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Mr. Edward M. Morimoto
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Dear Ed:

During your last visit, we agreed to provide a detailed description of needed Enewetak post-cleanup dose assessments. The enclosed requirements were prepared by Tom McCraw. If there are any comments, we would be pleased to have them.

Sincerely,

/s/

L. Joe Deal, Acting Chief
Environmental Protection &
Public Safety Branch
Operational and Environmental
Safety Division

cc: J. DeYoung, DOI
R. Ray, NV
W. Bair, PNL

OES:EP&PS
McCraw/nr
2/27/79

OES:EP&PS
Deal
2/27/79

ENEWETAK POST-CLEANUP DOSE ASSESSMENTS

Final dose assessments for Enewetak Atoll cleanup must satisfy the following requirements:

1. There must be a final dose assessment for residents living in the southern islands, assuming they return in 1980, taking all of the terrestrial portion of their diet from islands in the south including the southeast except for birds and eggs (with and without imports), with the marine portion derived from any location in the lagoon. Both an average diet and a diet for drought conditions with no imported food available and use of lens water for drinking should be used. The predictions should treat the dynamic situation of increased amounts of local foods becoming available with time.

2. There must be a final dose assessment for residents living in the northern islands including Leroy. Both residences on Janet Island and on Sally-Tilda-Ursula must be treated assuming the return occurs in 1980. It should be assumed that most terrestrial foods in the diet of northern island residents will come from their village island (or island complex for interconnected islands), but some of the foods, particularly coconut products, will come from other northern islands where pre-cleanup or post-cleanup transuranium element levels will allow planting of subsistence coconuts.

   Both an average diet and diet for drought conditions with no imports and use of lens water for drinking should be treated. It should be assumed that the marine diet items come from the northern portion of the lagoon. Post-cleanup external radiation levels will be used in the northern islands assessments where such cleanup of soil and scrap reduces the levels. Included in the Janet and in the Sally-Tilda-Ursula assessments will be a dose estimate for residents of the highest wato having the highest soil radioactivity levels.

3. There must be a final dose assessment, a variation of (1) above, that assumes that subsistence coconuts are planted on six northeastern islands (Aej, Lujor, Aomon, Bijire, Lojwa, and Alembel) and that coconuts from these islands will be used for food by some of those who live in the south. What is needed is a dose estimate for that category of individual (most likely those who work to make copra from these islands) who would be expected to receive the highest doses from northern island coconut in their diet.

[redacted]

coconuts from the north, a prediction of how long resettlement or coconut planting must be delayed before these criteria would not be exceeded for both the average diet and the drought/no imports diet, must be made.

5. A statement must be provided on the likely radiological impact on the environment of disposal of contaminated soil in Cactus Crater on Runit Island. A recommendation should be made on followup radiological monitoring that is needed to provide information relative to this impact (types of samples, frequency, location, etc.). It should be assumed for end-of-cleanup dose projections that Runit will be quarantined and that there will be a good level of compliance with this quarantine.

6. A prediction is needed of the radioactivity content of copra produced in the southern islands and in the six northern islands of part (3) above, should these latter islands be planted.

Where applicable above, the highest annual doses to whole body, bone, and bone marrow for all significant radioelement contaminants must be estimated for use in our later evaluation of end-of-cleanup conditions against the cleanup and rehabilitation radiological criteria. Estimated 30-year whole body doses must be available for an evaluation of longer term exposures. In addition, transuranium element annual doses for lung and bone must be predicted for comparisons where we anticipate use of EPA guidance (draft at present).

These predictions are the key input for DOE's development of a final cleanup certification issuance to DNA and DOI. First priority is to be given to Janet Island in order to meet a May 1979 time for a reassessment of doses for that island. A reassessment of post-cleanup radiological conditions for the entire atoll will be needed in the autumn, 1979.

Table 6

Estimated annual intake of Pu[+]

Pathway	Bikini pCi/yr	New York pCi/yr	Ratio Bikini/New York
Inhalation	$\geq$ 0.2	0.2	$\geq$ 1
Drinking water[*]	8.7	0.13	58
Terrestrial foods	21.9	1.4	15
Marine foods	482	0.024	2×10^4

[+]See text for discussion and assumptions for each pathway.

[*]Assuming cistern water only. Any use of ground water would increase this estimate.