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ROGER RAY, ASST. FOR PAC. OPNS.
LAS VEGAS, NEVADA

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9. TO J. D. STEWART, ERSP MGR, ENEWETAK ATOLL MI

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- USDOE, T. F. MC CRAW (EV-737), GERMANTOWN, MD.
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MULTIPLE ADDRESSEES

TWO

ROY C. THOMPSON, PNL, RICHLAND, WA

LT. COL. EDWIN STILL, DNA, WASH., D.C.

UNCLASSIFIED/N O N W D/N A R R. SUBJECT: TECHNICAL PLAN FOR THE FISSION
PRODUCT PROGRAM.

NV WAS REQUESTED BY TOM MC CRAW, DOE/HQ TO PROVIDE TO THE MEMBERS OF
THE BAIR COMMITTEE THE TECHNICAL PLAN FOR EXPANDING THE FISSION PRODUCT
DATA BASE. FOLLOWING IS THE TEXT OF THAT PLAN FOR PERUSAL PRIOR TO THE
MARCH 27, 28 BAIR COMMITTEE MEETING IN WASHINGTON, D.C.

TEXT FOLLOWS:

1. INTRODUCTION

AT THE DECEMBER 1978 MEETING ON ENEWETAK OF REPRESENTATIVES OF DOE,
THE DRI ENEWETAK AND OTHER GOVERNMENT OFFICIALS, A NUMBER OF
QUESTIONS RELATING TO THE ISLAND USE AROSE. FOREMOST AMONG THEM
WERE THE POSSIBILITY OF RESETTLEMENT OF JANET (ENJEBI) IN THE NEAR
FUTURE, AND OF PLANTING COCONUTS ON THE NORTHERN ISLANDS. THEN
AVAILABLE DOSE ASSESSMENTS WERE NOT ADEQUATE TO DECIDE THESE ISSUES
AND THE DOE REPRESENTATIVE COMMITTED TO THE PEOPLE AN UPDATED
ASSESSMENT FOR JANET BY MAY 31, 1979. THIS WAS LATER MODIFIED AT
THE FEBRUARY 1979 ALBUQUERQUE MEETING TO INCLUDE THE SIX COCONUT
ISLANDS WITH THE SAME DEADLINE. THE REMAINING NORTHERN ISLANDS
ARE TO BE COMPLETED PRIOR TO OCTOBER 1, 1979. THE AVAILABLE DATA

ARE INADEQUATE FOR THE TASK OF REASSESSMENT. PROFILE DATA TAKEN DURING THE 1972 SURVEY ARE TOO SPARSE FOR A GOOD ASSESSMENT, AND DO NOT REPRESENT THE POST-CLEANUP STATUS OF THE ATOLL. DATA TAKEN DURING THE CLEANUP HAVE PRIMARILY BEEN FROM THE SURFACE, AND THEREFORE ARE OF MINIMUM VALUE IN DETERMINING UPTAKE FROM THE ROOT ZONE. CLEANUP DATA IS ALSO ALMOST EXCLUSIVELY ON TRANSURANICS, WHICH CONTRIBUTE MUCH LESS TO DOSE THROUGH THE FOOD CHAIN THAN THE FISSION PRODUCTS CESIUM-137 (CS-137) AND STRONTIUM-90 (SR-90).

THE FISSION PRODUCTS SAMPLING EFFORT HAS BEEN UNDERTAKEN IN ORDER TO GENERATE A DATA BASE THAT CAN BE USED FOR COMPREHENSIVE DOSE ASSESSMENT WORK.

II. SAMPLING

LEROY AND ALL NORTHERN ISLANDS, EXCLUDING YVONNE (RUNIT) ARE TO BE PROFILE SAMPLED ON A 50 METER GRID. SAMPLING METHOD AND ANALYSIS OF SAMPLES WILL NOT DIFFER FROM ISLAND TO ISLAND EVEN THOUGH ISLAND USE HAS BEEN CATEGORIZED AS RESIDENTIAL, AGRICULTURAL OR FOOD GATHERING AND DIFFERENT CRITERIA ARE APPLICABLE.

