411561

6/25/73

GENERAL CAMM'S PRESENTATION
(to interagency meeting at DOI)

Our survey has been planned and executed with emphasis on thoroughness and accuracy. Because of the AEC's unique experience in such matters, we feel it is scientifically sound and will stand on its own in any forum, including the courtroom. We feel it is of the utmost importance that prejudgements of survey results not be made in any public forum prior to the Commission's decisions and recommendations regarding radiological conditions and their impact on people. This precaution is necessary to maintain the integrity of the survey and of the related assessment of radiological impact.

Any appraisal of the physical condition of the atoll must consider the total radiological dose which may be received by prospective inhabitants. The AEC's radiological survey has collected data to determine as closely as possible the distribution of radioactive isotopes throughout the atoll and in the various elements of the food chain. The radioactivity from these isotopes produce a radiological dose to man via two paths--external and internal. The external dose is derived from radiation to man from his surrounding environment. The internal dose comes from those isotopes which are taken up by man and produce ionizing radiation inside the body. The food chain is the major vehicle by which this radioactivity is taken up by man except that there is considerable uncertainty regarding resuspension of plutonium. The total dose is the sum of the internal and external doses. It is our intention to

determine as closely as possible the total dose to man both as a function of location in the atoll and as a function of living and eating habits. From this, we will make recommendations for the radiological cleanup and rehabitation of the atoll.

Figure 1 shows the approximate location of the 43 tests which the AEC conducted between 1948 and 1958. As can be seen, this testing occurred throughout the atoll, although the preponderance of the tests were in the northern and eastern sectors.

Figure 2 shows the schedule which we have established. On September 1 we will have our final report in draft form and in limited quantities. It will take about one month to prepare this report in its final form. A letter ~~will be~~ was sent to the DOI and DOD ~~in the next few days~~ giving them this schedule. You will note here, as stated earlier, that it is the Commission which has the responsibility and so must have the opportunity to approve the recommendations proposed by me and the rest of the staff.

Figure 3 is an example of a moderately contaminated island, Bogallua (or Alice). Here you see represented two portions of our survey. The contour lines are isoexposure curves which were developed by aerial mapping techniques. The letters indicate progressively greater levels of surface radioactivity--external exposure. "H" is equivalent to about 131 μR/hr or about 1150 mR/yr--over twice the upper limit of <u>total</u> dose allowed

under present U.S. standards. Areas G, F, etc., have decreasing levels. Superimposed on this figure are locations of the soil samples taken. These samples will not only provide further detailing of the external dose but will establish a basis for determining a part of the food chain uptake of radioactive isotopes. In addition to the aerial and soil surveys, we have taken many samples of the lagoon water and bottom as well as the flora and fauna throughout the atoll.

Figure 4 is another example from our aerial survey, showing Engebi (or Janet) Island. Only the contours are shown on this viewgraph.

