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CONFIDENTIAL
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BUREAU OF SHIPS
TECHNICAL INSPECTION REPORT

Classification (Cancelled) (Changed to Security Information)
By Authority of **JOINT CHIEFS OF STAFF JCS 1795/36 DATED 16 APRIL 1949**
By *John H. Meyette* Date **24 SEP 1953**

OPERATION CROSSROADS.
U.S.S. LST 52.
TEST BAKER [U.S.]

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

- ① 1947,
- ② 31p.
- ④ XRD-137

OPERATION CROSSROADS

DIRECTOR OF SHIP MATERIAL DDC

JOINT TASK FORCE ONE

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BUREAU OF SHIPS GROUP
TECHNICAL INSPECTION REPORT

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

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APPROVED:

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

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USS LST 52

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USS LST 52

U.S.S. LST 52

SHIP CHARACTERISTICS

Building Yard: Dravo Corp.; Neville Island, Penna.

Commissioned: 27 November 1943.

HULL

Length Overall: 328 feet 0 inches.

Length on Waterline: 316 feet 0 inches.

Beam (extreme): 50 feet 0 inches.

Drafts at time of test: Fwd. 4 feet 4 inches.

Aft. 10 feet 10 inches.

Limiting displacement: 4,080 tons.

Displacement at time of test: 2,648 tons.

MAIN PROPULSION PLANT

Main Engines: Two General Motors Diesels, type:
12 - 567 A. One per main shaft.

Reduction Gears: "Falk" - Single reduction. One
per engine.

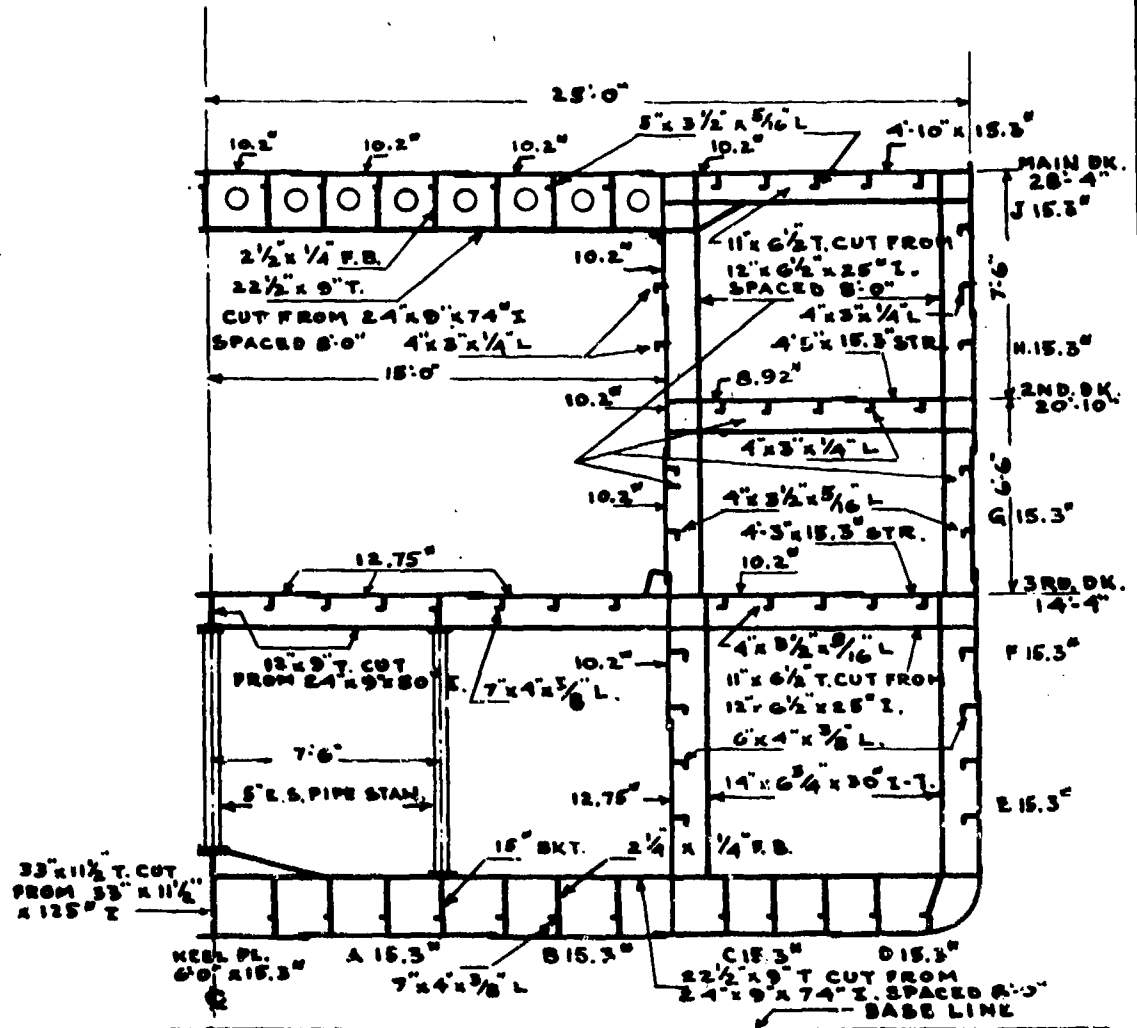
Propellers: Two are installed in ship.

