

Standard Operating Procedure (SOP) #1

Safety Protocol

Version 3.01 (March 21, 2022)

Change History

New Version #	Revision Date	Author	Changes Made	Reasons for Change	Previous Version #
2.0	5/26/2016	David Raikow	Completely new version	Improving safety	1.0
2.01	6/22/2020	David Raikow	Added virus language	New PACN virus related SOPs have been established, GARs and JHAs have been modified.	2.0
3.0	7/14/2021	Amanda McCutcheon Kim Weisenborn	Added link to current safety documents, updated language from Readiness Review to Annual Network Safety Agreement, added requirement for communication plan. Converted safety training checklist, JHA, and GAR model into appendices. Re-created the daily safety checklist as a table instead of an embedded image.	To make consistent with other protocols and PACN safety plan. Also, improving conciseness and to make more accessible	2.01
3.01	3/21/2022	Kim Weisenborn	Updated content to refer to new PACN I&M SharePoint.	PACN data is no longer stored on a networked server (I:\ drive) and is no stored on the PACN SharePoint site.	3.0

Only changes in this specific SOP will be logged here. Version numbers increase incrementally by hundredths (e.g., version 1.01, version 1.02) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0). Record the previous version number, date of revision, author of the revision, changes made, and reason for the change along with the new version number.

Purpose

This SOP outlines safety considerations for conducting any aspect of the protocol. All workers should be familiar with this SOP and NPS and PACN safety protocols. It is the general policy of PACN that:

- Safety is the primary concern when planning and conducting field work.

- If in doubt as to the safety of an activity in the field, do not take unreasonable risks.

Virus Addendum

- Consult the “PACN Field Operations during the 2020 COVID-19 Pandemic SOP.”
- GARs must consider the hazard of virus transmission.
- JHAs must be updated with addenda concerning virus transmission.

Requirements for NPS Employees and Volunteers

All NPS employees conducting field work must complete the following training as soon as possible. NPS Volunteers who accompany NPS staff in the field are also encouraged to take the following trainings.

- Operational Leadership Training (OLT, an NPS course).
- CPR and First Aid Training (typically an external course).

Optional training includes:

- Wilderness First Responder. It is preferable that at least one crew members has this training.

Required Safety Documentation

The following documents must be maintained and updated on a regular basis (no less than annually):

- Emergency Contact Information.
- Safety and training checklists for each employee (see [Appendix SOP 1.a](#)).
- Job Hazard Analyses (JHAs) (see [Appendix SOP 1.b](#)).
 - The current format for JHAs was modified from other JHAs used in the NPS. Some parks (e.g., KAHO), have made further modifications. There should be a JHA for each protocol · park · ecosystem (e.g., Anchialine Pool animals-KAHO). JHAs are written by PACN staff and reviewed by parks.
- Green-Amber-Red Models (GARs) (see [Appendix SOP 1.c](#)).
 - GARs are completed by PACN staff and reviewed by the park. In general, a score of “1” is an example of the safest condition possible anywhere in the national park system, and “10” is an example of the most hazardous condition possible. These scores are subjective but should be conservative. An initial assessment is made, including a description of factors that affect the score. Mitigations are listed, and final score after mitigation is assessed. The GAR system currently in use has eight factors, resulting in a score range of 8-80. Generally, scores should go down as a result of mitigation. A score of 35 or less is “Green”, or low risk. A score of 36-60 is

“Amber”, a moderate risk, requiring a supervisor’s permission to proceed. Generally, to complete this protocol it is not necessary engage in activities that receive a score of 61-80 (high risk). It is not the safety-reviewer’s job to bring all risk into the green score. Rather, it is the job of the safety reviewer to objectively evaluate risk.

- GAR models are evaluated:
 - Prior to field work as part of the annual safety readiness review process.
 - During daily pre-field tailgate briefings.
 - In the field in response to changing conditions or as needed.
- Trip Preparation Checklists (see [Appendix SOP 1.d](#)).
 - Trip preparation checklists contain safety items, and thus are included in this SOP, even though they overlap with general trip preparation.
- Daily Safety Checklists (see [Appendix SOP 1.e](#)).
- Backcountry Travel Plans (see [Appendix SOP 1.f](#)).
- Communication and Emergency Response Protocols (see [Appendix SOP 1.g](#)).
- Annual Network Safety Agreement for all parks and protocols.
 - At the beginning of the fiscal year, and prior to the initiation of field work at any park, a Network Safety Agreement must be signed by the PACN Program Manager and the Superintendent. Refer to the PACN Safety Plan for annual safety agreement materials.

