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This document contains information of a classified nature.

APR 16 1968

RS 1500/1547

U. S. Atomic Energy Commission
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87115

Attn: W. L. Hancock

Re: Results of Study to Determine Sea Floor Search Area for
Missing Debris (U)

On April 4, 1968, AEC/ALO requested Sandia Corporation to assist in defining an underwater search area off the coast of Thule AFB, Greenland. A missing weapon part is presumed to be located in the area as the result of a recent B52 aircraft crash. This letter presents the results of theoretical underwater trajectory studies performed by Division 9324.

Several assumptions were necessary in regard to the B52 flight characteristics at the time of impact (Point Zero). These assumptions are as follows:

Velocity: 1000 fps
Flight Path Angle: -30°
Aircraft Attitude: Left wing down with aircraft
in a gradual left turn

Assumed water conditions:

Density: 2.0 slugs/ft³
Temperature: 2°C (constant to 750 ft.)
Depth: 750 ft.
Currents: negligible

Physical characteristics of the missing objects:

Weight:
Length:
Diameter:
Spherical Radius of Ends:
Cross Sectional Area
Side on Area:



DELETED

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AEC/ALO

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Hydrodynamic characteristics of object:

Drag Coefficient (end on): 0.6

Drag Coefficient (side on): 1.0

Note: The drag coefficients include cavitation effects.

A study to determine the velocity degradation, assuming the object penetrated two feet of ice, showed a loss of approximately 50 fps might be expected (Point 1). This effect, plus any effect on velocity due to contact with other debris, is adequately covered in the variations of impact conditions assumed.

The attached chart shows the results of several trajectories and defines a suggested search area with probabilities. The angular limits were determined from the pattern of debris found on the surface of the ice.

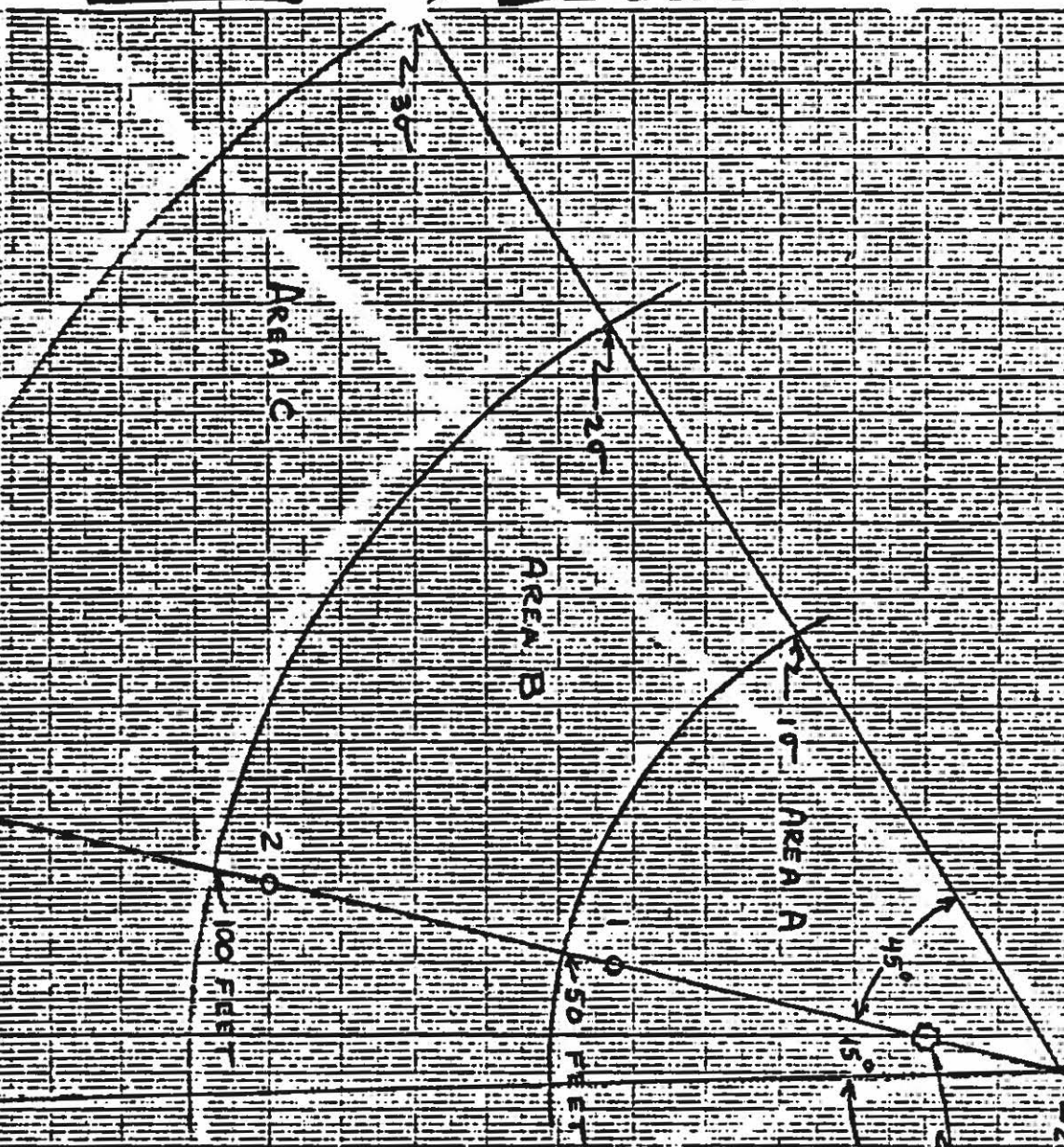

W. A. Gardner

RPL:1544:gl

DOE ARCHIVES

DOE ARCHIVES

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POINT 1

DELETED

VELOCITY = 950 FPS

ANGLE = 90°

ALTITUDE = 5150 FT

POINT 2

DELETED

VELOCITY = 844 FPS

ANGLE = 30°

ALTITUDE = 5150 FT

END ON
 THEN TO
 SIDE ON

POINT 3

DELETED

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ATTITUDE 1 END ON

50-150 FEET

IMPACT HEADING
102° 30'

SOUTH (180°)

SURFACE

Point Zero

DEPTH - FEET

-200

-400

-600

-750

IMP VEL 37.0 FPS

IMP VEL 17.1 FPS

IMP VEL 18.5 FPS

3 BOTTOM

150

100

50

RANGE - FEET

FOR ARCHIVES

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