



# Lawrence Livermore National Laboratory

Energy & Environmental  
Marshall Islands Program  
MIP-2003-001

March 14, 2003

Dr. Gerald Petersen  
Marshall Islands Program  
Headquarters Operations Manager  
EH-6/270 Corporate Square Building  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, D.C. 20585-0270

Subject: Operations Plan for the April-May 2003 Mission to the Marshall Islands

Dear Gerry,

Enclosed you will find the Operations Plan for the April-May 2003 Mission to the Marshall Islands (MIP-2003-002). This mission is consistent with the work plan laid out in our Statement of Work and our MOU driven obligations for FY2003. We plan to perform bioassay collections for the resident population on Enewetak Island and for resettlement workers on Rongelap Island; conduct environmental monitoring of Runit Island (air, water and soil) and the surrounding marine environment (sediment, water and biota); collect coconuts and other food crop products on Enewetak Island; perform in-situ gamma spectrometry to assess external exposure rates on and around the community center and planned housing areas on Rongelap Island; perform some preliminary in-situ gamma spectrometry in the agricultural areas on Rongelap Island with view to future development of a mobile in-situ gamma spectrometry platform; provide training in sampling for Marshallese workers on Rongelap Island, conduct sampling of remaining major remediation experiments on Bikini Island and establish a whole body counting program on Majuro Island.

The mission will require a major logistical and service support effort on the part of Bechtel Nevada (BN) and local Marshallese field support personnel. It will include the use of the Army LCU and at least one charter flight using the Army's 1900D aircraft. The work plan on Rongelap Island has been carried over from the missions postponed in November 2002 and then again in January 2003. Sampling on Bikini will involve a final collection of coconuts from the B1 & B4 well sites, sampling of the HEJ experiment (ideally we would perform one more collection on HEJ in the fall of 2004), and sampling of coconut and tree trunk cores from quad trees and soils surrounding lysimeter 10 and 11. Maintenance work on the lysimeter experiments and any associated sample processing will be put on hold until an opportunity presents itself later in the year to conduct a short mini-mission to Bikini.

Dr. Gerald Petersen  
March 13, 2003

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I will be joining Dave Hickman on Majuro in establishing the whole body counting system on Majuro. We both plan to attend the dedication on 10 May 2003 and, if required, I will be attending at the DOE-RMI meeting tentatively scheduled for 13-14 May 2003.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. F. Hamilton', written over a horizontal line.

Terry F. Hamilton  
Marshall Islands Program Leader

Enclosure

cc:

Bill Jackson, DOE PASO  
Lance Yamaguchi, Bechtel  
Judy Honda, Bechtel  
Marshall Stuart, LLNL  
Steven Kehl, LLNL  
David Hickman, LLNL

## **Operations Plan for April – May 2003 Mission to the Marshall Islands**

### **Personnel:**

#### LLNL

Terry Hamilton (Enewetak, Rongelap and Majuro)  
Marshall Stuart (Enewetak, Bikini)  
Steven Kehl (Enewetak, Rongelap)  
David Hickman (Majuro, WBC program only)

#### Marshallese and Bechtel (BN) support staff

Judy Honda (Field logistical support, Enewetak/Rongelap)  
Kenneth Selk (Field logistical support, Enewetak/Majuro)  
Marshallese female assistant(s) to support bioassay collection (Enewetak)  
Local Marshallese helpers to support fishing and related activities (Enewetak)  
Capelle DeBrum and support personnel (material handling and shipping, general logistics support, Kwajalein)

#### Other Marshallese support personnel

Ringo Lorennij (Bikini field support)  
Steven Tibon (Bikini field support)  
Hokes Karoua (Field sample collection, Enewetak & Rongelap)  
Willma Roklon (Field sample collection, Enewetak & Rongelap, training in field sampling)  
Leme Laibo (Field sample collection, Enewetak; Bikini field station support)  
Jasper Riklon (Field sample collection, Enewetak & Bikini)  
Arthur Tima (Field sample collection, Enewetak & Rongelap)  
Auston Maun (Rongelap field station, general mission support)  
Ikuiak Joriu (Rongelap field station, general mission support)  
Hiroshi Tima (Bioassay collection, Enewetak and Rongelap)

### **Tasks:**

#### Enewetak Island (21-28 April 2003) (Terry Hamilton, Marshall Stuart, Steven Kehl)

1. Review controls to maintain adequate levels of cleanliness to perform bioassay collections in the Enewetak Radiological Laboratory. Initiate next round of bioassay collections to include 40 new designated individuals plus additional quality control samples to evaluate inter- and intra-sampling variability.