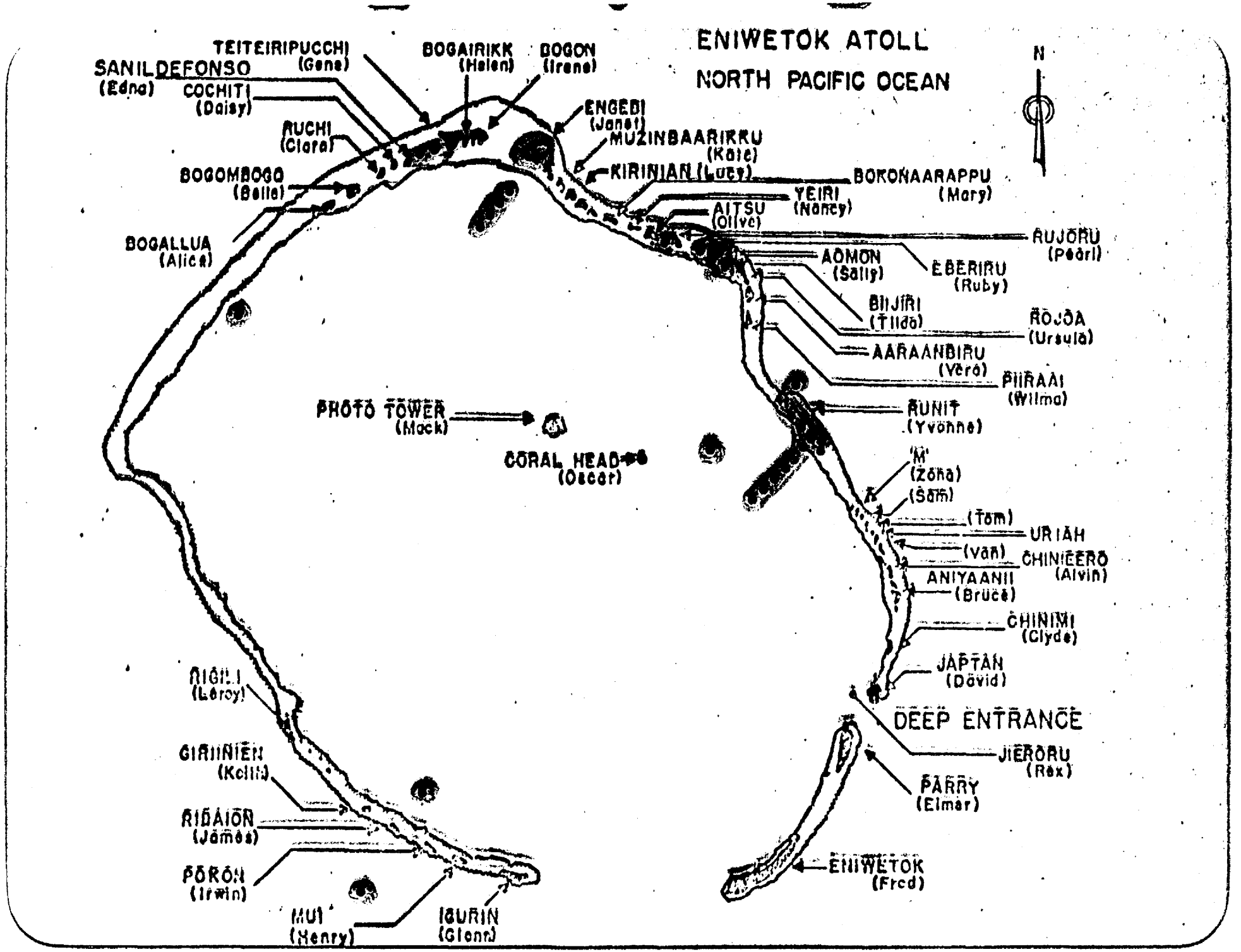
In order for the AEC to determine the total dose to man, we must know something about how he lives. Consequently, as a part of the survey, we are conducting a lifestyle study. We will attempt to detail the food chain as well as living, working, and recreational habits of the people. This lifestyle study is the bridge between a mass of data and the physical effect on people.

Figure 6 graphically represents the progress of the survey analysis as of June 1. As you can see about 4,200 separate samples were taken from the atoll and are being analyzed. Except for the water samples, each one must be dried, ground, tagged, and packaged, a process labeled preparation. Once prepared, the samples receive a gamma analysis and are assigned a number which is entered into a data bank. From there they are sent to one of the participating laboratories where detailed chemical analysis will determine the levels of such isotopes as ^{239}Pu, ^{137}Cs, ^{60}Co, and ^{90}Sr.

The last figure is a detailed breakout of our FY 1973 expenditures on the survey.

