

MEETING ON RADIOLOGICAL OPERATIONS  
ENEWETAK CLEANUP

6 January 1978 - Department of Energy, Germantown, MD

1. Purpose of Meeting. The Enewetak Cleanup project is a joint DoD-DoE effort which requires the fullest cooperation between agencies. At this time, the cleanup operation at Enewetak Atoll has reached the point where data and specific guidance are required so that critical on-site, day-to-day operational decisions can be made to assure that the finite resources available are used in the most effective and efficient manner and to insure that the cleanup effort results in the availability of land for its highest potential usage by the Enewetak people. Specifically, the following questions were in need of resolution:

a. Should cleanup guidelines be based on transuranic elements instead of certain isotopes of Pu, as recommended by the AEC Task Group?

b. What priority will be assigned in allocating resources to specific islands of the atoll?

c. What constitutes the certification of completion of the work effort and the final record of the radiological status of the islands?

2. Summary of Principal Subjects.

All transuranics will be included in determining contamination levels and soil volumes qualifying for removal. Completion of surveys and data analysis required to characterize the location and activity levels on each island is currently limiting the cleanup effort. A master work plan to show work effort and allocation of resources is required. Such a plan will be based on survey data, established island utilization as specified in the EIS, and cleanup guidelines recommended by the AEC Task Group Report as modified by FC DNA OPLAN 600-77. A dose assessment is required to establish an intermediate activity level for field use in cleanup of islands to be used for agricultural purposes. The cleanup work now planned for Runit will be deferred until a complete scope of work for the atoll can be defined and the available resources can be evaluated and allocated. The format for certification will generally include the radiological status of each island and an on-site judgment that within applicable radiation standards, the cleanup permits use of the island for its intended purpose and has been accomplished in accordance with the established guidelines.

3. Persons Present. See attached list.

4. Principal Topics of Discussion.

Transuranic Elements. The original cleanup guidance stated that <sup>239,240</sup>Pu were the only transuranic isotopes of concern which required removal. The principal consideration in making this judgment was the dose to the lung

through inhalation. New information on the abundance of other transuranics in Enewetak soil and proposed new EPA guidance are reasons that all transuranic isotopes deserve to be considered in the cleanup criteria. Consequently, the conference made a tentative agreement subject to confirmation or change, once the full scope is known, that the soil cleanup criteria would be considered to apply to all transuranic isotopes. For practical purposes, these are considered to be  $^{238,239,240}\text{Pu}$ ,  $^{241}\text{Am}$ . Since cleanup planning was based on removal of soil contaminated with  $^{239,240}\text{Pu}$ , this change in definition of cleanup criteria might mean the degree of cleanup of certain islands may be more or less than planned in view of the fixed level of funding.

b. Characterization of Radiological Conditions. Radiological characterization of all the islands, to determine the work that must be done to make each island suitable for its intended use, should be completed as expeditiously as possible. To achieve this radiological characterization of the northern islands, it was agreed that priority for available resources should be devoted to the survey effort for these critical islands constituting 90 per cent of the soil cleanup effort. These resources include boat and other JTG assets as well as DOE laboratory and analytical capability. The specific islands of principal concern were listed as Lujor (Pearl), Aomon (Sally), Enjebi (Janet) and Boken (Irene). Initial survey on these islands is completed or near completion. Data reduction and interpretation of survey results are in progress. Characterization of Bokoluo (Alice), Bokombako (Belle) and Louj (Daisy) must be also accomplished but characterization can be completed with some lesser degree of urgency. To present a complete characterization of the work required for northern island soil cleanup, Runit (Yvonne), and other northern islands not mentioned above, must also be characterized. It was estimated that the characterization effort should be completed not later than 15 March 1978.

DOE agreed to conduct a review of its radiological survey and assessment program in support of day-to-day cleanup plans and operations. DOE will endeavor to speed up characterization of the islands and determine additional resources that are needed to complete characterization in line with DNA operational plans. This review should be completed not later than 17 January 1978.

c. Cleanup Priorities.

