypothermia must always be considered. Many situations pose an eye hazard, and eye protection is necessary. Pedestrians will have to watch out for vehicles on the Infantry Road as well as protruding objects when off road.

2.1 Physical Hazards

For all Ship-related hazards, the *Ocean Explorer* safety procedures will be followed and all expedition participants will be briefed on emergency procedures at the start of their expedition. These are detailed in a Hard Copy manual, which will be reviewed by all participants before departing on the *Ocean Explorer*.

Injury reporting and documentation is essential (Appendix 5) and must be completed as soon as possible by the injured individual and their supervisor. Injury forms will be reviewed with the entire group at the next-day safety briefing.

2.1.1 Man Overboard. *Ocean Explorer* procedures will be followed and all personnel will be trained in emergency procedures.

2.2.2 Ship Evacuation/ Fire and/or Collision *Ocean Explorer* procedures will be followed and all personnel will be trained in emergency procedures

2.1.3 Ship Hazards, Slips/Falls/Overhead Cranes/Pinch Points/Head Trauma/Eye Injury. *Ocean Explorer* procedures will be followed and all personnel will be trained in emergency procedures.

2.1.4 Excursion/Small Boat Water Hazards-Sinking, Flipping and Grounding; Fog and Lack of Visibility, Lost and Lost Communication with the *Ocean Explorer*

2.1.5 On Island, Slips, Trips and Falls

Slips, trips, and falls are among the commonest causes of worker injury. Footwear with non-skid soles will be worn. Slip hazards can occur anywhere---on ship or on shore, in camp or far away. The irregular terrain, rain-soaked grass and mud, hidden wires and obstacles, are conducive to slips, trips, and falls. All expedition participants will be reminded of the need to be careful on unfamiliar terrain and to examine carefully areas that will be covered on foot, particularly in tall grass-covered areas.

All fieldwork requires a buddy system so that no one is out of visual, auditory, or walkie-talkie contact.

Electric power generators will be operated for battery charging, requiring safety procedures for handling the gasoline storage and fueling operation as well as electrical safety.

2.1.6 Rommel Stakes and Concertina Wire

Most of these structures have been removed from Amchitka, however, there is always the possibility that some such obstacles will be encountered, particularly in dense vegetation. Careful attention to where one is walking is needed to prevent injuries. Any obstacles encountered should be flagged and GPS coordinates should be written down.

If the obstacle is hidden in vegetation or soil, expedition members are not to examine or unearth it. Simply document its location and provide a brief description and leave.

2.1.7 Unexploded Ordinance

The recent federal cleanup activities on Amchitka included the removal of Unexploded Ordinance (UXO). However, it is highly likely that various forms of ammunition and

mines may remain hidden on the island surface. Encountering an unexploded mine is highly unlikely, but all participants should be aware of the possibility. As indicated above, the location of such items should be documented with GPS coordinates and flagged, but no attempt to investigate should be made.

2.1.8 Adverse Weather

The Aleutians are notorious for rapid changes in weather. Beautiful cloudless skies and comfortable temperature can suddenly shift to wind-driven rain with fog and low visibility. To the extent possible weather reports will be made available, but all expeditions from the ship or from camp, must be equipped in case inclement weather is encountered. Workers must have sufficient food and clothing in case their return to base is delayed. All cold weather clothing with water repellent shell, should be properly fitted and provide adequate insulation. Polyester rather than down will be used because of better performance in wet weather. See section 1.2.16 for equipment that must be carried when traveling away from base camp.

2.1.9 Hypothermia

Field workers can expect to get wet and chilled on some occasions, but true hypothermia can have a sudden onset and can be disabling. All participants must be able to recognize signs of hypothermia and all participants must have suitable insulated garments and foul-weather gear to prevent chilling. Each expedition whether in boat or on land should have at least one hypothermia blanket.

Because weather in the Aleutians can change rapidly, all personnel traveling away from base should carry rain gear.