TABLE OF ISOEXPOSURE LEVELS

	μR/hr at 3 feet	mR/yr at 3 feet
A	2.04	17.8
B	3.06	26.8
C	4.08	38.6
D	8.16	71.6
E	16.3	143
F	32.6	286
G	65.3	574
H	131	1150
I	261	2290


ENIWETOK ATOLL
NORTH PACIFIC OCEAN
N
TEITEIRIPUCCHI (Gene)
BOGAIRIKK (Helen)
BOGON (Irene)
SANILDEFONSO (Edna)
COCHITI (Daisy)
ENGEBI (Janet)
RUCHI (Clara)
MUZINBAARIKKU (Kate)
KIRINIAN (Lucy)
BOKONAARAPPU (Mary)
BOGOMBOGO (Bella)
YEIRI (Nancy)
AITSU (Olive)
BOGALLUA (Alice)
RUJORU (Pearl)
AOMON (Sally)
EBERIRU (Ruby)
BIIJIRI (Tilda)
ROJOA (Ursula)
AARAANBIRU (Vera)
PIIRAAI (Wilma)
PHOTO TOWER (Mack)
RUNIT (Yvonne)
CORAL HEAD (Oscar)
'M' (Zona)
(Sam)
(Tom)
URIAH
(Van)
CHINIEERO (Alvin)
ANIYAANII (Bruce)
CHINIMI (Clyde)
JAPTAN (David)
NIGILI (Leroy)
DEEP ENTRANCE
JIERORU (Rex)
GIRIINIEN (Kelly)
PARRY (Elmar)
RIBAION (James)
PORON (Irwin)
ENIWETOK (Fred)
MUT (Henry)
IGURIN (Glenn)