Consult current-year documents for models of all above safety documents. Safety documents are maintained and accessible by NPS employees in the [PACN Safety Files](#) folder in SharePoint.

Tailgate Briefings

When conducting field work, safety procedures must be reviewed prior to entering the field each day. The following procedures must be conducted each day at a “tailgate” briefing:

- Review the JHA.
 - It is not necessary to literally read the entire JHA each morning, instead review major points via daily safety briefing. Though when an employee or volunteer who has not been in the field at a particular park or to perform activities of a particular protocol, a full review of the JHA will be completed during the briefing.
- Conduct a GAR.

- Assess any changes in conditions that would increase risk. If risk has increased significantly, cancellation of field work may be required.
- Fill out the daily safety checklist.

Particular Safety Considerations for the Water Quality Protocol

Weather

Sampling aquatic ecosystems during inclement weather can be dangerous on Pacific islands. Sampling operations must be cancelled immediately when inclement weather is forecast or occurs unexpectedly. Prior to departure, it is the responsibility of all personnel to be aware of the appropriate local weather, tide, and current forecast for the day and to decide whether sampling should commence. Sampling should be conducted only during periods of little or no rain, mild or no wind. If thunder is heard or lightning is seen while in the field, sampling will be immediately suspended. In the event of an intense rainfall event all sampling activity should cease. Always abort a sampling trip if hazardous conditions develop.

Contaminated Water

Waterborne pathogens that may survive or be transmitted in water include *Enterococci* and *Staphylococci* bacteria. Never consume water from anchialine pools. Aquatic areas being sampled may be contaminated with pathogens. Consuming untreated or unfiltered water may result in the contraction of bacterial diseases or parasites. In particular, keep hands away from nose, ears and mouth and wash hands thoroughly before eating. If no soap and water are available, use of an antibacterial hand cleanser is highly recommended after handling water sampling equipment. Never expose an open wound, even a small cut, to water while sampling. Leptospirosis, a blood-borne bacterial disease, can be transmitted to humans through open-wound contact with infected water. Use of water bodies by livestock or feral animals increases the risk of the presence of Leptospirosis in water.

Accident Reporting

Inform your supervisor of all incidents. The person that sustained the injury, or another team member who was witness to the accident, must fill out report forms as soon as feasibly possible and no later than 24 hours from the time of the accident or return from the backcountry.

Appendix SOP 1.a. Sample Safety Training Checklist

Note: Actual training checklist will be completed prior to start of annual field work.

I&M PACN Freshwater Annual Safety Training Checklist

Updated 9/23/2013

David Raikow

Employees are to initial and date after receiving the following training. Initials indicate that the employee has read, understands and/or has participated in the given safety training.

Item	Initials	Date	Supervisor Comments
Safety Documents			
I&M PACN Safety Plan	DR	6/20/2012	Wrote revised draft
Water Quality Safety SOP	DR	7/9/2014	Revised SOP
Groundwater Safety SOP	DR	6/20/2012	
Stream Animals Safety SOP	DR	6/20/2012	
Anchialine Pools Safety SOP	DR	6/20/2012	Wrote revised draft
Park Backcountry, Emergency, Communication Guidelines			
HAVO			In revision per I&M RR
KAHO			In revision per I&M RR
PUHO			In revision per I&M RR
PUHE			In revision per I&M RR
ALKA			In revision per I&M RR
HALE			In revision per I&M RR
KALA			In revision per I&M RR
WAPA	DR	2/20/13	
AMME	DR	2/20/13	
NPSA	DR	5/31/13	
Communication Devices			
Cell Phones	DR	6/20/2012	
Park Radios	DR	6/21/2012	
Emergency Medical Response			
CPR & First Aid	DR	7/1/2012	
Operational Leadership (OLT)	DR	8/15/2012	
Defensive Driving	DR	9/23/2013	
Respirator Fit			

Appendix SOP 1.b. Sample Job Hazard Analysis (JHA)

Note: Actual JHA will be reviewed annually.