[Note: The collection is expected to include female participants so it will be critical to identify local female personnel to help with the collection. Judy Honda will manage the collection to coincide with the start/end of the environmental sampling program]

2. Conduct a resuspension experiment on Runit Islands (adjacent Fig/Quince GZ) and collect a systematic series of surface soils on a 20 m grid over the site.
3. Survey local environment for hot particles, collect samples as required.
4. Collect soil and well water samples from around the Runit dome
5. Collect sediments and lagoon water off Runit Island and adjacent control areas
6. Collect fish and other marine biota off Runit Island and adjacent control areas
7. Collect samples of ocean water outside the lagoon as controls and for comparative purposes

Special requirements of BN and local support staff

1. Responsibilities for taking delivery and helping stage supplies and equipment ready for the Army 1990D flight scheduled for 16 April.
2. Responsibilities for the safe packaging and shipment of urine samples to LLNL.
3. Pre-mission layout of electrical cable runs for the resuspension experiment
4. Ensure readiness of generator for 7-8 days of continuous operation on Runit Island as well as periodic use of smaller generators for sediment and well water sampling.
5. Ensure readiness of using the barge as a platform for collecting sediment cores and grab samples.

Bikini Island (30 April-5 May 2003) (Marshall Stuart).

1. Sample HEJ experiment
2. Sample lysimeter 10& 11 experiment + tree cores + soil profiles (area of quad trees plus control site)
3. Down load weather station data
4. Sample B1 and B4 trees (final collection)
5. Take salinity on slotted wells
6. Fertilize 120 kg/ha plot on HEJ
7. Sample breadfruit trees as available
8. Equipment & supplies inventory control

Rongelap (1-5 May 2003) (Terry Hamilton & Steven Kehl)

1. Oversee the establishment of the on-island collection facility for the bioassay program.
2. Initiate bioassay collection program on Rongelap Island. Supervise first round of collections and provide training as required
3. Re-survey grid points to assess external dose rates by in-situ gamma spectrometry on those sites where changes have occurred since May 2001.
4. Establish a grid and conduct an in situ gamma survey in area of the airport building
5. Establish grid and conduct an in-situ gamma survey on any established home sites located outside the community area.

6. Perform training of Marshallese support personnel and establish a local program for collection of foodcrop products (after addition of potassium fertilizer)

Majuro (7-14 May 2003) (David Hickman & Terry Hamilton)

1. To install electronics, calibrate systems and develop QA/QC protocols for a whole body counting (WBC) program on Majuro
2. Provide on-site training of Marshallese WBC technicians
3. Attend the dedication for the WBC facility and provide assistance to DOE management as required.
4. Implement the WBC program on Majuro

Schedule

LLNL and Honolulu based BN support personnel will depart Honolulu the morning of 9 April 2003 for Kwajalein. Terry Hamilton, Judy Honda along with the Enewetak WBC technicians returning from Livermore and Marshallese support personnel (plus any essential supplies) will take a 1900D charter flight to Enewetak the morning of 16 April. The LCU will depart Kwajalein the same day, picking up equipment and supplies on Bikini before reaching Enewetak on or around 19 April 2003. The LCU will return to Bikini with full compliment of support personnel on 28 April 2003. The field support crews will then split up – Terry Hamilton, Steven Kehl, Judy Honda and selected BN support personnel will stay on the LCU traveling to Rongelap, leaving Marshall Stuart and remaining support personnel on Bikini. The LCU will then return to Kwajalein, but before returning on 5 May to transport personnel and samples on Rongelap (5 May) and Bikini (6 May) to Kwajalein (arriving 7 May). Terry Hamilton will depart for Majuro on 7 May, Marshall Stuart and Steven Kehl will return Honolulu same day. Terry Hamilton will join Dave Hickman (arriving 6 May) on Majuro to facilitate the installation of the Majuro whole body counter. David Hickman will return Honolulu on 12 May. Terry Hamilton will remain on Majuro until 14 May, or as required.

Terry Hamilton

(Arriving Honolulu – Other business travel)	
14 April 2003	Honolulu to Kwajalein
16 April 2003	Kwajalein to Enewetak
28 April 2003	Enewetak to Bikini
30 April 2003	Bikini to Rongelap
5 May 2003	Rongelap/Bikini/Kwajalein
7 May 2003	Kwajalein to Majuro
14 May 2003	Majuro/Honolulu/Oakland

Marshall Stuart

13 April 2003	Oakland to Honolulu
14 April 2003	Honolulu to Kwajalein
16 April 2003	Kwajalein to Enewetak

28 April 2003	Enewetak to Bikini
6 May 2003	Bikini to Kwajalein
7 May 2003	Kwajalein/Honolulu/Oakland

Steven Kehl

13 April 2003	Oakland to Honolulu
14 April 2003	Honolulu to Kwajalein
16 April 2003	Kwajalein to Enewetak
28 April 2003	Enewetak to Bikini
30 April 2003	Bikini to Rongelap
5 May 2003	Rongelap/Bikini/Kwajalein
7 May 2003	Kwajalein/Honolulu/Oakland