SCHEDULE OF AEC ENIWETOK ACTIVITIES

I. AEC RADIOLOGICAL SURVEY

A. FIELD WORK COMPLETED ON FEBRUARY 14, 1973

B. DRAFT SURVEY REPORT TO BE COMPLETED BY SEPTEMBER 1, 1973

C. FINAL SURVEY REPORT TO BE PUBLISHED BY OCTOBER 1, 1973

II. AEC RECOMMENDATIONS FOR RADIOLOGICAL CLEANUP AND HABITATION

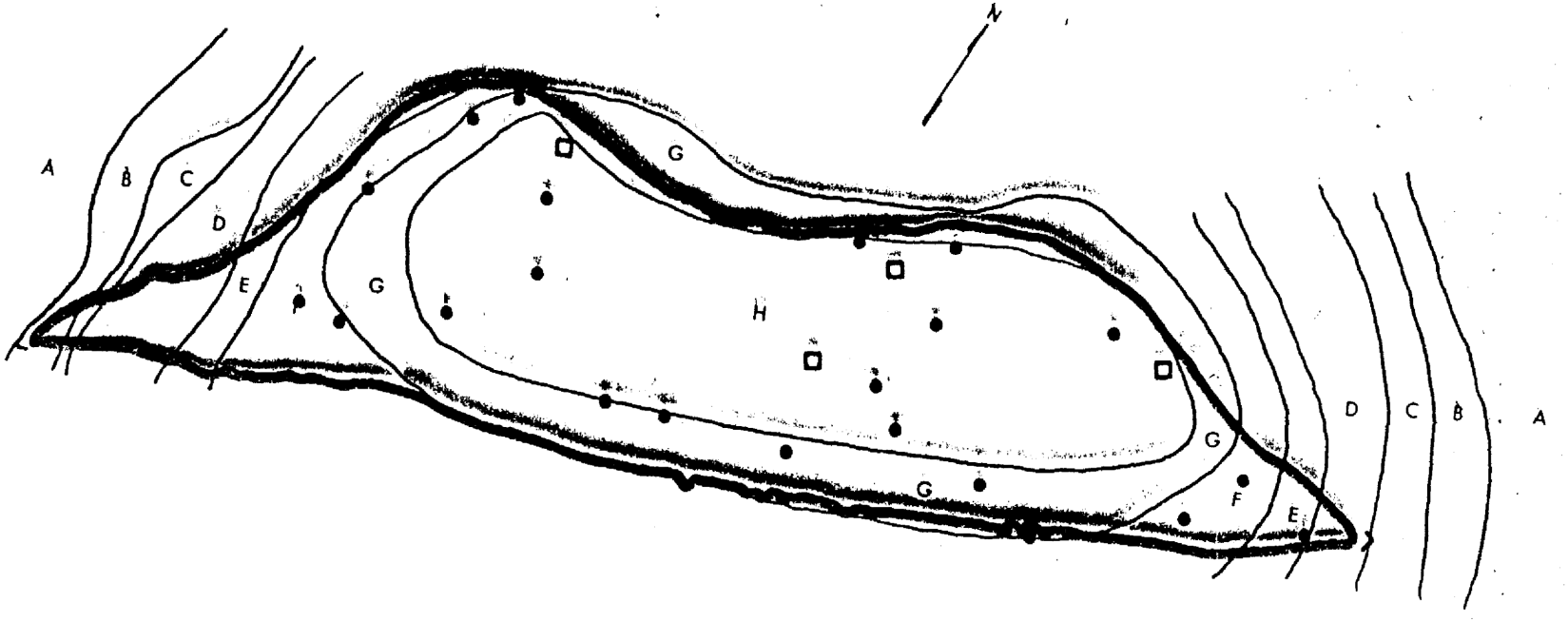
A. TO BE DEVELOPED BY NOVEMBER 1, 1973, FOR ATOMIC ENERGY COMMISSION APPROVAL

B. TO BE TRANSMITTED TO DOI AND DOD IMMEDIATELY UPON COMMISSION APPROVAL

BOGALLUA ISLAND

(CODE NAME ALICE)