Main Shafts: Two are installed in ship.

Ships Service Generators: Three - 100 KW. - 230
volt, D.C. units are installed.

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USS LST 52



MIDSHIP SECTION
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.

There was no flooding, hence no change in drafts or list. When the ship was inspected 19 days after the test, the main auxiliary machinery spaces contained about 12 inches of water. This is considered normal leakage.

(b) Structural damage.

HULL

The main deck has apparently suffered additional damage in the area surrounding the elevator. There is some deflection of the main deck and slight distortion of the girder brackets.

MACHINERY

No comment.

ELECTRICAL

No structural damage occurred to effect the electrical plant.

(c) Other damage.

HULL

Not observed.

MACHINERY

There was no damage to the machinery of LST 52 during Test B, insofar as can be determined by visual inspection. It was not practicable to operate machinery on this vessel after Test B be-

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USS LST 52

cause of radioactivity, which was high when the ship was inspected 19 days after Test B.

ELECTRICAL

No damage occurred.

II. Forces evidenced and effects noted.

(a) Heat.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

No heat was evident.

(b) Fires and explosions.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

No fires or explosions occurred.

(c) Shock.

HULL

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USS LST 52

broken. The only evidence of shock is that a few light bulbs are

MACHINERY

No evidence.

ELECTRICAL

No damage occurred.

(d) Pressure

HULL

About two-thirds of the hatch boards over the cargo hatch were displaced and fell to the main deck.

MACHINERY

No evidence.

ELECTRICAL

No damage occurred.

(e) Effects peculiar to the Atomic Bomb.

HULL

The only effects peculiar to the atom bomb are radioactivity and wave phenomena.

MACHINERY

None.

ELECTRICAL

No effects noted other than radioactivity.

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USS LST 52

III. Results of Test on Target.

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

HULL

Not observed.

MACHINERY

None, insofar as can be determined by visual inspection.

ELECTRICAL

No effect was noted.

- (b) Effect on gunnery and fire control.

HULL

Not observed.

MACHINERY

No comment.

ELECTRICAL

No effect occurred.

- (c) Effect on watertight integrity and stability.

HULL

None.

MACHINERY

No comment.

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USS LST 52

ELECTRICAL

No effect occurred.

- (d) Effect on personnel and habitability.

HULL

None.

MACHINERY

None, except for possible effects of radioactivity.

ELECTRICAL

No effect occurred.

- (e) Effect on fighting efficiency.

HULL

The only effect on fighting efficiency would have been resulting from radiological conditions.

MACHINERY

None, except for possible effects of radioactivity.

ELECTRICAL

No effect occurred.

IV. Summary of Observer's Impressions and Conclusions.

HULL

No comment.

MACHINERY

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USS LST 52

LST 52 was outside the range of mechanical damage to machinery from the explosion of Test B.

ELECTRICAL

This ship was located too great a distance from the subsurface blast to suffer any damage to the electrical equipment.

V. Preliminary Recommendations.

HULL

None.

MACHINERY

None.

ELECTRICAL

None.

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USS LST 52

• 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.

There was no flooding, hence no change in drafts or list. When the ship was inspected 19 days after the test, the main and auxiliary machinery spaces contained about 12 inches of water. This is considered normal leakage.

- (b) Structural damage.

The main deck has apparently suffered additional damage in the area surrounding the elevator. There is some deflection of the main deck and slight distortion of the grider brackets.

- (c) Other damage.

Not observed.

II. Forces Evidenced and Effects Noted.

- (a) Heat.

None.

- (b) Fires and explosions.

None.

- (c) Shock.

The only evidence of shock is that a few light bulbs are broken.

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U. S. S. LST 52

(d) Pressure.

About two-thirds of the hatch boards over the cargo hatch were displaced and fell to the main deck.

(e) Effects peculiar to the Atomic Bomb.

The only effects peculiar to the Atom Bomb are radioactivity and wave phenomena.

III. Results of Test on Target.

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

Not observed.

(b) Effect on gunnery and fire control.

Not observed.

(c) Effect on watertight integrity and stability.

None.

(d) Effect on personnel and habitability.

