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XRD-
103

CONFIDENTIAL
Security Information

⑨ BUREAU OF SHIPS GROUP
TECHNICAL INSPECTION REPORT

Classification (Cancelled) (Changed to Security Information)
By Authority of JOINT CHIEFS OF STAFF JCS 1795/36 DATED 15 APRIL 1949
By John H. Byette Date 23 SEP 1953

⑥ OPERATION CROSSROADS,
U.S.S. STACK (DD406).

⑧
TEST BAKER [U]

U. S. GOVERNMENT AGENCIES MAY OBTAIN COPIES OF THIS REPORT DIRECTLY
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Director
Defense Atomic Support Agency
Washington, D. C. 20301

⑪ 1947 ⑫ 35 p.

⑭ XRD-103

~~OPERATION CROSSROADS~~

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DIRECTOR OF SHIP MATERIAL

JOINT TASK FORCE ONE

SECRET

GROUP 3 1 JAN 1965
Downgraded at 12 year intervals;
Not automatically declassified.

REG. NO. 8253

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TECHNICAL INSPECTION REPORT**

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**Director
Defense Atomic Support Agency
Washington, D. C. 20301**

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Its transmission or the revelation of its contents in any
manner to an unauthorized person is prohibited by law.*

APPROVED:

**F.X. Forest,
Captain, U.S.N.**

SECRET

USS STACK (DD406)

Page 1 of 35 Pages

1 JAN 1965

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USS STACK (DD406)

U.S.S. STACK (DD406)

SHIP CHARACTERISTICS

Building Yard: Norfolk Naval Shipyard.

Commissioned: 20 November 1939.

HULL

Length Overall: 340 feet 9 inches.

Length on Waterline: 334 feet 0 inches.

Beam (extreme): 35 feet 6 inches.

Depth (molded at side, to main deck, amidships):
19 feet 7 7/8 inches.

Drafts at time of test: Fwd. 13 feet 2 inches.

Aft. 12 feet 9 inches.

Standard displacement: 1,500 tons.

Displacement at time of test: 2,280 tons.

MAIN PROPULSION PLANT

Main Engines: Two sets of Westinghouse turbines
are installed, one set per shaft.

Reduction Gears: Two sets of "westinghouse" double
reduction are installed, one per shaft.

Main Condensers: Two are installed in ship.

Boilers: three Babcock and Wilcox boilers are in-
stalled in ship. 565 psi. gauge - 705° F.

Propellers: Two are installed in ship.

Main Shafts: Two are installed.