A. ISLANDS INCLUDED

TABLE 1 LISTS LEROY AND ALL THE ISLANDS NORTH OF BUT EXCLUDING YVONNE. SHOWN ALSO IS THE APPROXIMATE NUMBER OF GRID POINTS ON EACH ISLAND BASED ON A 50 METER GRID. PROFILE HOLES WILL BE EXCAVATED TO APPROXIMATELY 100 CENTIMETERS OR TO CORAL OR TO WATER, WHICHEVER OCCURS FIRST.

THE ISLANDS OF EDNA, PERCY AND RUBY ARE INCLUDED, AND WILL BE SAMPLED IF TIME ALLOWS. IF THERE ARE SUFFICIENT RESOURCES, THE ISLETS OF MARY'S DAUGHTER, PEARL'S DAUGHTER AND SALLY'S CHILD WILL ALSO BE SAMPLED. SOIL FROM THESE SIX SMALL ISLANDS WILL BE STORED IN THE SOIL LIBRARY TO BE ANALYZED LATER IF SUCH DATA IS NEEDED.

TABLE 1. NUMBER OF FISSION PRODUCT PROFILES FOR THE NORTHERN ISLANDS OF ENEWETAK ATOLL

<u>ISLAND</u>	<u>NO. POINTS ON 50 METER GRID</u>
LEROY	19
ALICE	29
BELLE	43
CLARA	10
DAISY	30
EDNA	8
IRENE	60
JANET	371
KATE	21
LUCY	28
PERCY	9
MARY	12
NANCY	15
OLIVE	56
PEARL	74
RUBY	4
SALLY	153

MULTIPLE ADDRESSEES

FIVE

TILDA	58
URSULA	100
VERA	54
WILMA	<u>19</u>
TOTAL POINTS	1173
	X 6
TOTAL SAMPLES	7038

B. GRIDS AND DENSITY

SAMPLING PROFILE HOLES WILL BE EXCAVATED ON A 50 METER GRID AND SAMPLED AS OUTLINED IN SECTION II.C.2. THIS DENSITY PATTERN WAS SELECTED FOR SEVERAL REASONS. FIRST, MOST OF THE ISLANDS ALREADY HAVE GRID LANES CUT AND STAKES PLACED ON A 50 METER BASIS. A FEW OF THE SMALLER ISLANDS HAD 24 METER GRIDS PLACED BUT NO ISLAND HAD A GRID INTERVAL GREATER THAN 50 METER. SECOND, THE LOGISTICS OF BACKHOE AND SOIL SAMPLING CREW SUPPORT ARE SUCH THAT A 50 METER SAMPLING GRID IS AS FEASIBLE AS ANY OTHER AND WILL SUPPLY A MORE DETAILED DATA BASE THAN WOULD A LARGER GRID. A LARGER GRID SPACING WOULD YIELD TOO FEW SAMPLES FROM THE SEVERAL SMALLER ISLANDS. LASTLY, A FINER GRID, SAY 25 METER, WOULD REQUIRE AN INORDINATE INCREASE IN SAMPLING EFFORT SINCE ACCESS TO THESE POINTS IS VERY DIFFICULT WITHOUT CLEARED GRID LANES. ON JANET THE 50 METER SAMPLING IS REQUIRED BECAUSE OF THE HISTORY OF EVENTS THERE RESULTING IN A VERY INHOMOGENEOUS DISTRIBUTION OF RADIONUCLIDES AND BECAUSE OF RECENT SOIL REMOVAL ACTIVITIES. INITIAL ANALYSIS

WILL BE DONE ON SAMPLES FROM A 100 METER GRID WITH 50 METER GRID DATA ADDED AS DEEMED NECESSARY IN AREAS OF HIGH VARIABILITY. FOR DOSE ASSESSMENT PURPOSES, ISLAND AVERAGE CONCENTRATIONS OF RADIONUCLIDES IN SOIL WILL BE USED. ALL SAMPLES ANALYZED AT ENEWETAK WILL REMAIN IN THE ENEWETAK SOIL LIBRARY FOR POSSIBLE FUTURE USE, AND EVENTUALLY BE ARCHIVED AT THE NTS. THE SOIL SAMPLES SHIPPED TO EIC/ALBUQ WILL BE SHIPPED TO NTS FOR ARCHIVING AFTER ANALYSIS.