JOB HAZARD ANALYSIS (JHA)

Pacific Island Network (PACN) - Inventory and Monitoring Program (I&M) - National Park Service (NPS) - Department of the Interior (DOI)

Project: Anchialine pool animal monitoring	Protocol: Anchialine Pools	Location: Kaloko-Honokōhau NHP
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Version 1.0	14 Nov 2013	Authors: Danielle Gross, David Raikow
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Reviews and Approvals:	Park Resource Manager:	Sallie Beavers
	Park Safety Officer:	
	PACN Program Manager:	Ryan Monello
	PACN Field Supervisor:	David Raikow

Required Safety Training: • Read the I&M PACN Safety Plan at least once a year. • Review the Protocol Safety SOPs prior to beginning the trip. • Complete Trip Preparation Checklist prior to field work. • Complete Daily Safety Checklist each day before entering field. • One field crew member must be certified in CPR and first aid. • Review NPS Driving Policy. • Review KAHO RM communications and solo-out policy. • Review KAHO/PUHO back-country plan.	Recommended Personal Protective Equipment (responsibility of the employee): • Hat • Boots • Sunglasses • Sunscreen
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Tasks	Hazards	Potential Injuries	Abatement Actions
1. Driving to and from field sites.	1a. Narrow, single-lane, unpaved roads with rutted and uneven surfaces.	Auto accidents.	1a: - When exiting Kaloko road, DO NOT make a left onto the highway. Proceed right and turn around when safe at a legal intersection. - Wear seatbelts at all times when vehicle is moving. - Never use cell phones or other devices when operating a vehicle of any kind. - Maintain a safe speed (this is often below the legal speed limit) for the road conditions. - Stay clear to the right, especially on curves. - Drive with headlights on at all times. - When backing up or parking, the passenger should get out of the vehicle to guide the driver. - Park work vehicle in designated lots: the Kaloko parking lot for most sites, and Honokohau harbor parking lot for access to pools near 'Aiopio (like fixed site Kaloko_084).
	1b. Driving with limited visibility.		1b: - Clean both sides of windows regularly (remember back window). - Slow down. - If blinded by sun or dust, proceed slowly or pullover and wait for hazard to pass; keep to the right hand side of the road and drive with your lights on.
	1c. Sharp rocks, deep holes or obstacles in the roadway.		1c: - Avoid driving over sharp rocks or in deep pits. - Reduce speed substantially in places with pots/holes, protruding rocks or other obstacles.
	1d. Fatigue.		1d: Be aware of signs of fatigue.

Tasks	Hazards	Potential Injuries	Abatement Actions
			• Pull over and rest. • Eat a snack or have a partner drive
	1e. Animals crossing or standing in roads.		1e: • Although animal encounters are unlikely at this location, mongoose, feral cats and ground birds may be in the road way. • Slow down where animals might be present to allow for reaction time. • Do not swerve abruptly to avoid hitting an animal, if necessary it's better to ride out the impact.
	1f. Storm conditions, e.g. wind, lightning, or slippery roads.		1f: • Keep informed on the current weather. Dial 808-973-5286 to reach the National Weather Service, ex. 237 to speak to a person. Also check the online forecast for Kailua-Kona. • If winds exceed 15 mph, or the excessive wind category on Beaufort scale (tree tops swaying, twigs and leaves falling, etc.), do not travel into the field • Do not go into the field if lightning is present and avoid using radios • Drive slowly when roads are muddy and slippery.
2. Communicating with dispatch and park Point of Contact (POC).	2. Isolation.	• Unable to reach dispatch to summon aid. • Isolation while injured	2: • Check with dispatch and your park POC, before going into the field and check out once you return. • Fill in Park status board with names, time back, and phone #s • Always clear status board when you return • Follow procedures in KAHO RM Communications and Solo-Out plan • Provide HAVO dispatch with a map and coordinates of all field sites you plan to visit.

Tasks	Hazards	Potential Injuries	Abatement Actions
			- Identify and notify dispatch of EMS meeting points: the Honokohau Harbor parking lot for pool fixed site Kaloko_084 and temp sites nearby, or Kaloko road parking lot for all other sites. - Always travel in pairs at a minimum. - Make sure radio is charged. - Bring extra batteries and cell phone as backup. - If you are unable to reach dispatch or law enforcement from your location try other nearby locations. - Try at regular intervals, just meandering around may help in getting a signal. - Use cell phone as a backup, as this may be more reliable for communication in remote locations.
3. Hiking.	3a. Rugged lava terrain, cracks and lava tubes.	- Tripping and falling. - Minor physical injury. - Traumatic injury.	3a: - Field crew should carry emergency information (known allergies, medical conditions, etc.) and phone contacts for each member of the team. - The group must have two means of communication (e.g., cell phone and radio). - Assess terrain conditions to find safe route and modify sampling plans to avoid unsafe areas (lava tubes, large cracks, loose rocks) - Proper footwear is very important-wear ankle supportive boots with Vibram or other sturdy soles, broken in before the field season. - Carry supplies in a backpack, make sure pack is comfortable and secure, properly fitted with waist and sternum straps. - Keep hands free for balance-lava tends to be unstable. - Do not move rocks. - Bring GPS with site coordinates uploaded, a compass and detailed map.