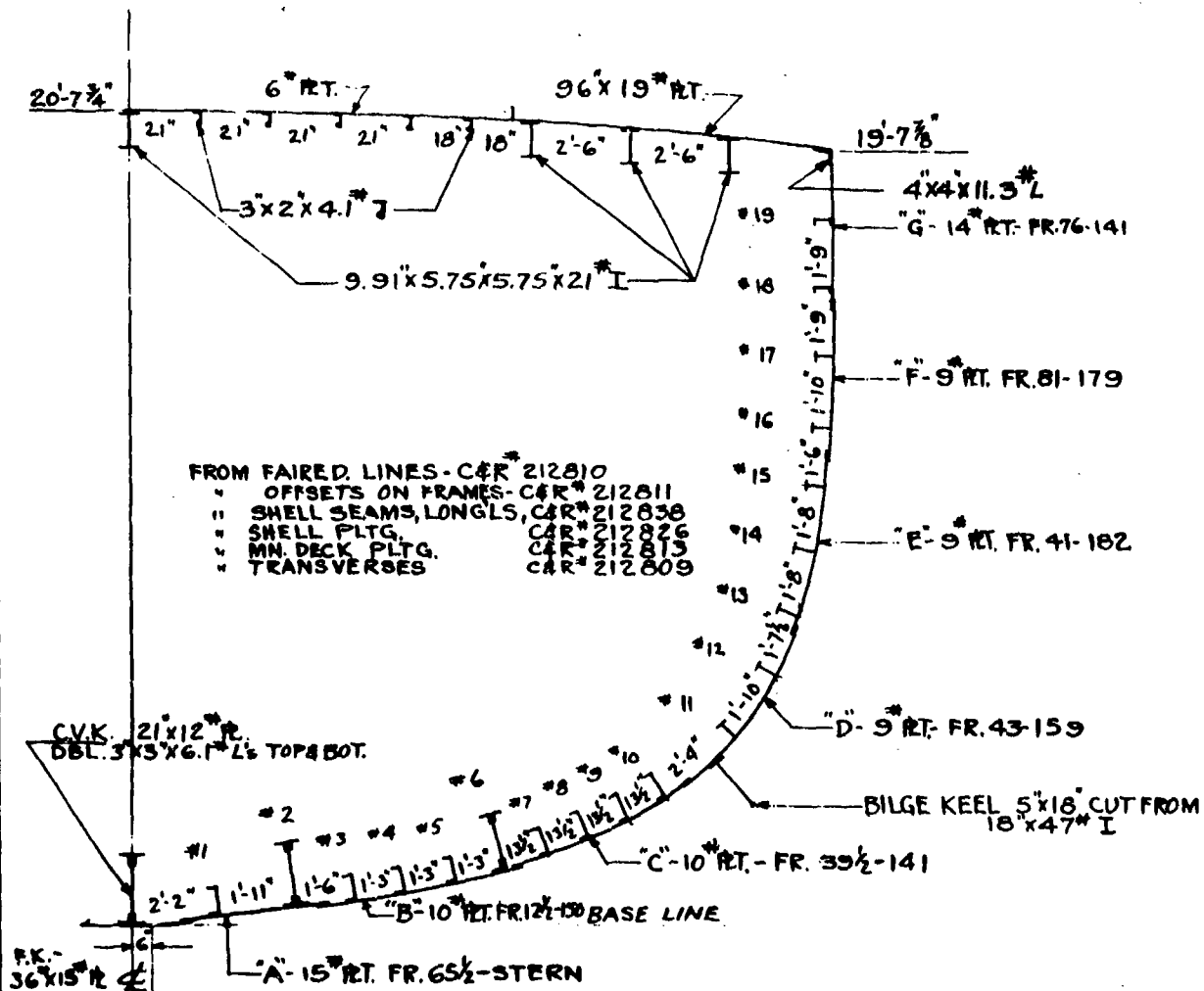
Ships Service Generators: Four are installed in ship
two 132 KW. - A.C., and two 40 KW. - D.C. sets.

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USS STACK (DD406)

LONG L 1-9x2 1/4x13.4 C
 " 2-19x7 RT 3x2x4.1 L
 " 3-4-5-6x2 1/4x11.5 C
 " 6-17x7 RT 3x2x4.1 L
 " 7-8-9-10-8x2 1/4x11.5 C
 " 11-12-13-14-6x3.06x5.87 T's
 " 15-16-17-5x2.69x4.48 T's
 " 18-19-5x1 1/4x1 1/4x6.7 C

7.65" WEB SPCD-7'-0"
 KEEL BKT. SPCD. - EVERY FRAME



MIDSHIP SECTION FR.96

TEST B

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TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

I. Target Condition After Test.

- (a) Drafts after test; list; general areas of flooding, sources.

list. There was no flooding, hence no change in drafts or

- (b) Structural damage. HULL

No apparent damage.

MACHINERY

No comment.

ELECTRICAL

No damage occurred affecting electrical equipment.

- (c) Other damage.

HULL

No comment.

MACHINERY

None, as far as could be determined by visual inspection.

ELECTRICAL

No damage to machinery, fire control, gunnery or electronics.

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USS STACK (DD406)

II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

No damage due to heat occurred.

(b) Fires and explosions.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

No fires or explosions occurred.

(c) Shock.

HULL

None.

MACHINERY

No evidence.

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USS STACK (DD406)

ELECTRICAL

No damage by shock occurred.

(d) Pressure.

HULL

No pressure effects were reported.

MACHINERY

No evidence.

ELECTRICAL

No damage by pressure occurred.

(e) Effects peculiar to the atomic bomb.

HULL

None, except radiological contamination.

MACHINERY

None.

ELECTRICAL

No effects apparent.

III. Results of Test on Target.

(a) Effect on machinery, electrical and ship control.

HULL

None.