C. PROCEDURES

DOE/ERSP PROCEDURE NUMBER 28 DETAILS A UNIFORM METHOD OF TAKING SOIL PROFILES FOR LAWRENCE LIVERMORE LABORATORY DOSE ASSESSMENT OF THE FISSION PRODUCTS PRESENT ON ENEWETAK ATOLL. THIS PROCEDURE IS CONSISTENT WITH STANDARD LLL PRACTICE.

THE EBERLINE LABORATORY MANAGER IS RESPONSIBLE TO THE DOE/ERSP ON-SITE MANAGER FOR IMPLEMENTING THESE PROCEDURES.

1. TOOLS & EQUIPMENT

- A. ONE OR ONE-HALF GALLON CANS WITH STANDARD SAMPLE ALUMINIUM LABELS AND LIDS (SIX PER PROFILE).
- B. SCOOP, 11.5 CM DIAMETER WITH FLAT END.
- C. ROUND POINT SHOVEL.
- D. HATCHETS.
- E. TAPE MEASURE OR CALIBRATED STICK MARKED IN CENTIMETERS, 100 CM LONG.
- F. BACKHOE TO DIG 100 CM DEEP TRENCH.
- G. SOIL SAMPLERS FIELD NOTEBOOK.

1000 CC OF SAMPLE TAKEN FROM THE ENTIRE VERTICAL FACE OF COLUMN.
CLEAR VEGETATION ON TOP OF SOIL COLUMN TO EXPOSE SOIL.
EXCLUDE ALL ROCKS AND ROOTS GREATER THAN 1 CM IN SAMPLE
LAYERS. AS THE FIRST LAYER IS TAKEN, EXPAND LEVEL AREA
TO EXTEND ABOUT 15 CM BEYOND THE EDGE OF THE NEXT AREA TO
AVOID CROSS CONTAMINATION OF NEXT LAYER BY FALLING SIDE WALLS.

III. GENERAL NOTES ABOUT WEATHER AND CONDITIONS OF SOILS

IV. DISPOSITION OF CANS SHIPPED TO ENEWETAK FOR
PROCESSING.

V. NAMES OF SOIL SAMPLING CREW MEMBERS.

H. DO NOT LET BACKHOE OPERATOR GET MORE THAN A FEW HOLES AHEAD
OF SOIL SAMPLING TEAMS.

I. ALL SAMPLES TAKEN WILL BE TRANSPORTED TO A HOLDING AREA FOR
SHIPMENT TO LABORATORY ON ENEWETAK FOR PROCESSING AS SOON AS
POSSIBLE.

III. ANALYSIS

A. ON-SITE SAMPLE PREPARATION

THE SAMPLE PREPARATION AT ENEWETAK LABORATORY WILL INCLUDE RECORDING ALL IMPORTANT INFORMATION SUCH AS LOCATION, DATE, SAMPLE DEPTH AND WEIGHT, AND DRYING, HOMOGENIZING AND BALL-MILLING. INITIALLY, THE 100 METER PROFILES WILL BE PROCESSED FOR FULL ANALYSIS TO PROVIDE EXPEDIENT DATA TO LLL FOR DOSE ASSESSMENT; THEN THE 50 METER SAMPLES WILL BE PREPARED FOR FUTURE ANALYSIS, IF REQUIRED.