What is hypothermia: *When exposed to cold temperatures, the body begins to lose heat faster than it can be produced. The result is hypothermia (abnormally low body temperature). Hypothermia affects the brain, potentially impairing judgment and motivation. This makes hypothermia particularly dangerous because a person may not know it is happening and won't be able to do anything about it. Shivering is a first sign of hypothermia, but as it progresses, shivering is inadequate to generate heat, and may even stop altogether.*

Hypothermia occurs most commonly at very cold environmental temperatures, but can occur even at cool temperatures (above 40°F) if a person becomes chilled from rain, sweat, or submersion in cold water.

2.1.10 Dehydration can occur at high latitudes on sunny, windy days when perspiration is not obvious. Fresh drinking water must be obtained from the ship daily, and a minimum of one quart per person per half day must be carried by field personnel. A Katadyn filter and water purification tablets will be carried on long expeditions in case surface water must be purified as an emergency water source. Do not drink surface water on Amchitka until it has been treated.

2.1.11 Operation of All Terrain Vehicles (ATV'S) and Polaris Vehicles

Vehicles must be operated safely at all times. Drivers must be checked out by Dr. Volz, prior to operating any vehicle. The road conditions on Amchitka are uncertain and there are blind curves, which must be approached with caution at slow speed. Vehicles should be operated at an appropriate speed with careful attention to avoid collisions, rollovers, and other accidents.

Vehicles should not be overloaded with personnel or equipment. No more than two people can ride in a single vehicle.

ATVs should not be operated on tundra.

2.1.12 Compressed Gases (Dive Tank Refill and Compressor Usage, Emergency Oxygen Tanks.
These procedures are described in the *Ocean Explorer* and Dive Safety plans.
An oxygen tank will be on board the *Ocean Explorer* for the administration of 100% oxygen in cases of Decompression Illness, or Near Drowning.

2.1.13 Lost on Land and/or Out of Communication
All expeditions away from base should have at least two means of communication----a satellite phone and one other. All expeditions must file a "flight plan" with a contingency return time in case of delayed return.
All participants or buddy-teams should have a GPS unit, a compass and flares. Any travel away from the Infantry Road requires documenting the general direction of movement. Thus anyone should be able to return to the Infantry Road. Any movement on the highway should be toward base camp.
SEARCH STRATEGY
If lost and injured---stay put, stay warm and stay in communication. A buddy should be close by.
All individuals should carry an emergency insulation sheet.

2.1.14 Falls during Collection in the Intertidal
The intertidal zone is a high hazard area. Kelp is extremely slippery and the surface of wet rocks is extremely slippery. Moreover, the bottom structure is usually obscured by kelp and incoming tide surge can upset balance. All work in this area requires extreme caution. Non-skid Neoprene or Rubber soles with spikes are essential. A support stick is desirable. A plastic cycle-type hard hat should be worn. A flotation device should be pulled behind the samplers.

2.1.15 Dive Team Hazards (see attached Dive Safety Plan)
Attached to this document (as of 6-8-04) is the University of Alaska-Fairbanks *SCIENTIFIC DIVING SAFETY MANUAL* (revised May 2004), herein referred to as the Dive Safety Plan. It covers the following topics:

Section 1. General Policy, standards, operational control and record maintenance.

Section 2 Diving regulations for SCUBA, including pre-dive, diving, and post-dive procedures as well as emergency procedures and flying after diving.

Section 3. Diving equipment, equipment maintenance and air quality standards

Section 4. Entry level training requirements

Section 5. Scientific Diver certification types, policies, requirements, depth certification and recertification.

Section 6. Medical standards and medical requirements

Section 7. Other diving technology

And Appendices including medical forms, physicians with diving expertise, definition of terms, and emergency management and contact information.

2.2 Specimen Preparation Hazards
Specimen preparation is also a critical phase and workers must pay attention to quality assurance procedures, cross-contamination, as well as safety procedures. Workers will be equipped with a series of dissection trays, sharp knives, vinyl and steel mesh gloves. There will be a demonstration of proper cutting techniques for each type of specimen.

Dissections can be carried out on a flat surface. If using a tray, be sure to raise arms frequently so that the rim of the tray does not compromise forearm circulation.
Pay attention to the dictum: "dull knives cut deep", and make sure that knives are sharpened as needed. Any cut involving biological material has the potential to become infected, often with organisms that are unfamiliar to the body's immune system. Any cut requires first aid attention as soon as possible. During laboratory work use of masks and goggles/glasses is optional. Boots, shoes or sandals with non-skid soles are required.