Tasks	Hazards	Potential Injuries	Abatement Actions
			Use established park trails when possible, and when traveling off-trail, choose the most easily navigable path to each site.
	3b. Fissures, holes, and loose rocks obscured by vegetation; sharp lava.	- Tripping and falling. - Minor physical injury. - Traumatic injury.	3b: Take care when hiking over lava, especially on cinder, unstable rocks, and thin/porous lava that could break under your weight.
	3c. Sharp, rough vegetation. Low hanging branches,	- Tripping and falling. - Minor physical injury.	3c: - Wear long sleeves and pants as well as safety glasses (or other glasses) when hiking in brushy areas to protect eyes and skin from thorns (e.g. Kiawe). - Be aware of low tree trunks and branches near your head when wearing brimmed hats.
	3d. Bees and wasps	Allergic reactions	3d: - Determine in advance if any field crew are allergic to bee stings. - Notify other crew members and the supervisor if you know you are allergic to bee stings, carry your own medication supplies if allergic. - Be aware of the ground where you step- some hornets build nests in the ground at the base of trees or shrubs, or in rotten logs- watch for bees buzzing in and out of holes or around ground level. - If possible, flag a nest so others will be forewarned.
	3e. Centipedes, scorpions, and spiders.	- Allergic reactions. - Minor physical injury	3e: - Orb-weaving spiders create webs in fountain grass and other vegetation, and are encountered regularly when accessing anchialine pools at KAHŌ. - Use a stick to break down the web and avoid contact with spiders.

Tasks	Hazards	Potential Injuries	Abatement Actions
			- Inspect items left lying on the ground such as clothing, for scorpions, spiders or centipedes prior to putting them on. - If stung/bitten, wash the site with soap and water and apply a cold compress at intervals of 10 minutes. - Those with insect allergies should monitor themselves closely following a bite and may need to contact emergency medical services in the event of severe symptoms.
	3f. Strangers.	Assault.	3f: - Remove yourself from the scene of uncomfortable encounters with strangers - Report uncomfortable encounters to dispatch and law enforcement as soon as possible - If you can't leave the scene then call for help where you are. Do not or confront individuals engaged in illegal activities. - Report apparent illegal activity to dispatch
	3g. Waterbodies.	Leptospirosis and other water-borne diseases.	3g: - Do not enter waterbodies while sampling. - Do not expose open cuts or abrasions to unfiltered water.
	3h. Heat.	Dehydration, heat exhaustion, hypernatremia, heat stroke.	3h: - Review heat emergencies in the Safety Plan. - Watch for symptoms of heat emergencies including but not limited to nausea, vomiting, headache, and flushed or red skin, confusion, lethargy, fatigue, appetite loss, restlessness, irritability, muscle weakness, spasms or cramps, and seizures.

Tasks	Hazards	Potential Injuries	Abatement Actions
			• Drink plenty of water even when you are not thirsty. • As heat increases, take frequent breaks in cool locations. • Complete the bulk of work early in the day to avoid peak heat exposure. • Eat salty snacks or consume sports drink with electrolytes when working in hot weather for an extended period.
	3i.Sunlight.	• Sunburn	3i: • Use of 15+ or greater SPF sunscreen and lip balm is recommended. • Wearing a hat, sunglasses, and UV protective shirt is recommended.
	3j. Vog and volcanic emissions.	• Respiratory irritation	3j: • Watch for lungs and eye irritation and breathing problems. • Persons with obstructive pulmonary disease (COPD), asthma, or respiratory problems should be advised of hazards before entering the field.
4. Lifting and transporting gear.	4. Heavy, large, or awkward gear.	• Minor physical injury. • Serious physical injury.	4: • Anticipate the extra weight that will need to be hiked out with your backpack full of water samples. • Use proper bending and lifting techniques. • Do not bend your back to pick even small or light objects up, lower yourself with your legs. • When lifting, plan your route and clear a path to avoid making awkward movements while holding something heavy. • Lift close to your body with your feet shoulder width apart. • When lifting, bend at the knees and keep your spine straight, tighten your core muscles and lift with your legs.