B. ON-SITE ANALYSIS

THE SAMPLES ARE THEN TRANSFERRED TO AN APPROXIMATE 700 GM GEOMETRY FOR GAMMA COUNTING FOR AM-241, EU-152, EU-155, CS-137 AND SPLIT; ONE PORTION IS SHIPPED TO EIC ALBUQ LABORATORY AND THE OTHER PORTION STORED IN THE SOIL LIBRARY. THE SHIPPING CONTAINERS HAVE AN EIC PACKING LIST WITH EIC LABORATORY NUMBER AND HAND COPY OF GAMMA RESULTS WITH ISLAND LOCATION INFORMATION. ON-SITE GAMMA SENSITIVITY FOR CS-137 WILL BE APPROXIMATELY 1 PCI/G. PU/AM CHEMICAL ANALYSIS WILL BE DONE ON ISLAND AS LABORATORY LOAD PERMITS, WORKING TO THE GOAL OF CHEMICAL ANALYSIS OF TEN PERCENT OF ALL 100 METER SAMPLES.

C. OFF-SITE ANALYSIS

ANALYSIS BY EIC IN THE ALBUQ LABORATORY WILL INCLUDE RUNNING CORALLINE SOIL SAMPLES FOR SR-90 AND ALL OTHER PU/AM NOT COMPLETED AT ENEWETAK.

DOE/ERSP PROCEDURE NUMBER 15 ASSUMES SECULAR EQUILIBRIUM OF

SR-90 AND Y-90 HAS BEEN ATTAINED. THE Y-90 IS SEPARATED AND USED TO QUANTIFY THE SR-90. AMERICIUM AND PLUTONIUM ANALYSES OFF-SITE INCLUDE ISOLATION OF PU FROM AM AND ELECTRODEPOSITION. TRACERS WILL BE USED TO QUANTIFY PU, AM ACTIVITY BASED ON THE RATIO OF THE TRACER TO ISOTOPE OF INTEREST.

1. ANALYSIS OF CORAL SOIL FOR SR-90

THE PURPOSE OF THIS PROCEDURE IS TO DETERMINE THE AMOUNT OF SR-90 IN CORRALINE SOIL. THIS PROCEDURE ASSUMES SECULAR EQUILIBRIUM HAS BEEN ACHIEVED. THE Y-90 IS SEPARATED FROM THE SR-90 AND COUNTED IN LOW BETA BACKGROUND COUNTER.

REAGENTS

0.08H HCl
SR-85
SR CARRIER 10 MG/ML
Y CARRIER 20 MG/ML
5% DI-2-ETHYL-HEXYL PHOSPHORIC ACID IN TOLUENE (HDEHP)
3N HNO₃
CONCENTRATED NH₄OH
1N HCl
SATURATED (NH₄)₂C₂O₄
CALCIUM CARBONATE

AFTER SAMPLES HAVE BEEN BALLMILLED AND HOMOGENIZED:

- A. ALIQUOT 5-10 G OF CORAL INTO 150 ML PORCELIN CRUCIBLE.
ADD SR-85 TRACER AND SR CARRIER 10MG/ML, Y CARRIER 20MG/ML. (TO DUPLICATE SAMPLE ADD Y-88 TO MEASURE YTTRIUM YIELD, 10% OF SAMPLES WILL BE DUPLICATED).

(12) AFTER DRAINING THE BOTTOM LAYER INTO ANOTHER 125 ML SEPARATORY FUNNEL AND REPEAT THE EXTRACTION WITH 5% HDEHP.

REANALYSIS IF REQUIRED.)

- G. STRIP THE YTTRIUM FROM THE 5% HDEHP LAYERS WITH 40 ML OF 3N HNO_3 . SHAKE FOR TWO MINUTES AND ALLOW PHASES TO SEPARATE FOR FIVE MINUTES. DRAIN BOTTOM LAYER INTO 50 ML CENTRIFUGE TUBE, ADD NH_4OH DROPWISE TO PH 9 WITH CONSTANT STIRRING, CENTRIFUGE DISCARD SUPERNATE AND COMBINE YTTRIUM HYDROXIDE PRECIPITATION BY DISSOLVING WITH 1N HCl .