SOIL SAMPLING PROGRAM



ISO-EXPOSURE CONTOURS 50 keV-3 MeV

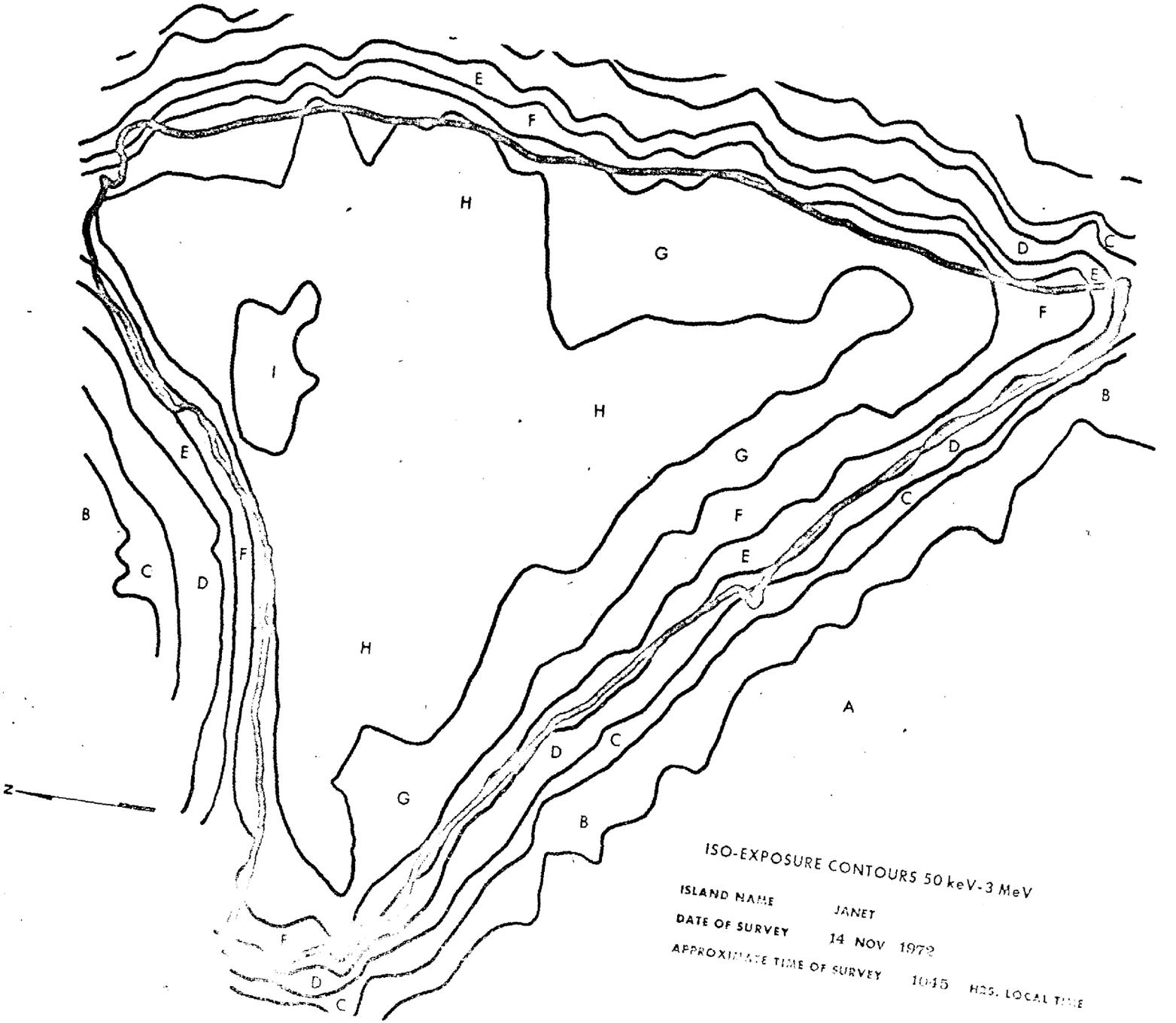
ISLAND NAME ALICE

DATE OF SURVEY 15 NOV 1972

APPROXIMATE TIME OF SURVEY 1431 HRS. LOCAL TIME

• DENOTES SURFACE SAMPLE (0-15cm) LOCATION

□ DENOTES PROFILE SAMPLE LOCATION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ISO-EXPOSURE CONTOURS 50 keV-3 MeV
ISLAND NAME JANET
DATE OF SURVEY 14 NOV 1972
APPROXIMATE TIME OF SURVEY 1045 HRS. LOCAL TIME

