

LAWRENCE LIVERMORE NATIONAL LABORATORY
EARTH AND ENVIRONMENTAL SCIENCES DIRECTORATE

STATEMENT OF WORK
OCTOBER 1, 2000—SEPTEMBER 30, 2001

CONTINUATION OF THE MARSHALL ISLANDS
DOSE ASSESSMENT AND RADIOECOLOGY PROGRAM

Mission: Provide measurement data and dose assessments to characterize current radiological conditions and minimize exposure of resettled and resettling populations.

Today's vision of the future:

- By the end of 2003, most of the ^{137}Cs issues will be solved.
- The technological support of resettling and resettled populations will be of increasing priority.
- The core program should be based on innovative science and technology.

Strategy 1: Provide monitoring, verification and expert assistance in support of RMI resettlement activities.

Goal 1: Support Rongelap Resettlement as RALGOV milestones are achieved

- Provide DOE Support Plan activities (Date TBD based on Rongelap plan; LLLL; control).
 - Analyze surface soil samples from Rongelap village area.
 - Provide web access to WBC and urine bioassay data.
 - Observe application of KCl.
 - Collect and analyze food crops for ^{137}Cs after application of KCl.
 - Conduct community meetings at community request.
 - Train additional Rongelap personnel as WBC technicians.
 - Perform *In situ* gamma spectrometry as required in MOU.
 - Provide advanced training for Erricson Arelong.
 - Collect urine samples from workers and analyze for Pu.
 - Continue WBC worker-monitoring program on Rongelap.
- Publish an annual report of resettlement support activities on Rongelap.
- Transition to an on-island facility for urine collections when a building becomes available on Rongelap Island.

Goal 2: Implement the Enewetak MOU

- Finish characterization of Aej and Lujor Islands (LLNL; control).
- Conduct environmental monitoring mission to Runit island (Nov. 2000, LLNL, control)
- Complete analyses of marine samples collected in 1998 and issue a report (July 2001; LLNL; control)

- Publish grid data for 6 islands (Date TBD; LLNL; control).
- Conduct WBC and radiation monitor training of 2 Enewetak technicians (Date TBD; LLNL control).
- Establish a WBC/ Pu urine collection facility on Enewetak Island (Date TBD; LLNL; control); initiate WBC program.
- Collect and analyze 50 urine samples (year 1).

Goal 3: Develop a Pu urinalysis monitoring program at LLNL

- (AMS) takeover by September 31, 2000 (LLNL; control).

Strategy 2: Provide the science and recommendations as a basis for resettlement.

Goal 1: Finish cesium work and publish results

- Conduct one major environmental mission in FY2001 (DOE/LLNL; control).
- KNPK—2 amounts, 3 applications, duration (completed 11/98; sample every other year).
- Env. $T_{1/2}$ —empirical (complete; report required; continue periodic sampling).
- CLC (low-K)—2 amounts, 2 applications, duration (completed 11/98; periodic sampling required).
- HEJ—four K rates, same total amount (November 2002; LLNL; control).
- Enjebi K demonstration (December 2001; LLNL; control).
- Env. $T_{1/2}$ —Pu/Cs (December 2000; LLNL; control).
- Env. $T_{1/2}$ —H₂O, Cs, K cycling (July 2002 initial report; LLNL; control).
- Binding moiety for ¹³⁷Cs (December 2003; LLNL; control).
- Wells B1 & B2—accelerated loss of ¹³⁷Cs (December 2001; LLNL; control).
- Differential in ¹³⁷Cs uptake between atolls (December 2003; LLNL; control).
- Predictive model—correlation coefficients (December 2001; LLNL; control).
- Perform analysis on field samples (ongoing; LLNL; control).
- Issue final technical reports following field sample analysis (Continuing; LLNL; control).
- Sacrificed trees (complete; report required).

Goal 2: Special studies

- Characterize the Pu isotopic ratios at several Enewetak islands.
- Assess stable elements associated with nuclear tests in the Marshall Islands.
- Incorporate historical WBC data into our current data base (no photos; low priority).
- Obtain aerial photos of Rongelap, Bikini, Eneu, Japtan, Medren, and Enewetak in their current status.
- Obtain DOELAP certification for AMS Pu urine analysis.
- Explore performing work with BN and other labs around the DOE complex.

Goal 3: Participate in IAEA Coordinated Research Programs (CRPs)

CRP on Cs, Sr, Pu, Am Soil to Plant Transfer

- Perform analyses of first and second harvest samples (FY2001; LLNL; control).
- Attend second CRP meeting in March 2001 (LLNL; control).
- Third planting of crops— dependent on the results of the analysis of the first two sets of crops.
- CRP scheduled for completion in 2003.

CRP on Radionuclide Aggregates

- Submit research agreement (FY2001; LLNL; control).
- Participate in the first CRP meeting (FY2001; LLNL; control).
- Conduct preliminary sampling (FY2001; LLNL; control).
- CRP scheduled for completion in 2005.

Strategy 3: Maintain regular communications between DOE, LLNL, and our customers.

Goal 1: Improve external communications

- Submit WBC and Pu urinalysis data to DOE on a quarterly basis (DOE/LLNL; control).
- Continue placing LLNL publications on the web sites (ongoing; DOE/LLNL control).
- Continue twice monthly phone calls with Earl Gilmore (ongoing; LLNL control).
- Continue monthly phone calls with EH-6 (ongoing; DOE/LLNL control).
- Provide updated WBC data and dose assessments on an annual basis (LLNL; control).

Strategy 4: Reinvest and leverage assets as a way of doing business.

Goal 1: Update 5-year plan

- Gantt Chart—provide start and end dates of each task (September 2000; DOE/LLNL; control).

Goal 2: Continue to re-evaluate facility and equipment management

- Conduct 1 major sampling mission per year starting FY 2001 (ongoing; LLNL; control).
- Complete the process of disposing of program-related legacy waste (ongoing, LLNL; control).
- Examine cost-benefits in field logistics at Bikini (ongoing; DOE/LLNL/Bechtel; influence).
- Conduct field visits as necessary.

Goal 3: Find new work with existing resources, i.e., change revenue mix.

New Work:

- Cost-sharing with RALGOV on Pu urinalysis (ongoing; LLNL control).
- Explore funding opportunities with Marshall Islands (October 1999; DOE/LLNL; control).

Other:

- Explore possibilities of expanding M.I. capabilities to other radiological situations and issues (October 2000; DOE/LLNL control).
- Explore Palomares work (October 2000; DOE/LLNL; control).
- Explore Pu applications for non-DOE work like EPA, DOD, etc. (ongoing; DOE/LLNL; control).

Performance Measures

Goal: Implement the program.

Measure: Number of publications.

Target: 5 publications.

Baseline: 86 publications.

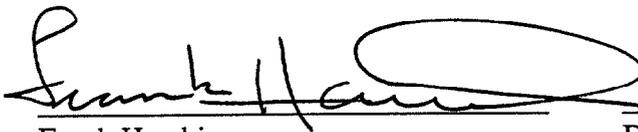
Assumption: Publications include peer reviewed articles, LLNL reports, and technical articles.

Message sent: A lot of work has been accomplished in the program. This is a task that LLNL and DOE can take credit for moving toward completion.

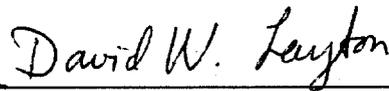
General Provisions:

This Statement of Work will be updated every July outlining specific goals (as agreed to by LLNL and DOE) for the upcoming year.

DOE-EH does not demand exclusive rights over LLNL capabilities.



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Date: Sept. 6, 2000