MULTIPLE ADDRESSEES

TWELVE

- H. TO THE COMBINED IN HCl ADD 30 ML OF DI HOH. ADD NH_4OH DROPWISE TO PH 9, ALLOW PPT TO FORM CENTRIFUGE, DISCARD SUPERNATE. ADD 2-4 ML IN HCl TO CENTRIFUGE TUBE AGITATE UNTIL PPT DISSOLVES. REPEAT THREE MORE TIMES.
- I. AFTER LAST PPT DISSOLVE PPT IN IN HCl. ADD 30 ML OF DI HOH AND WARM IN WATER BATH @ 80 DEGREES C FOR 15 MINUTES.
- J. ADD 3-4 ML OF SATURATED $(\text{NH}_4)_2\text{C}_2\text{O}_4$ AND DIGEST FOR TEN MINUTES.
- K. FILTER SAMPLE WITH MILLIPORE APPARATUS THROUGH TARED GLASS MEMBRANE FILTER. CAREFULLY REMOVE FILTERED SAMPLE AND DRY FOR 30 MINUTES AT 100DEGREES C. ALLOW TO COOL IN A DESICCATOR.
- L. WEIGH SAMPLE AND RECORD WEIGHT.
- M. COUNT SAMPLE IN LOW BETA BACKGROUND COUNTER.

CALCULATION:

$$\frac{\text{COUNTS}}{\text{MINUTES}} - \text{BACKGROUND CPM}$$

EFFICIENCY (X) INGROWTH (1.0)(X) Y-90 DECAY (X)Y RECOVERY(X) VOLUME (2.22)

= PCI/UNIT

VOLUME

THE STRONTIUM-90 PROCEDURE IS DESIGNED SO THAT EACH SAMPLE RUN CAN BE REANALYZED AFTER 14-DAY INGROWTH OF Y-90 BECAUSE THE SEPARATED SR-90 PORTION OF THE SAMPLE IS STORED FOR REANALYSIS.

IV. QUALITY CONTROL

A. INTERNAL

QUALITY CONTROL - INTERNAL WILL INCLUDE A CHECK OF RESULTS RUN OF EACH SHIPMENT OF SAMPLES. IN EVERY SHIPMENT THAT IS RECEIVED, CALCIUM CARBONATE WILL BE USED TO SIMULATE THE CORAL SAMPLE MATRIX. A BLANK OF CaCO_3 WILL BE PROCESSED WITH EACH SET OF TWENTY-FIVE SAMPLES TO DETERMINE THE AMOUNT OF CROSS CONTAMINATION THAT MIGHT OCCUR. CALCIUM CARBONATE WILL ALSO BE USED TO PREPARE A SPIKE CONTAINING A KNOWN AMOUNT OF SR-90. IF THE RESULTS OF THE SPIKE DEVIATE FROM THE KNOWN CONCENTRATION BY MORE THAN PLUS OR MINUS 30 PERCENT, THE ENTIRE BATCH OF SAMPLES PROCESSED WITH THAT SPIKE WILL BE REANALYZED.

EACH SET OF SAMPLES WILL ALSO HAVE DUPLICATE SAMPLES (APPROX 20 PERCENT) PROCESSED TO CHECK FOR PRECISION. ONE SAMPLE OUT OF EVERY SHIPMENT WILL BE PROCESSED THROUGH THE LONG INGROWTH DETERMINATION OF SR-90 AND COMPARED TO THE 48 HOUR METHOD FOR DETERMINING SR-90. TEN PERCENT OF DUPLICATES WILL HAVE Y-88 USED TO MEASURE YTTRIUM YIELD AND WILL BE COMPARED TO YTTRIUM GRAVIMETRIC YIELD DETERMINATION. JANET STANDARD SOIL WILL BE PROCESSED WITH EACH SHIPMENT OF SAMPLES TO DETERMINE THE ACCURACY OF THE RESULTS. ONE OUT OF EVERY 20 SAMPLES IS

MULTIPLE ADDRESSEES

FOURTEEN

RECOUNTED TO VERIFY THE Y-90 DECAY.