LIFESTYLE STUDY

PURPOSES

I. TECHNICAL: TO DETERMINE

A. LIKELY EXPOSURE CONDITIONS FOR NATIVES

B. POTENTIAL CHANNELS OF FOOD UPTAKE

C. COMPATIBILITY WITH REQUIREMENTS

II. POLITICAL: TO ESTABLISH

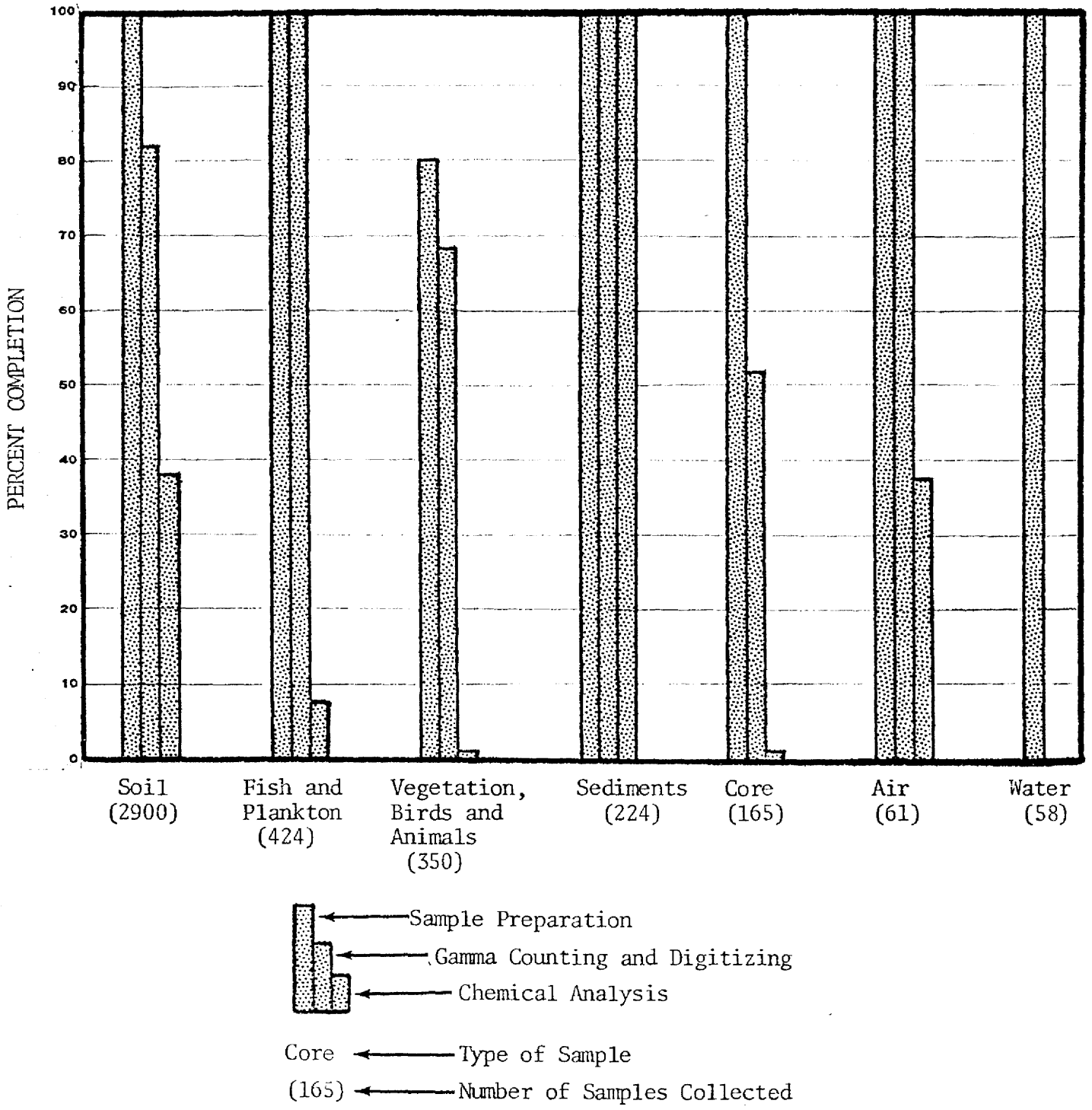
A. CREDIBILITY FOR THOROUGHNESS IN HEALTH MATTERS

B. ENIWETOKESE PARTICIPATION IN DECISIONMAKING

U. S. ATOMIC ENERGY COMMISSION

ENIWETOK RADIOLOGICAL SURVEY

SAMPLE ANALYSIS PROGRAM



AEC ENIWETOK BUDGET (FY 73)

FIELD SURVEY	BUDGETED ($K)
UNIVERSITY OF WASHINGTON	47
EBERLINE INSTRUMENT COMPANY	58
EPA	70
EG&G	126
H&N PACIFIC TEST DIVISION	48
MAC TRANSPORTATION	26
SAMTEC	90
PAN AM PHOTO DOCUMENTATION	10
REECO	15
LLL	253
SUBTOTAL	743

ANALYSIS EFFORT	
LLL	327
MC CLELLAN LAB	85
LFE INC., LAB	65
EBERLINE LAB	64
OTHER	31
SUBTOTAL	572
TOTAL	$1,315