Tasks	Hazards	Potential Injuries	Abatement Actions
			• Never twist or bend while lifting and always share the burden of a heavy load with another person (when lifting water pump, use two people). • Secure heavy packs tightly with the sternum strap and waist belt utilized. • Be aware of your clearance wearing large backpacks in areas with Christmas berry and other trees.
5. Collecting water samples and water quality data.	5a. Hard-to-access field sites.	• Slipping and falling. • Minor or serious physical injury. • Becoming lost.	5a: • Utilize the coastal trail as much as possible; only go off trail when you are close to your site. • Secure sunglasses and other loose items when working over a pool, dropping items that you retrieve could cause a slip or fall. • Beware of disorientation when hiking in a'a lava fields, especially if you are inexperienced with the area. • When locating unfamiliar sites, refer to field notes, established pool descriptions and maps to help determine the best access route
	5b. Rough, sharp or dense vegetation	• Minor physical injury. • Serious physical injury	5b: • Accessing any water quality site will likely require navigating through high grass, trees and shrubs (ēkoa). Some temporary sites may require working close to thorns, sharp sticks and/or thick, tangled vegetation (pickleweed); wear eye and skin protection.
	5c. Steep or slippery surfaces at field sites.	• Slipping and falling. • Minor physical injury. • Serious physical injury	5c: • Take care with your footing when sampling.
	5d. Field equipment including sondes.	• Minor physical injury.	5d. • Be mindful of pinch points on gear and instruments. • Keep fingers out of the way of the plunger while depressing the syringe.

Tasks	Hazards	Potential Injuries	Abatement Actions
			and keep your fingers from being pinched between the sonde's metal handle and the cable attachment.

JHA Revision History

New Version	Date	Old Version	Revised by	Changes
1.0	27 April 2015	-	-	Initial version based on KAHO anchialine pool water quality JHA.

Appendix SOP 1.c. Sample GAR Model Risk Analysis

Note: Actual GAR will be completed prior to start of annual field work.

Document: GAR model risk analysis
 Project: West Hawaii Anchialine Pool Animal Monitoring
 Participants: David Raikow, Anne Farahi, Sallie Beavers

Date: 27 April 2015
 Division: Inventory and Monitoring, Pacific Island Network
 Final Score: 22



Element	Description	Initial	Mitigation	Final
Supervision	Experienced technician and a less-experienced technician	4	Science lead present for some trips. Most experienced technicians designated as crew leader when science lead not present.	4
Planning	Logistic, equipment, supply, personnel, and task planning required.	4	Protocol, SOPs, JHAs, Trip Preparation Checklist, Daily Safety Checklist.	2
Team Selection	Experienced technician and less experienced technicians available.	5	New technicians trained by experienced technician.	4
Team Fitness	Tasks require hiking through lava fields.	3	Maintenance of fitness is a personal responsibility.	2
Communication	Cell phone and radio reception is good.	3	Bring park radio, multiple cell phones; check-in plan with park and I&M POC.	2
Contingency Resources	Good access to emergency services.	3	Parks are located near medical services and parks have equipment and trained staff to evacuate the injured.	2
Environment	Heat, sun, wind, vog.	4	Wear sunscreen, hat, and appropriate clothing.	3

Task Complexity	Tasks are not complex.	4	Preparation, including: Protocol, SOPs, JHAs, Trip Preparation Checklist, Daily Safety Checklist.	3
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Appendix SOP 1.d. Sample Trip Preparation Checklist

TRIP PREPARATION CHECKLIST V3.0

Pacific Island Network (PACN) - Inventory and Monitoring Program (I&M) - National Park Service (NPS)

Project: Water Quality	Protocol: Water Quality	Location: KAHO, PUHO, PUHE, ALKA
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Checklist completed by:	Date:
Reviewed by:	Date:

Early preparation	3 months in advance schedule field work with Park POC. ¹	
	2 weeks in advance verify field work dates with Park POC. ¹	
	File Back Country Travel Plan with Park POC .	
	File Back Country Travel Plan with Pacific Area Communication Center.	
	Reserve RM or ALKA vehicle. ²	
	Find park staff or volunteers to help.	
	Check for adequate calibration chemicals.	
Day before trip	Contact Park POC.	
	Pack: Filter tower, hand pump, tube, 47mm filters, filter forceps	
	Pack: bottles (3/site +)	
	Upload Fixed and Temp site coordinates to GARMIN®.	
	Clear off old YSI data (ONLY if backed up in 2 places).	
	Edit YSI site list to include upcoming sites.	
	Calibrate YSI, synch YSI and watch with national time clock.	
Day of trip	Load cooler with ice, bring ice packs for chilly bag.	
	Pack vehicle with equipment.	
	NPS I&M field uniform or similar appropriate clothing.	
	File Itinerary / Travel Plan with Park POC at Park HQ each day.	
Recommended Personal Items	Sunscreen.	
	Sunglasses.	
	Hat.	
Safety and Personal Protective Equipment	First aid kit, stocked.	
	Radio, charged.	
	Spare radio battery, charged.	
	Cellular phone, charged.	
	GPS with site coordinates loaded.	
Instruments/Equipment	YSI 6600 sonde - CALIBRATED.	
	YSI 650 MDS clear of old data, edit site list names.	
	YSI 650 Field cable for connecting display to 6600.	
	Probe guard.	
	Extra AA batteries (6) for GARMIN®.	
	Extra C-size batteries (8) for YSI.	
	Extra Ricoh camera battery, charged.	

	Ricoh camera with memos	
	Compass.	
	Cooler with ice + ice packs for water samples.	
Field Binder	1/2" plastic 3-ring binder w/attached pencil.	
	Map of fixed and random sampling sites.	
	Field datasheets printed on rite in the rain paper.	
	Water sample sticker labels (waterproof) (3/site+ extra).	
	Beaufort scale (wind ratings), tide charts, maps.	
Field Binder Continued	Emergency contact numbers/directions.	
	Park contact information.	
	Ultra-fine tip black Sharpie, pencils, pen.	
ALKA, PUHO, PUHE	Sampling pole.	
	1 L sample bottles.	
Other	Copy of last year's data	
	Species Identification Guides	
	List of sampling sites and descriptions	

¹ No work is to be scheduled on weekends without permission from the Superintendent. The Resource Manager must be on duty for weekend field work to be approved.

² A park vehicle may not be available, necessitating the use of an I&M vehicle.

Appendix SOP 1.e. Sample Daily Safety Checklist

DAILY SAFETY CHECKLIST

Pacific Island Network, Inventory and Monitoring Program, National Park Service, v1.2, 11 February 2013.

Project and Location:

Weather forecast:	Checked and acceptable.	
Vehicle:	Jack, tires, fuel, inspected and acceptable.	
GAR model:	Reviewed and acceptable.	
JHA	Reviewed.	
Radio and spare battery:	Charged.	
Secondary communication device:	Charged, e.g., cellular phone.	
Navigation supplies:	GPS, maps, compass.	
First aid kit	Stocked.	
Food and water:	Adequate for each person.	
Rain gear and/pr appropriate clothing:	Adequate for conditions, for each person.	
Crew physical condition:	Generally able and has prepared, e.g., stretched.	
Check-in:	Dispatch, I&M and Park POC, as appropriate.	
Notes:		
Date:	Crew Leader Signature:	

Weather forecast:	Checked and acceptable.	
Vehicle:	Jack, tires, fuel, inspected and acceptable.	
GAR model:	Reviewed and acceptable.	
JHA	Reviewed.	
Radio and spare battery:	Charged.	
Secondary communication device:	Charged, e.g., cellular phone.	
Navigation supplies:	GPS, maps, compass.	
First aid kit	Stocked.	
Food and water:	Adequate for each person.	
Rain gear and/pr appropriate clothing:	Adequate for conditions, for each person.	
Crew physical condition:	Generally able and has prepared, e.g., stretched.	
Check-in:	Dispatch, I&M and Park POC, as appropriate.	
Notes:		
Date:	Crew Leader Signature:	

Appendix SOP 1.f. Sample Travel Plan

KAHO TRAVEL PLAN

DEPARTURE INFORMATION

<u>Date Leaving:</u>	<u>Time:</u>	<u>Where are you leaving from?</u>
3/28/13	0730	Kona lodging (Royal Kona)

RETURN INFORMATION

<u>Date Returning:</u>	<u>Time:</u>	<u>Where are you leaving from?</u>
3/29/13	1700	HAVO

TRIP PURPOSE:

KAHO water quality monitoring in anchialine pools on 3/28/13 and KAH0 groundwater monitoring on 3/29/13.