B. EXTERNAL

QUALITY CONTROL - EXTERNAL WILL BE BASED ON STANDARD SOIL SAMPLES WHICH WILL BE SENT OUT FROM ENEWETAK TO REECO, NTS AND TRANSHIPPED TO VARIOUS LABORATORIES SUCH AS EPA AND LIVERMORE. THE RESULTS OF THIS EXTERNAL QC PROGRAM WILL PROVIDE EIC VERIFICATION OF ITS INTERNAL QUALITY CONTROL PROGRAM.

OTHER RELATED EXTERNAL QUALITY CONTROL PROGRAMS WHICH EIC IS PARTICIPATING IN ARE THE EPA QUALITY CONTROL CROSS CHECK STANDARDS AND THE INTERNATIONAL ATOMIC ENERGY COMMISSION CROSS CHECK STANDARDS.

V. DATA FLOW

A. EIC FUNCTIONS

1. ON-ISLAND LABORATORY

ALL FISSION PRODUCT SAMPLES TAKEN WILL BE ENTERED INTO THE EIC RAD LABORATORY DATA BASE ON ENEWETAK DURING PROCESSING. THE REPORTED ANALYSIS AND RESULTS WILL INCLUDE AT LEAST THE FOLLOWING FOR EACH SAMPLE:
HEADER DATA: ISLAND, LOCATION, DATE OF SAMPLE, DEPTH, SAMPLE TYPE, 30 CHARACTERS OF MISC. INFORMATION WHICH WILL INCLUDE SAMPLE COLLECTION CIRCUMSTANCES, COLLECTORS' NAME, AND LABORATORY SAMPLE ID NUMBER. GAMMA

SPECTRUM: A 2048 CHANNEL SPECTRUM COVERING 40 - 1900 KEV WITH CALIBRATION DATA, DETECTOR GEOMETRY, AND LATEST BACKGROUND SPECTRUM FILE.

RESULTS: DATA BLOCK TO INCLUDE RESULTS OF WET CHEMISTRY ANALYSIS OF AM-241, PU-238, PU-239-240, SR-90, U-234, 235 AND U-238 WHEN PERFORMED ON SAMPLE.

DATA FOR THE FISSION PRODUCT PROGRAM WILL BE SUBMITTED TO THE DRI(ERSP) DATA MANAGER AT ENEWETAK THROUGH THE NORMAL PATH ON ISLAND AND WILL INCLUDE THE DATA HEADER, GAMMA SPECTRUM AND ANY OTHER ANALYSIS RESULTS RUN ON ISLAND.

FOR THE INITIAL JANET PROGRAM ONLY THE HEADER AND SPECTRUM WILL BE ON THE DATA FILES SUBMITTED TO DRI AT ENEWETAK. A COMPLETE HARD COPY OF GAMMA AND HEADER DATA IS RETAINED AT ENEWETAK IN CASE TRANSFER MEDIUM IS DAMAGED IN TRANSIT.

2. ALBUQ LABORATORY

DATA WILL BE REPORTED TO DRI LAS VEGAS FROM THE ALBUQ LAB ON HARD COPY REPORTS. THE REPORTS FROM EIC WILL INCLUDE THE ISLAND IDENTIFICATION, LOCATION, DATE AND PCI/G (DRY) ACTIVITY OF RELEVANT ISOTOPES. EACH SHIPMENT RECEIVED FROM ENEWETAK WILL BE PROCESSED AND REPORTED OUT AS A BATCH. THE REPORT WILL ALSO INCLUDE RESULTS OF SPIKES, BLANKS, JANET STANDARD SOIL, AND DUPLICATE ANALYSIS.