(1) The basis of planning for the cleanup of individual islands within the Enewetak Atoll shall be as shown in the land use map, Case III, Volume I of the Environmental Impact Statement. The use categories of the Atoll Islands (i.e. - Major Inhabited Islands, Agricultural Islands, Visiting and Food Gathering Islands) will be used as a basis for the degree of cleanup that is required. The degree of cleanup of the islands of Runit and Enjebi will be reviewed after the characterization of all islands has been completed and once a determination of resources required to clean all islands to their intended use is made.

(2) While Enjebi is listed in Case III as a food gathering island, the conference agreed that it would be desirable to clean the island to a higher standard recognizing that the Enewetak people wished to make maximum use of Enjebi. Resources permitting, this might allow Enjebi to be cleaned to the standards for an agricultural or even a living island. The conference agreed that the final decision would be deferred until the entire atoll characterization was complete and a master work-resource allocation plan compiled.

(3) It has been intended that the quarantine of Runit be continued indefinitely until cleanup of contamination could be completed. The present OPLAN specifies that all areas over 400 pCi/g are to be excised. Since the work effort to cleanup Runit and to entomb contaminated soil in the crater on Runit requires such a large commitment of DNA resources when compared to the end use that could probably be made of the island, it was felt that the amount of the work to be done on Runit should be predicated on the total resources available to cleanup the entire atoll and not upon a desired standard for Runit alone. It was, therefore, agreed that the decision on cleanup of Runit be deferred until a better appreciation could be gained on the impact of including transuranics. This requires further study to determine activity levels, soil volumes, and the subsequent development of a master work plan for assessing the entire scope of work on all the islands. The initial master work-resource allocation plan will be completed and approved after all measurement characterizations of the individual islands are complete.

#### d. Guidance for Field Application of Criteria.

To support cleanup decision making in the field, additional guidance is needed on the application of cleanup criteria for agricultural islands. DOE agreed to develop dose estimates for Agricultural Islands. These dose estimates will then be used to develop additional guidance on cleanup of islands designated for agriculture use. The purpose is to develop a body of additional guidance on a variety of cleanup options for agricultural islands. To be considered also is the desirability to use plowing after contamination levels have been reduced to acceptably low levels to achieve the "as low as practical" limit. Plowing could also be recommended as a future activity by Dri-Enewetak, in some cases, if DOE/DOD resources are exhausted. Of special interest are dose contributions resulting from use of certain islands for agricultural purposes at or near 100 pCi/g. Review of dose estimates should be completed not later than 15 February 1978.

#### e. Certification.

The conference agreed that it was not desirable for the DOE representative on the islands to be asked to certify to the reasonableness of the resource expenditure by the JTG Commander as this was a DoD responsibility. It was further agreed that when DOE provides the guidelines for islands intended for agricultural use, and verifies that less than 400 pCi/g is a suitable guideline for islands intended for visiting and food gathering use, the DOE on-island representative will be able to furnish a certificate on an island-by-island basis as work is completed on the individual islands. In fact, it was agreed that certification could be accomplished at this time for those islands not needing cleanup actions for their intended use, e.g. Enewetak, Japtan, and other southern islands.

The certificate should contain two elements:

(1) Highest remaining contamination level (e.g. "No concentrations over 40 pCi/g").

(2) Fact that island is within applicable radiation standards for designated purpose (e.g., "This island is certified for daily living - as best estimated by today's knowledge.").

The proposed wording of the certificate will be provided by DNA for DOE approval NLT 20 January 1978.

DOE ARCHIVES

MEETING ON RADIOLOGICAL OPERATIONS.

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ATTENDEES

James L. Liverman	ASEV, DOE	353-5171
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Bruce W. Church	DOE/NVO	598-3181
Roger Ray	DOE/NVO	598-3553
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