Eating and drinking is not permitted in the laboratory.
All primary data entry will be in "hard copy" bound notebooks according to standard laboratory procedures.
As time is available data will be entered into computer spreadsheets and archived and transmitted. During data entry, attention should be paid to all ergonomic procedures for chair, desk, screen, mouse and keyboard use and frequent breaks should be taken.

2.3 Radiological Hazards

General Statement

It is not expected that radiological hazards will be significant on this mission and all personnel will wear personal dosimeter badges during the expedition. At the conclusion of the expedition a second badge will be issued to be worn for the same period as a "control". The "expedition badge" will be collected by Dr. Volz or his designee, when each participant leaves Adak. The "control badge" will be sent to Dr. Volz.

Radiation is both an endpoint of this Project and a health concern. Therefore all specimens will be screened with hand held monitors (NaI) when they are brought on board the ship, to verify that they do not pose a radiation hazard. This measures gamma radiation. External exposure to alpha radiation is not considered a hazard in this project because of the very short travel distance of an alpha particle.

Screening of Specimens

The allowable radiation exposure for a radiation worker is 5000 mrem per year. This assumes that the workers have undergone a radiation training program with refresher courses as needed. Therefore all expedition members will be considered to be members of the general public (i.e. not radiation workers) and are thus limited to an annual exposure of 100 mrem per year. If we assume a 4 week mission, with (conservatively) 24 hr/day, 7 day/week exposure to a sample at 1 m distance from a stored sample, samples reading more than 0.15 mR/hr (150 microR/hr) at 1 m should be isolated, in a leaded bagand if necessary in a lead box. If the radiation on the external surface of the box still exceeds this value, the specimen, location, date and time of collection, and its radiation measurements should be documented and the specimen discarded. Due to the small total amount of radioactivity, the specimen could be discarded at sea.

In the unlikely event that a specimen exceeds this criterion and warrants a lead bag, it will be processed carefully to minimize exposure and avoid cross contamination. The retained specimens will be frozen in a lead bag, sealed inside a plastic bag. They will be shipped in a separate cooler directly to the Nelson Laboratory (Rutgers University) for processing. Given the short period of processing (about one hour), the cumulative exposure from a specimen will not pose a hazard to the laboratory workers.

Rationale for Expedition Occupational Exposure Guideline

1) 100 mrem is the yearly protection standard for incremental radiation to members of the public.

2) Radiation risk is thought to be linear, with no threshold, so every mrem has some accompanying risk.
3) Radiation exposure should be controlled to As Low As Reasonably Achievable (ALARA)
4) The actual Amchitka expedition will take approximately 10% of a year.
5) Therefore, as a guideline an appropriate radiation occupational exposure limit (OEL) for the expedition would be around 10 mrem (i.e., 10% of 100 mrem)
   a) 10 mrem should certainly be achievable (this is expected to be a low radiation exposure effort, excluding flights);
   b) 10 mrem should be more protective than 100 mrem;
   c) 10 mrem would better reflect ALARA than would 100 mrem, and is an equitable proportion of the annual allowable limit.

Therefore an Occupational Exposure Limit Guideline of 10 mrem (cumulative for the expedition) is established. Exceedance of this exposure level will require documentation and review of the conditions causing it.

Collecting biological specimens for radioactive material rarely involves contact with significant sources of radiation, except at sites in which intense sources may have been used and/or abandoned. Usually biologic samples contain very little radioactivity, since high levels would have been incompatible with survival of the organism. However, some samples could be encountered with a particularly high concentration of radioactivity, because of an unusual accumulation of fission products at some point, so precautions will be followed for monitoring of samples, personnel and the work areas to ensure radiological safety and also prevent and document of cross-contamination.

Details on the radiation screening protocol are provided in the Implementation Plan.

Discovery of one or more very hot specimens will also require re-direction of the sampling effort to investigate the nature and extent of the contamination.