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USS STACK (DD406)

MACHINERY

None, as far as could be determined from visual inspection. It was not practicable to operate any machinery or open it for interior inspection because of radioactivity, which was high when the ship was inspected 16 days after test B.

ELECTRICAL

No effect occurred electrically.

(b) Effect on gunnery and fire control.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

No effects occurred electrically.

(c) Effect on watertight integrity and stability.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

No effects occurred electrically.

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USS STACK (DD406)

(d) Effect on personnel and habitability.

HULL

None.

MACHINERY

None except radioactivity.

ELECTRICAL

No effects occurred electrically.

(e) Effect on fighting efficiency.

HULL

None, except for radiological contamination.

MACHINERY

None, except for possible effects of radioactivity.

ELECTRICAL

• No effects occurred electrically.

IV. General Summary of Observers' Impressions and Conclusions.

HULL

No comment.

MACHINERY

The STACK was outside the range of physical effects of the explosion during test B.

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ELECTRICAL

The distance of this ship from center of blast was too great for electrical failures.

V. Preliminary Recommendations.

HULL

No comment.

MACHINERY

None.

ELECTRICAL

None.

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USS STACK (DD406)

TECHNICAL INSPECTION REPORT

SECTION I - HULL

GENERAL SUMMARY OF HULL DAMAGE

I. Target Condition after Test.

- (a) Drafts after test; list; general areas of flooding, sources.

list. There was no flooding, hence no change in drafts or

- (b) Structural damage.

No apparent damage.

- (c) Other damage.

Not observed.

II. Forces Evidenced and Effects Noted.

- (a) Heat.

None.

- (b) Fires and explosions.

None.

- (c) Shock.

None.

- (d) Pressure.

No pressure effects were reported.

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- (e) Effects peculiar to the atomic bomb.

None, except radiological contamination.

III. Results of Test on Target.

- (a) Effect on machinery, electrical, and ship control.

None.

- (b) Effect on gunnery and fire control.

None.

- (c) Effect on watertight integrity and stability.

None.

- (d) Effect on personnel and habitability.

None.

- (e) Effect on fighting efficiency.

None, except for radiological contamination.

IV. General Summary.

No comment.

V. Preliminary Recommendations.

No comment.

VI. Instructions for loading the vessel specified the following:

ITEM	LOADING
Fuel oil	100%
Diesel oil	100%

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U.S.S. STACK (DD406)

Ammunition	100%
Potable and reserve feed water	95%
Salt water ballast	None

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report, submitted by the ship's force in accordance with "Instructions to Target Vessels for Tests and Observations by Ship's Force" issued by the Director of Ships Material. This report is available for inspection in the Bureau of Ships Crossroads Files.

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U.S.S. STACK (DD406)

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DETAILED DESCRIPTION OF HULL DAMAGE

A. General Description of Hull Damage.

No damage occurred to this ship as a result of test B.

B. Superstructure.

No damage.

C. Turrets, Guns and Directors.

No damage.

D. Torpedo Mounts, Depth Charge Gear.

No damage.

E. Weather Deck.

No damage.

F. Exterior Hull.

No damage.

G. Interior Compartments (Above Waterline).

No damage.

H. Armor Decks and Miscellaneous Armor.

Not applicable.

I. Interior Compartments (Below Waterline).

No damage.

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U.S.S. STACK (DD406)

J. Underwater Hull.

No damage.

K. Tanks.

No damage.

L. Flooding.

None.

M. Ventilation.

No damage.

N. Ship Control.

No damage.

O. Fire Control.

No damage.

P. Ammunition Behavior.

No damage.

Q. Ammunition Handling.

No damage.

R. Strength.

No damage.

S. Miscellaneous.

No comment.

SECRET

U.S.S. STACK (DD406)

TECHNICAL INSPECTION REPORT

SECTION II - MACHINERY

GENERAL SUMMARY OF MACHINERY DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

No comment.

(b) Structural damage.

No comment.

(c) Other damage.

None, as far as could be determined by visual inspection.

II. Forces Evidenced and Effects Noted.

(a) Heat.

No evidence.

(b) Fires and explosions.

No evidence.

(c) Shock.

No evidence.

(d) Pressure.

No evidence.

SECRET

USS STACK (DD406)

(e) Effects apparently peculiar to the atom bomb.