TRIP PARTICIPANTS (INDICATE THE SUPERVISOR/LEADER):

<u>Name</u>	<u>Cell Phone</u>	<u>Radio Call</u>
David Raikow (Supervisor)	808-333-6481	710
Anne Farahi	808-895-7644	712

EMERGENCY CONTACT INFORMATION

<u>Employee</u>	<u>Contact Name (relationship)</u>	<u>Contact Number(s)</u>
David Raikow	Sue Raikow (spouse)	808-315-0966
Anne Farahi	Bryan Everett (partner)	518-212-7810

TRAVEL MODE(S) (Check all that apply)

Helicopter	Foot X	UTV
Vehicle X	ATV	Other (specify)

VEHICLES USED:

Vehicle 1: Location Parked: Aimakapa lot/Honokohau Harbor lot/Kaloko Rd/VC

Make: Chevy Trailblazer **Color:** Tan **License Plate:** G62-3557D

Park POC: Sallie Beavers

Park POC phone number: 808-329-6881 x 1220

ITINERARY (Please be detailed. List travel plan for each day and/or attach a map with your route for each day):

3/28/13: Drive to KAHO HQ. Check in with POC 0800. Drive to Aimakapa lot. Hike across wall to Kaloko119 and Kaloko129 (TKAHO03). Hike back across wall and follow Ala kahakai trail to Kaloko005. Hike trail to Kaloko061 (TKAHO01). Hike trail to Kaloko013 (TKAHO04) and Kaloko016. Return to vehicle and drive to Honokohau harbor. Hike trail towards Aipio fishtrap and sample Kealak096 (TKAHO02) and Kealak084. If any temporary sites do not have ample water for samples temp sites TKAHO05-TKAHO08 will be substituted. Complete 1500.

3/29/13: Drive to KAHO HQ. Check in with POC 0830. Drive Kaloko Rd. Park at cones on right side in pullout and walk to well 4161-01 at Lower Kaloko. Drive toward highway and park at well 4161-02 at Upper Kaloko. Drive to visitor's center. Park in lot and walk to well 4061-01. Check in with POC and drive Saddle road back to HAVO arriving by 1700.

OPERATIONAL RISK MANAGEMENT CONSIDERATIONS (CHECK ALL THAT APPY)

Solo Travel:	Storm forecasted: X	Cell dead spots:
Air Travel:	Forecast above 90F: X	Night travel/work:
Use of Stock:	Use of boat:	
Use of ropes	Off trail travel/work: X	
Stream crossings	Radio dead spots: X	

EQUIPMENT (Initial next to each piece of equipment indicating you will have it with you- your division may dictate additional gear requirements-this is a RECOMMENDED list)

Compass (1 per group): AF	GPS (1 per group): AF	
Radio with spare battery: AF	Knife: AF	
Map (1 per group): AF	Water: AF	
Cell phone (1 per group): AF	Food: AF	
First aid kit (1 per 2): AF		

I understand that I am required to check in with park POC daily before heading out into the field and upon returning from the field. I will inform POC of any changes to planned itinerary.