2.3.1 Sample Collection and Preparation

a. Personnel will be assigned radiation monitoring devices, to be worn throughout the mission and read upon return. These devices may be supplied by Landauer, Inc. (http://www.landauerinc.com/ products.htm), Only body badges (i.e. not finger, or extremity, badges) are indicated for use in this study.
b. Cross-contamination of samples that are processed shipboard or in land-based laboratories is an important consideration from a quality assurance standpoint. Should a sample be encountered that has a particularly high level of radioactive contamination, it is of course important that remnants of this sample do not mix with other samples that may have little or no activity. Personnel hazards from handling possibly contaminated samples are expected to be minimal. At the end of each working shift or working day, for 2-3 areas considered the most important (sample preparation area, sinks, storage refrigerators, etc.), a moistened filter paper disk is wiped over a representative area of about 100 cm^2. These will be read with the hand held device and results will be recorded.

Hand held samplers will be calibrated with a known radiation source.

2.3.2 Land Based Radiological Hazards

The Department of Energy has completed its surface cleanup of Amchitka and repeatedly reassured CRESP verbally that there was no significant surface contamination. Initial

field surveys will be made at Base Camp and magneto-telluric field sites. Personnel monitors are worn at all times during the expedition.

2.4 Biological Hazards

2.4.1 *Rattus norvegicus:* The Norway Rat is present on Amchitka and will be targeted by trapping operations. Rats are potential disease vectors, and can bite. They are also potential camp pests. Camp hygiene and safe food storage will discourage rodent depredations. Rat traps (snap-type) will be set and inspected daily. Removal of dead rats will require vinyl gloves, and rats will be taken into an inverted plastic zipping bag, which will be labeled and sealed for transport to the ship.

2.4.2 Marine Animals

The only animals likely to be hazardous to humans are Fur Seals (not usually present on Amchitka) and Stellers Sea Lions. These animals should be given a wide berth and approached no closer than 50 feet, except during collection attempts. Animals to be collected will be shot in the head with a 30 caliber rifle and death will be ascertained prior to close approach. Collection of marine mammals requires special federal permits.

2.4.3 Waterborne Bacteria and Parasites

Pathogenic microorganisms are seldom a problem on a remote, uninhabited island, unless expedition members carry them. Appropriate camp sanitation and disposal of human waste is essential. Care in handling marine organisms is required since they may harbor unusual infectious agents. Any cuts need to have prompt first aid.

2.4.4 A plant in the Wild Parsnip family can cause significant contact dermatitis. Learn to recognize it and avoid it. Pictures of this plant will be provided during initial training and if encountered it will be pointed out.

3.0 Personal Protection.

We do not anticipate encountering any hazardous chemicals or radiation that would warrant more than Level D protection. Hard hats and non-skid footwear are required. Raincoats are necessary for land work in light rain.

Appropriate comfortable, properly-fitting foul weather gear, insulated coats, gloves and head ware will be required for work on land, in the event that sudden storms arise. Volz and/or Gochfeld will not allow personnel into the field if they are not properly equipped.

3.1.1 Routine shipboard protection: a hard hat is required on deck at all times. Non-skid boots are also necessary.

3.1.2 Specimen preparation on ship.

Vinyl gloves are required to protect both the specimen and personnel.

Safety glasses or goggles and masks are optional.

3.1.3 Gloves: work gloves will be available for most activities on ship or on island. Divers will use special rubberized diving gloves. Dissectors will use a combination of vinyl gloves and steel mesh gloves.

4.0 Dive Safety Procedures (refer to the Dive Safety Manual--attached)

5.0 Emergency Procedures

Due to the extreme remoteness of Amchitka and the lack of medical facilities, emergency procedures and evacuation plans are needed. The nearest medical facility is at Dutch Harbor and the nearest hospital of any size is at Anchorage. The Airfield on Amchitka is