None.

III. Effects of Damage.

(a) Effect on machinery and ship control.

None, as far as could be determined from visual inspection. It was not practicable to operate any machinery or open it for interior inspection because of radioactivity, which was high when the ship was inspected 16 days after Test B.

(b) Effect on gunnery and fire control.

No comment.

(c) Effect on water-tight integrity and stability.

No comment.

(d) Effect on personnel and habitability.

None except radioactivity.

(e) Total effect on fighting efficiency.

None, except for possible effects of radioactivity.

IV. General Summary.

The STACK was outside the range of physical effects of the explosion during Test B.

V. Preliminary Recommendation.

None.

SECRET

USS STACK (DD406)

DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

(a) Overall condition.

The overall condition of the machinery was not changed by Test B.

(b) Areas of major damage.

None.

(c) Primary cause of damage in each area of major damage.

Not applicable.

(d) Effect of target test on overall operation of machinery plant.

The test did not affect the overall operation of the machinery plant, as far as can be determined by visual inspection.

NOTE: Because of radiological hazard, no machinery on this vessel was operated after Test B.

B. Bollers.

No apparent damage.

C. Blowers.

The blowers are apparently undamaged. The rotors were turned freely by hand.

D. Fuel Oil Equipment.

No apparent damage.

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USS STACK (DD406)

E. Boiler Feedwater Equipment.

No apparent damage.

F. Main Propulsion Machinery.

The turbines appear to be undamaged, insofar as can be determined by visual inspection.

G. Reduction Gears.

No apparent damage.

H. Shafting and Bearings.

No apparent damage.

I. Lubrication System.

No apparent damage.

J. Condensers and Air Ejectors.

No apparent damage.

K. Pumps.

No apparent damage.

L. Auxiliary Generators (Turbines and Gears).

No apparent damage.

M. Propellers.

Propellers were not inspected as they were not visible from the surface of the water. However, in view of the condition of the ship as a whole, they are believed to be undamaged.

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USS STACK (DD406)

N. Distilling Plant.

No apparent damage.

O. Refrigeration Plant.

No apparent damage.

P. Winches, Windlasses, and Capstans.

No apparent damage.

Q. Steering Engine.

No apparent damage.

R. Elevators, Ammunition Hoists, etc.

No apparent damage.

S. Ventilation (Machinery).

No apparent damage.

T. Compressed Air Plant.

No apparent damage.

U. Diesels (Generators and Boats).

No apparent damage. The generator could not be tested as the starting batteries had been removed before Test B.

V. Piping Systems.

No apparent damage.

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USS STACK (DD406)

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W. Miscellaneous.

There were no signs of damage to the following miscellaneous items:

Messing Machinery (S-26)

Messing Equipment (S-34)

Laundry Equipment (S-35)

Machine shop equipment (S-91)

SECRET

USS STACK (DD406)

TECHNICAL INSPECTION REPORT

SECTION III - ELECTRICAL

GENERAL SUMMARY OF ELECTRICAL DAMAGE

I. Target Condition After Test.

- (a) Drafts after test; list; general areas of flooding, sources.

Not noted by electrical staff.

- (b) Structural damage.

No damage occurred affecting electrical equipment.

- (c) Other damage.

No damage to machinery, fire control, gunnery or electronics.

II. Forces Evidenced and Effects Noted.

- (a) Heat.

No damage due to heat occurred.

- (b) Fires and explosions.

No fires or explosions occurred.

- (c) Shock.

No damage by shock occurred.

- (d) Pressure.

No damage by pressure occurred.

SECRET

USS STACK (DD406)

- (e) Any effects apparently peculiar to the atom bomb.

No effects apparent.

III. Effects of Damage.

- (a) Effect on propulsion and ship control.

No effects occurred electrically.

- (b) Effect on gunnery and fire control.

No effects occurred electrically.

- (c) Effect on water-tight integrity and stability.

No effects occurred electrically.

- (d) Effect on personnel and habitability.

No effects occurred electrically.

- (e) Total effect on fighting efficiency.

No effects occurred electrically.

IV. General Summary of Observers' Impressions and Conclusions.

The distance of this ship from center of blast was too great for electrical failures.