B. DRI FUNCTIONS

DRI LAS VEGAS IS RESPONSIBLE FOR ASSEMBLING THE DATA FROM DRI
EIC
AND EIC, ENEWETAK AND/ALBUQ AND ASSURING THAT ALL THE RESULTS FOR
A PARTICULAR SAMPLE ARE PROPERLY ASSOCIATED. THE DATA WILL
BE TRANSFERRED FROM DISK TO MAGNETIC TAPE, IN A FORMAL COMPATIBLE
WITH THE CDC 6400, AS THEY ARRIVE IN LAS VEGAS.

THE DATA ON MAGNETIC TAPE WILL BE PROCESSED TO CONFORM WITH
LLL REQUIREMENTS FOR MAKING THE DOSE ASSESSMENTS. THIS WILL
INCLUDE GENERATING CROSS-REFERENCE LISTS RELATING EIC LAB
NUMBER TO ISLAND LOCATION, AND A TABLE SHOWING SAMPLE DATA AND
PERTINENT COMMENTS. IN ADDITION, SOME ISOTOPE VALUES MUST BE
CORRECTED FOR ACTIVITY IN THE LOCAL ENVIRONMENT, USING LONG
BACKGROUND COUNTS TAKEN BY THE ENEWETAK LAB. RESULTS OF THE
QUALITY CONTROL EFFORTS WILL BE INCLUDED ON THE DATA BASE AS
APPROPRIATE, AND DOCUMENTATION INCLUDED WITH THE DATA TRANSFERRED
TO LLL. FINALLY, THE EIC DATA WILL BE CONVERTED FROM PICO CURIES/G
TO DPM/G AS REQUIRED BY LLL, AND THE RESULTS AND ERRORS PUNCHED
ON CARDS IN THE LLL FORMAT. THESE CARDS WILL BE SHIPPED TO LLL
FOR THE DOSE ASSESSMENTS.

DRI WILL ALSO SHIP TO LLL DIRECTLY FROM ENEWETAK PRINTOUTS
OF IMP SURFACE DATA FOR USE IN ASSESSING DOSE FROM INHALATION.
THESE WILL BE THE LATEST POST-CLEANUP VALUES WHERE APPROPRIATE,
AND WILL INCLUDE THE FOLLOWING ISOTOPES: AMERICIUM-241, IN
PICO CURIES/G; EUROPIUM-155, IN PICO CURIES/G; COBALT-60, IN

MULTIPLE ADDRESSEES

SEVENTEEN

MICRO ROENTGEN/HR; AND CESIUM-137, IN MICRO ROENTGEN/HR.

MICRO-ROENTGEN PER HOUR ARE TO BE AT 1 METER ABOVE GROUND.

THESE DATA WILL BE HARD COPY ONLY RATHER THAN ANY MAGNETIC MEDIUM.

C. DOSE ASSESSMENT

BILL ROBISON WILL USE THE PROFILE DATA FROM THIS PROGRAM, THE SURFACE IMP DATA, AND DIET MODEL DEVELOPED AND APPROVED BY THE DRI-ENEWETAK IN MAKING THE DOSE ASSESSMENT. LATEST AVAILABLE INFORMATION ON CONCENTRATION RATIOS AND UPTAKE BY RELEVANT PLANTS WILL BE INCLUDED. ALSO, VARIOUS SCENARIOS OF ISLAND USE, RESIDENCE LOCATION, COCONUT PLANTING LOCATIONS, ETC., WILL BE CONSIDERED. THE ULTIMATE RESULT IS EXPECTED TO BE A REALISTIC ASSESSMENT OF THE DOSE ASSOCIATED WITH VARIOUS REASONABLE POSSIBILITIES FOR LIVING PATTERNS OF THE ENEWETAK PEOPLE.

END OF MESSAGE

cc: R. Ray, APO, NV
P. J. Mudra, Dir., OSD, NV
P. B. Dunaway, Dir., Transuranics, NV
E. D. Campbell, NSD, NV
D. R. Martin, OS&H, NV
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