of sufficient size to accommodate jet airplanes, but there is no on-island communication, weather station, or emergency landing lights. Anchorage is about 5 hours away by air, which means a minimum of 10 hours from notification to arrival at hospital.
Dr.Dan Volz serves as the Emergency Coordinator with Dr. Michael Gochfeld as backup. Communications with U.S. Coast Guard will be established. Phone 907-487-5888 (USCG Coordination Center/Air Station, Kodiak). Other key numbers are 800-478-5555 (USCG Rescue Coordination Center – National Center); and 800-420-7230 (Alaska Rescue Coordination Center – AKRCC). See page 1 of H&S Plan for additional contacts and Dive Safety Plan.
Specific tasks would include:
a. Notification of ship captain who will notify off-island emergency personnel.
b. Identify location of sick or injured person and assist in stabilization of condition.
c. Apply first aid and CPR as needed. Operate the AED if needed.
d. Provide periodic checks of emergency and communications equipment.
e. Provide emergency evacuation people with location of patient, nature of injury, and what help has been provided.
f. In providing emergency information let the person you call hang-up first.

5.0.1 Evacuation Procedures

Ship Evacuation of the Ocean Explorer – Orders given by the Captain of the ship relative to evacuation **for any reason** are final and must be followed without delay. Included in the Appendix is the Ocean Explorer – Safety Equipment, Vessel Hazards and Orientation, which includes information regarding emergencies, alarms, life rafts, survival suits, and specific emergency procedures and instructions.

APPENDIX 1 DECLARATION OF UNDERSTANDING

I_____, have read the Health and Safety Plan and understand the nature of the Expedition, the potential exposures and risks, the necessary precautions, and the line of communications, responsibilities and authority. I will take appropriate actions as outlined within the HASP or as required by the Captain, Project Director or Senior Investigators. I understand that they will make a good faith effort to operate safely at all times and that they will err on the side of caution when weather and/or sea conditions are unfavorable

I specifically understand and agree with my role in the expedition and my health and safety responsibilities and reporting relationships. I agree to adhere to the HASP, to ask for any needed clarifications and to fully participate in the spirit and fact of making this Expedition a safe and collegial undertaking.

I understand that I have the right to refuse hazardous duty that in my judgement carries a high risk of bodily harm.

I will not participate in any activity that knowingly puts me or others in jeopardy, and will clearly communicate any concerns I may have regarding unsafe practices of which I am aware to the Project Director or a Senior Investigator. I will report to Drs. Volz or Gochfeld in a timely manner, any injury or illness that I may develop during this expedition.

I understand that any illness or injury that is caused or aggravated by this work will be reported under the appropriate Workers' Compensation rules of my university or agency employer.

Signature_____ Date_____

APPENDIX II----IRM/CRESP EMERGENCY INFORMATION FORM

Amchitka Approved Science Plan, Summer 2004

This form must be completed by all Amchitka Expedition members and returned to Conrad (Dan) Volz DrPH, Amchitka Project Manager at CRESP HQ by May 28, 2004. Please complete and to Fax # 732-235-9607 or email waldronx@eohsi.rutgers.edu.

Name: _____ Home Phone: _____

Home Address: _____ Cell Phone: _____

_____ Email Address: _____

University Affiliation: _____

Office Address: _____ Office Phone: _____

Name of Immediate Supervisor: _____ Phone: _____

Primary Emergency Contact: _____ Relationship: _____

Address: _____ Phone: _____

_____ Email: _____

Secondary Emergency Contact:_____ Relationship: _____

Address: _____ Phone: _____

_____ Email: _____

Your Blood type: _____ Medic Alert Tag: ☐Y ☐N
Your Usual Blood Pressure_____
Allergies: _____ Antibiotics: _____
Anesthesia: _____
Current Medication: _____

Other Relevant Medical Considerations: _____

Do you Wear Contact Lenses: ☐ Y ☐ N
Year of Most Recent Tetanus Shot: _____
Personal Medical Coverage: _____ Policy Number(ID): _____
Group Number: _____
Telephone of Plan Representative: _____
Name of Physician: _____ Phone: _____

APPENDIX 3 PERSONAL CONFIDENTIAL HEALTH QUESTIONNAIRE

CRESP Adaptation of NOAA Health Services Questionnaire

This form is confidential and will be reviewed and retained until the end of the Amchitka Expedition by Michael Gochfeld MD, Ph.D.