V. Any Preliminary General or Specific Recommendations of the Inspecting Group.

None.

SECRET

USS STACK (DD406)

DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

A. General Description of Electrical Damage.

(a) Overall condition.

Very slight damage occurred to the 36" searchlight train circuit.

(b) Areas of major damage.

No major damage occurred.

(c) Primary causes of damage in each area of major damage.

None.

(d) Effect of target test on overall operation of electric plant.

No effect occurred other than that the 36" searchlight would not train electrically. There is a possibility that the cause of this was the salt water force used for decontamination.

(e) Types of equipment most affected.

No equipment other than 36" searchlight affected.

B. Electric Propulsion Rotating Equipment.

Not Applicable.

C. Electric Propulsion Control Equipment.

Not Applicable.

D. Generators - Ships Service.

No damage.

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USS STACK (DD406)

E. Generators - Emergency.

No damage.

F. Switchboards, Distribution and Transfer Panels.

No damage.

G. Wiring, Wiring Equipment and Wireways.

No damage.

H. Transformers.

No damage.

I. Submarine Propelling Batteries.

No damage.

J. Portable Batteries.

No damage.

K. Motors, Motor Generator Sets and Motor Controllers.

No damage.

L. Lighting Equipment.

No damage.

M. Searchlights.

The 36" searchlight would not train. It is believed that the salt water force in decontamination was the cause of this damage.

N. Degaussing Equipment.

No damage.

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USS STACK (DD406)

O. Gyro Compass Equipment.

No damage.

P. Sound Powered Telephones.

No damage.

Q. Ship's Service Telephones.

Not Applicable.

R. Announcing Systems.

No damage.

S. Telegraphs.

No damage.

T. Indicating Systems.

No damage.

U. I.C. and A.C.O. Switchboards.

No damage.

V. F.C. Switchboards.

No damage.

W. Miscellaneous.

No comment.

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USS STACK (DD406)

SECTION IV

PHOTOGRAPHS

TEST BAKER

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USS STACK (DD406)



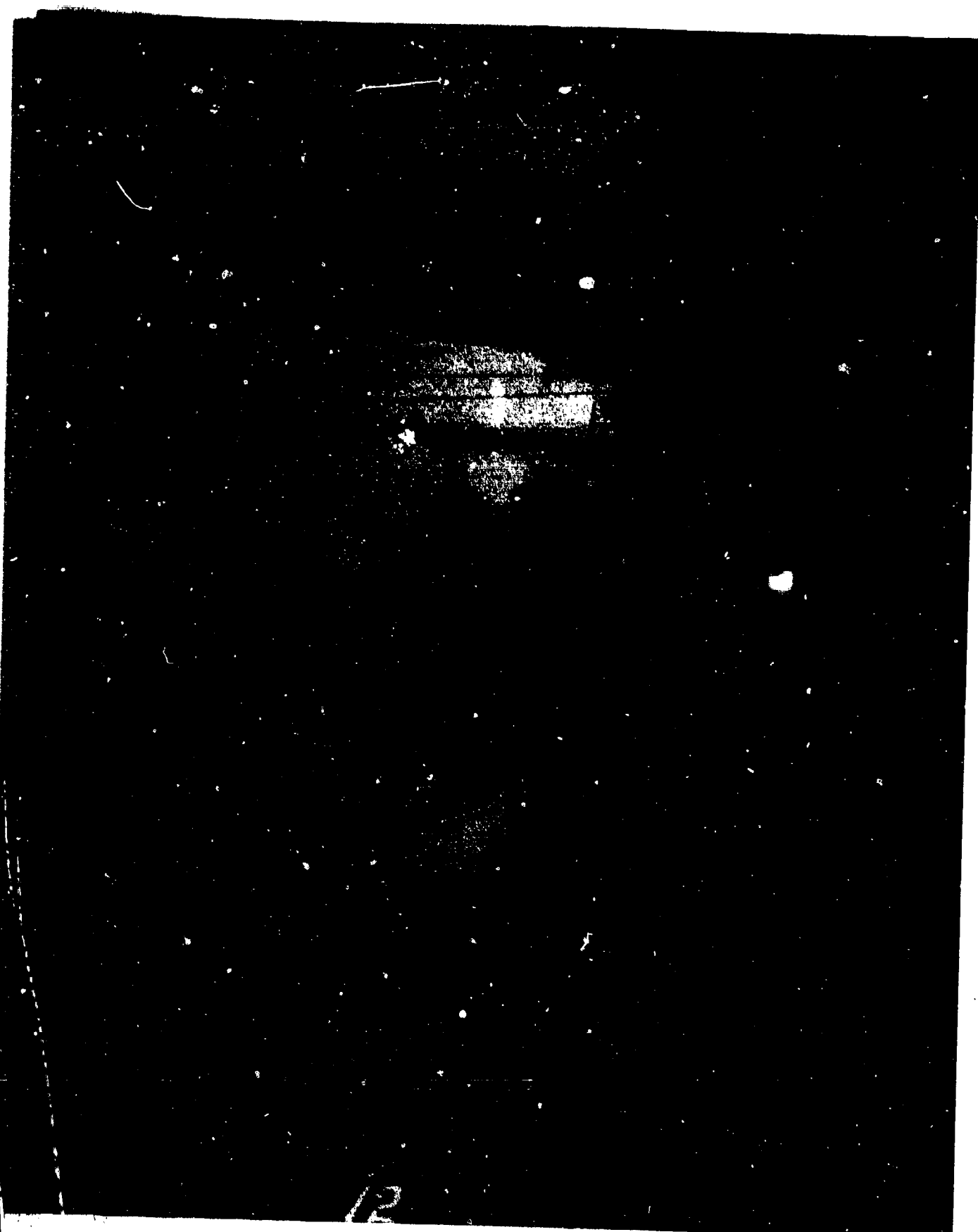
AA-CR-59-4002-10. View from off port bow.