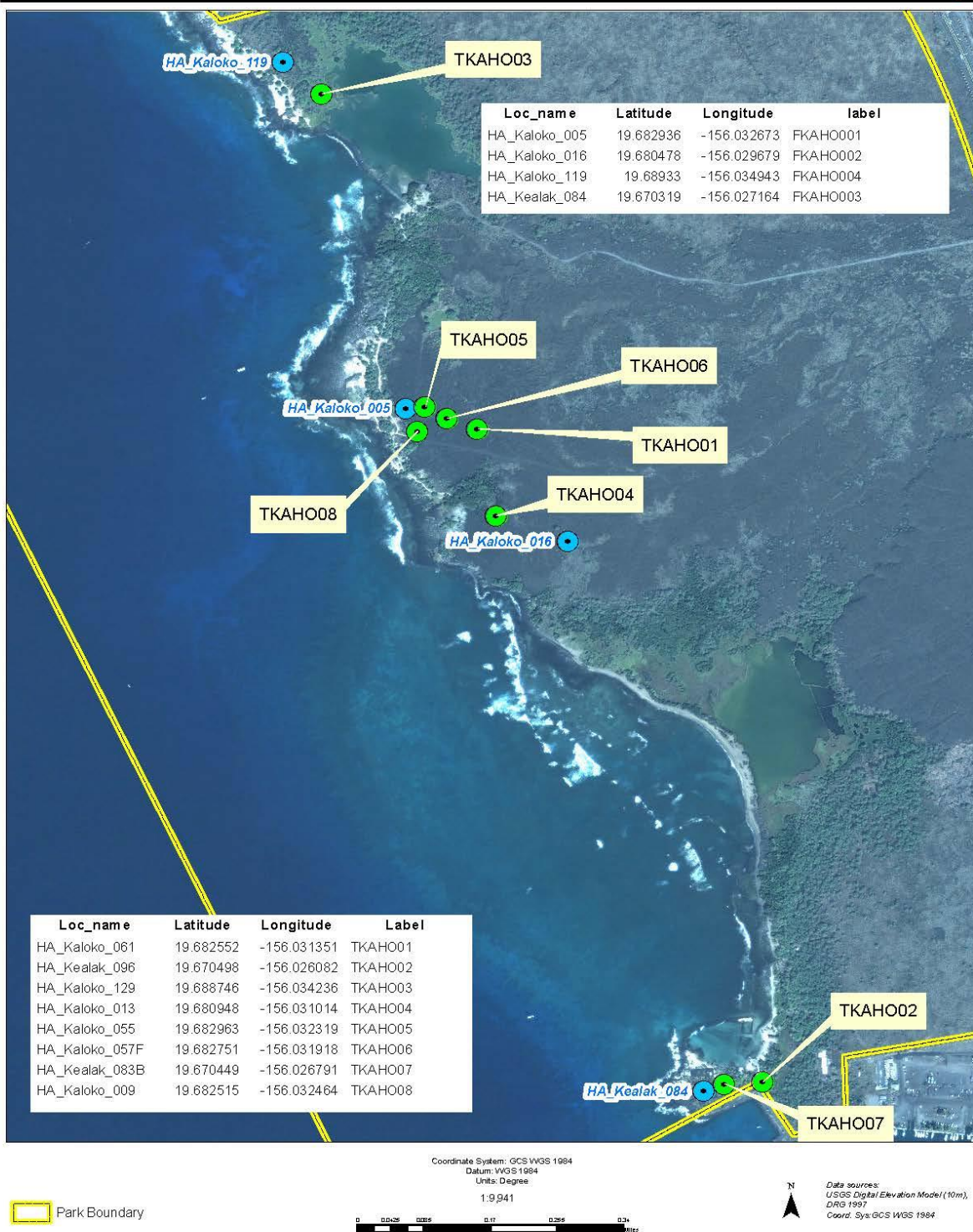
Leader/Supervisor Sign:

Print Name:

Date:

Park POC Review

Date:



Appendix SOP 1.g. Sample Communication and Emergency Response Plan

Communication Procedures Summary PACN I&M Water Quality Monitoring at KAHO

Prior to conducting fieldwork

1. The field lead will contact the Resource Chief to schedule the fieldwork dates.
2. The field lead will prepare a Travel Plan detailing the general schedule for the day, the personnel involved (include contact information), and the locations that will be visited. This must be emailed to the Resource Chief prior to the day of sampling.
3. If the Resource Chief will not be available as a Point of Contact (POC) on the day of sampling, the field lead must determine another Park POC. The POC should also receive an email copy of the Travel Plan.
4. The field lead will add the fieldwork to the KAHO calendar on the sharepoint site and send an ALL KAHO Employees email to notify other park staff about the sampling event.

On the Day of Fieldwork:

1. The field lead will post the Travel Plan on the KAHO Field Status board and fill out the board for all members of the field crew (include contact information for any visiting staff).
2. The field lead will contact the Park POC and I&M POC by voice or text before beginning fieldwork.
3. Upon arrival to the field site, the field lead should perform a radio check with KAHO dispatch.
4. The field team will carry a radio and secondary communication device with them at all times in the field.
5. Upon return to the office, the field lead will erase the field status board and removed the Travel Plan. The field lead will check out by voice or text with the Park POC and I&M POC.

In the event of an injury or incident in the field, the field lead will report it immediately to the Resource Chief and I&M POC.

Primary Points of Contacts:

KAHO - Sallie Beavers, Resource Chief	sallie_beavers@nps.gov	808-989-8619
PACN - David Raikow, Aquatic Ecologist	david_raikow@nps.gov	808-333-6481
PACN - Amanda McCutcheon, Field Lead	amanda_l_mccutcheon@nps.gov	808-388-7004