Name _____ SS# _____

Birth Date _____ Program _____

Sex: M ☐ F ☐ Position _____

Work Address _____ Phone W: _____

H: _____

Policy # _____ Emergency Contact: _____

Phone # _____

Health Information

General State of Health: Excellent ☐ Good ☐ Fair ☐ Poor ☐

Presently under the care of a physician? No ☐ Yes ☐ If Yes,
Physician Name: _____
Physician Phone: _____

Month/Year of most recent Physical Exam?

List current medications (prescription and non-prescription):

None ☐

1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

List Allergies: Allergy Reaction

None ☐

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____

List ALL active health problems:

None ☐

1. _____
2. _____
3. _____
4. _____

Major Surgeries/Hospitalizations/Emergency Room visits

Year Reason

None ☐

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____

List Any Dietary Restrictions

Restriction Reason

None ☐

1. _____ _____
2. _____ _____

CRESP Adaptation of NOAA Health Services Questionnaire

GENERAL SCREENING

As an adult, have you had or experienced?

	NO	YES		NO	YES
Cancer	☐	☐	Severe Depression	☐	☐
Tuberculosis	☐	☐	Paralysis	☐	☐
Asthma	☐	☐	Epilepsy	☐	☐
Hepatitis	☐	☐	Impaired Mobility or Balance	☐	☐
Chronic Cough	☐	☐	Severe Hearing Loss	☐	☐
Coughed up blood	☐	☐	Impaired Ability to Climb Stairs	☐	☐
Recent unexplained gain or			Severe Visual Impairment	☐	☐
loss of 20 or more lbs.	☐	☐	Periods of Unconsciousness	☐	☐
			Severe Motion Sickness	☐	☐

Please explain all YES answers:

CARDIAC SCREENING

As an adult, have you had or experienced?

	NO	YES		NO	YES	(and value if known)
Abnormal ECG	☐	☐	Hypertension	☐	☐	recent read _____
Sedentary Life Style	☐	☐	Diabetes	☐	☐	HgA_{1c} _____
Family History of Heart	☐	☐	High Cholesterol	☐	☐	recent read _____
Attack before age 45	☐	☐	Tobacco Use	☐	☐	packs a day _____
Heart Attack	☐	☐	Prolonged Chest Pain	☐	☐	
Shortness of Breath	☐	☐	Fainting spells/Syncope	☐	☐	

Please explain all YES answers:

CRESP Adaptation of NOAA Health Services Questionnaire

IMMUNIZATION SCREENING

Please list the date (s) yoou obtained immunization/prophylaxis against the following diseases:

		Date	Type	Date unknown	None
Hepatitis B Series	Dose 1			☐	☐
	Dose 2			☐	☐
	Dose 3			☐	☐
Tetanus [1]				☐	☐

Are you aware of any other medical condition (s) that may affect your suitability for sea duty? No ___ Yes
If YES, please explain on the continuation sheet.

If you have any questions, pleae discuss with Dr. Michael Gochfeld at 732-445-0123 X 627 or 732-233-5864
Continuation page attached? NO ☐ YES ☐

The information provided is complete to the best of my knowledge.

Signature _____ Date (mm/dd/yy) _____

MEDICALLY CLEARED FOR SEA DUTY BY HISTORY YES ☐ NO ☐ NEED MORE INFO ☐

Michael Gochfeld, MD, PhD, Expedition Safety & Health Director _____ Date (mm/dd/yy) _____

APPENDIX 4 PLAN-OF-THE-DAY HAZARD ASSESSMENT

ACTIVITY	Hazards	Controls	PPE
Bathymetry			
Fresh-water			
Magneto-tellurics			
Subtidal invertebrates	Boating Diving	Dive gear	
Intertidal organisms	Slips Rocks	Non-skid soles, hard hats	
Seabirds	Terrain Falls Vehicles	Training Ropes	
Marine Mammals	Terrain Falls Vehicles Fire arms	Training	
Rats	Terrain Traps	Training	
Aleut fishing	Boating Firearms	Training	
NOAA Trawler	Ship		
Sample Preparation	Ship Cuts		

APPENDIX 5 --ACCIDENT-INCIDENT-INJURY REPORT FORM

This will be photocopied and will be available on the expedition.