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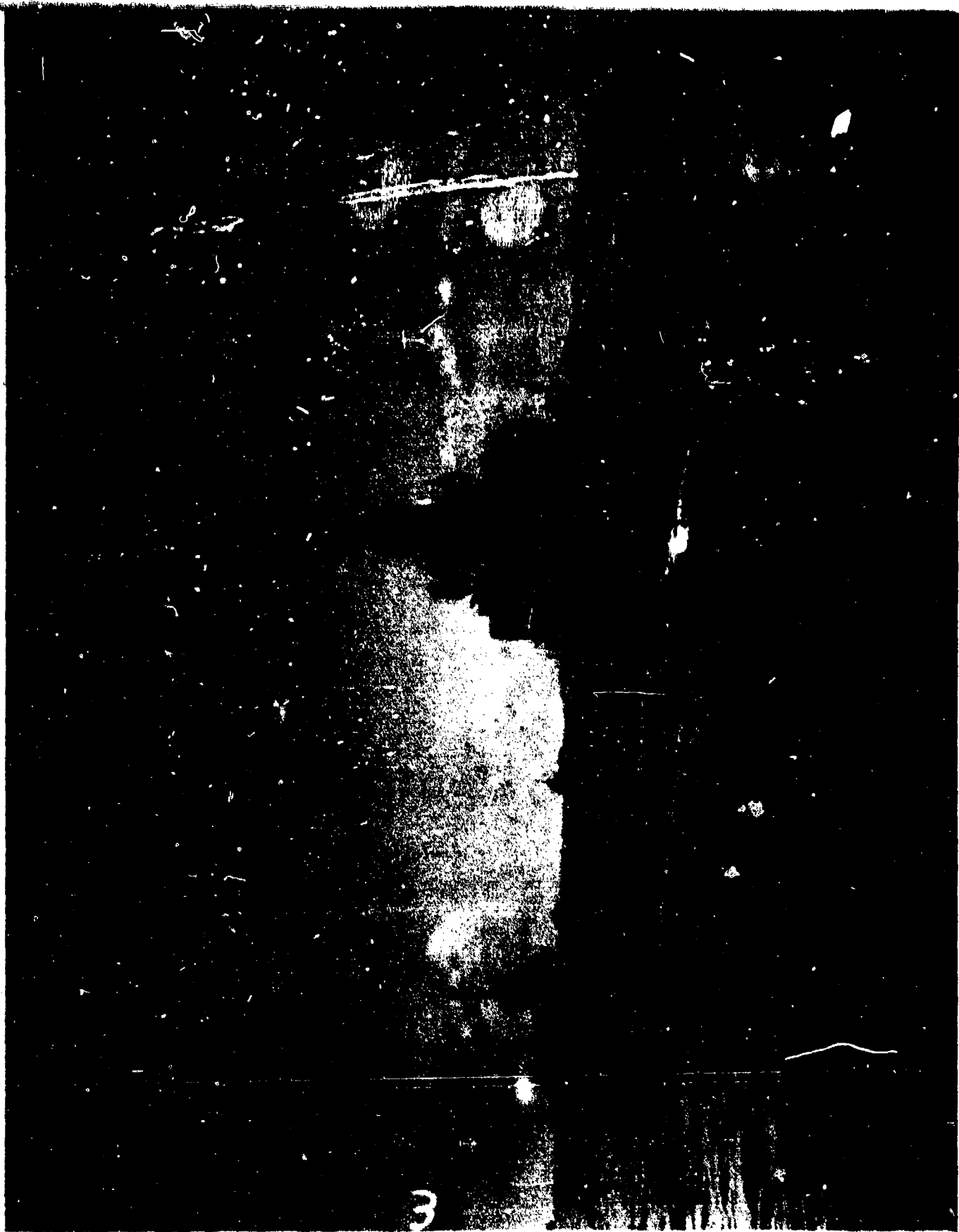
AB-CR-59-4002-12. View from off port beam, No. 1 mount to stack.