Vehicles

Use of a pickup truck(s) Enewetak, Bikini and Rongelap.  
Field equipment to support Enewetak mission to involve use of the barge and push boat, pickup trucks, the aluminum boat, and a small dozer.  
Skytrack for sampling of coconuts on Bikini

Lodging

Hawaii-Outgoing

Terry Hamilton (11-13 April 2003, Hilton)  
Marshall Stuart/Steven Kehl (April 13 2003, as requested)  
David Hickman (April 12 2003, Hilton)

Kwajalein

Terry Hamilton, Marshall Stuart, Steven Kehl (15 April 2003, Kwajalein Lodge)

Majuro

David Hickman (6-11 May 2003, OutRigger)  
Terry Hamilton (7-13 May 2003, OutRigger)

Hawaii-Return

David Hickman (May 12 2003, Hilton)  
Terry Hamilton (May 14 2003, Hilton)  
Marshall Stuart & Steven Kehl (7 May 2003, Airport Hotel)

Other Special Requirements:

Enewetak/Bikini (with LCU support)

1. One walk-in freezer van for storage/transport of samples

2. Provision of a generator to provide electrical power for our resuspension experiment over 7 days of continuous operation
3. To prepare and deploy all electrical runs for the air samplers (see Attachment A)
4. Supply of 'blue crates' for shipping of samples and equipment to Livermore
5. Use of 4 × 4 trucks (or standard pick-ups) for use on Enewetak, Bikini and Rongelap
6. Hire of a vehicle on Enewetak to help transport volunteers participating in the bioassay program.
7. Provision of a small dozer for removing scrub vegetation around the dome on Runit Island
8. Provision of a tractor with a small back-ho to dig trenches for taking soil profiles.
9. SkyTrack for collecting coconuts samples (Bikini only)
10. Portable generator for sediment and water sampling (Enewetak & Bikini)
11. Provisions for accommodating LLNL, BN and Marshallese support personnel on board the LCU

Majuro (7-12 May 2003)

1. Kindly ask Bechtel to entertain idea of having Kenny Selt sent into Majuro in advance of arrival of Dave Hickman. Kenny will help with the installation of the whole body counter.
2. Supply digital projector for electronic presentations.

Sincerely,



Terry F. Hamilton  
Marshall Islands Program Leader

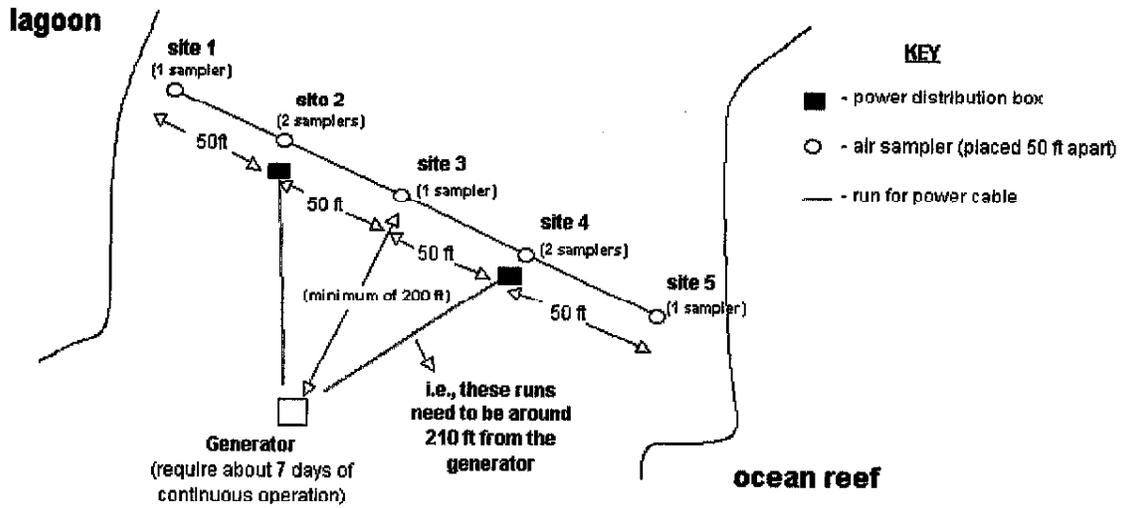
Attachment

cc:

Bill Jackson, DOE PASO  
Lance Yamaguchi, Bechtel  
Judy Honda, Bechtel  
Marshall Stuart, LLNL  
Steven Kehl, LLNL  
David Hickman, LLNL

Attachment A

Marshall Islands Program  
March 14, 2003  
MIP-2003-002



RUNIT ISLAND (resuspension study site)