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AB-CR-59-4003-3. View from astern.

SECRET

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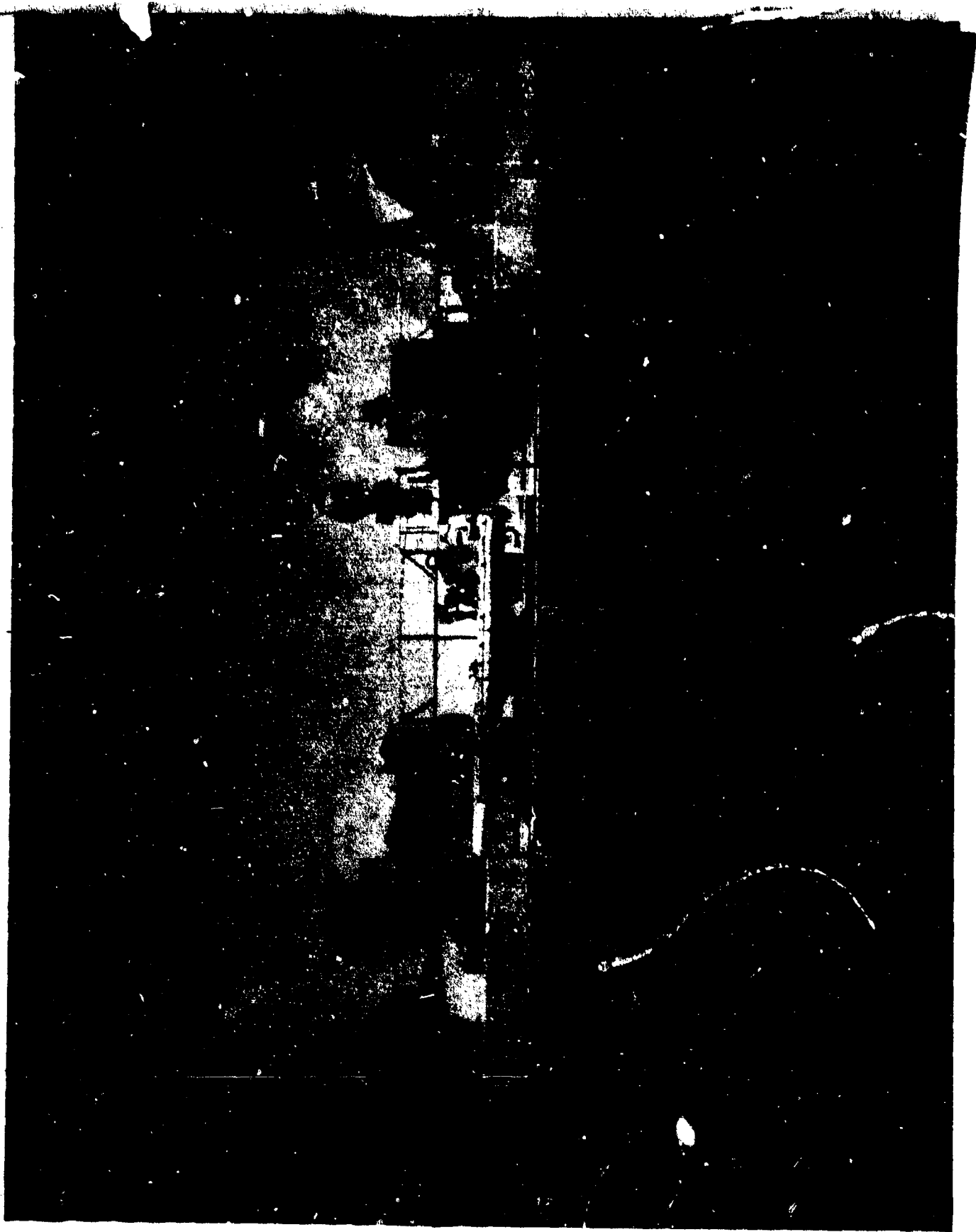
AB-CR-59-4003-4. View from off starboard quarter.

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AB-CR-59-4003-7. View from off starboard beam, frames 80 to 134

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AB-CR-59-4003-8. View from off starboard bow, stern to frame 100.

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APPENDIX

COMMANDING OFFICERS REPORT

TEST BAKER

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USS STACK (DD406)

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REPORT # 5

COMMANDING OFFICERS REPORT

SECTION I

There is no visible physical major damage to report. Due to radioactive water descending upon the ship in the form of spray or fog, and the radio activity reported in the waters of the lagoon in which the ship was anchored, special radiological examination by the technical staff of the Director of Ships Material is requested.

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USS STACK (DD406)

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Defense Special Weapons Agency
6801 Telegraph Road
Alexandria, Virginia 22310-3398

TRC

18 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER
ATTENTION: OMI/Mr. William Bush (Security)

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency has declassified the following reports:

✓AD-366588 4	XRD-203-Section 12✓
AD-366589 L	XRD-200-Section 9
AD-366590 L	XRD-204-Section 13
AD-366591 L	XRD-183
✓AD-366586 X	XRD-201-Section 10✓
✓AD-367487 X	XRD-131-Volume 2✓
✓AD-367516 4	XRD- 1 143✓
✓AD-367493 X	XRD-142✓
AD-801410L✓	XRD-138
AD-376831L✓	XRD-83
AD-366759 L	XRD-80
✓AD-376830L X	XRD-79✓
✓AD-376828L 4	XRD-76✓
✓AD-367464 X	XRD-106✓
AD-801404L✓	XRD-105-Volume 1
✓AD-367459 X	XRD-100✓

TRC

18 April 1997

Subject: Declassification of Report

AD-376836L ✓	XRD-98
AD-376835L ✓	XRD-97
AD-376834L ✓	XRD-96
AD-376833L ✓	XRD-95
X AD-376832L ✓	XRD-94 <i>re-ingest</i>
✓ AD-367458 ✕	XRD-93 ✓
AD-367457 ✓	XRD-92-Volume 2
AD-367456 ✓	XRD-91-Volume 1
AD-367455 ✓	XRD-90
AD-367454 ✓	XRD-89
AD-367453 ✓	XRD-88
AD-367452 ✓	XRD-87
AD-366764 ✓	XRD-86
AD-376837L ✓	XRD-99
AD-366758 ✓	XRD-78
AD-366734 ✓	XRD-44
AD-366763 ✓	XRD-85
AD-376829L ✓	XRD-77
AD-367462 ✕	XRD-103 ✓
AD-367463 ✕	XRD-104 ✓
AD-367461 ✕	XRD-102 ✓
AD-367460 ✓	XRD-101

TRC

18 April 1997

Subject: Declassification of Reports

AD-801406L ✓ XRD-114.

In addition, all of the cited reports are now **approved for public release; distribution statement "A" now applies.**

Arldith Jarrett
ARDITH JARRETT
Chief, Technical Resource Center