None.

(e) Effect on fighting efficiency.

The only effect on fighting efficiency would have been resulting from radiological conditions.

IV. Summary of Observer's Impressions and Conclusions.

No comment.

V. Preliminary Recommendations.

None.

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U. S. S. LST 52

VI. Instructions for Loading the Vessel Specified the Following:

ITEM	LOADING
Fuel oil	Minimum
Diesel oil	Minimum
Ammunition	10%
Potable and reserve feed water	No restriction
Salt water ballast.	1210

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. LST 52

DETAILED DESCRIPTION OF HULL DAMAGE

A. General Description of Hull Damage.

The only damage is that to the main deck in way of the forward hatch opening. General views of the ship are on pages 28 and 29.

B. Superstructure.

No damage.

C. Turrets, Guns and Directors.

No damage.

D. Torpedo Mounts, Depth Charge Gear.

Not applicable.

E. Weather Deck.

The main deck suffered slight deflection in way of the forward hatch. Deflection scratch gages indicate about two inch deflection at the centerline. This is accompanied by distortion of the girder bracket connections. There is no other damage.

F. Exterior Hull.

No damage.

G. Interior Compartments (Above Waterline).

No damage.

H. Armor Decks and Miscellaneous Armor.

Not applicable.

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U. S. S. LST 52

I. Interior Compartments (Below Waterline).

No damage.

J. Underwater Hull.

No damage.

K. Tanks.

No damage.

L. Flooding.

None.

M. Ventilations.

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.

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S. Miscellaneous.

No comment.

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U. S. S. LST 52

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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 data taken by machinery group.

- (b) Structural damage.

No comment.

- (c) Other damage.

There was no damage to the machinery of LST-52 during Test B, insofar as can be determined by visual inspection. It was not practicable to operate machinery on this vessel after Test B because of radioactivity, which was high when the ship was inspected 19 days after Test B.

II. Forces Evidenced and Effects Noted.

- (a) Heat.

No evidence.

- (b) Fires and explosions.

No evidence.

- (c) Shock.

No evidence.

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USS LST 52

(d) Pressure.

No evidence.

(e) Effects apparently peculiar to the atom bomb.

None.

III. . Effects of Damage.

(a) Effect on machinery and ship control.

None, insofar as can be determined by visual inspection.

(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 for possible effects of radioactivity.

(e) Total effect on fighting efficiency.

None, except for possible effects of radioactivity.

IV. General Summary.

LST-52 was outside the range of mechanical damage to machinery from the explosion of Test B.

V. Preliminary Recommendation.

None.

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USS LST 52

DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

(a) Overall condition.

The overall condition of the machinery of this vessel was not changed by Test B, insofar as can be determined by visual inspection.

(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 had no effect upon the overall operation of the machinery plant.

NOTE: No machinery on this vessel was operated after Test B.

B. Boilers.

No apparent damage.

C. Blowers.

No apparent damage.

D. Fuel Oil Equipment.

No apparent damage.

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USS LST 52

- E. Boiler Feedwater Equipment.
No apparent damage.
- F. Main Propulsion Machinery.
No apparent damage.
- G. Reduction Gears.
No apparent damage.
- H. Shafting and Bearings.
No apparent damage.
- I. Lubrication System.
No apparent damage.
- J. Condensers and Air Ejectors.
Not Applicable.
- K. Pumps.
No apparent damage.
- L. Auxiliary Generators (Turblines and Gears).
Not Applicable.
- M. Propellers.
Not inspected. There is no reason to believe that the propellers were damaged.
- N. Distilling Plant.
No apparent damage.

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USS LST 52

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..

The tank deck elevator was inoperable before Test B. Its condition was not changed by the test.

S. Ventilation (Machinery).

No apparent damage.

T. Compressed Air Plant.

No apparent damage.

U. Diesels (Generators and Boats).

No apparent damage to diesel generators. No boats were aboard.

V. Piping Systems.

No apparent damage.

W. Miscellaneous.

No apparent damage.

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USS LST 52

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.

Draft forward 4'9", aft 11'0". No flooding occurred.

(b) Structural damage.

No structural damage occurred to effect the electrical plant.

(c) Other damage.

No damage occurred.

II. Forces Evidenced and Effects Noted.

(a) Heat.

No heat was evident.

(b) Fires and explosions.

No fires or explosions occurred.

(c) Shock.

No damage occurred.

(d) Pressure.

No damage occurred.

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USS LST52

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

No effects noted other than radioactivity.

III. Effects of Damage.

- (a) Effect on propulsion and ship control.

No effect was noted.

- (b) Effect on gunnery and fire control.

No effect occurred.

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

No effect occurred.

- (d) Effect on personnel and habitability.

No effect occurred.

- (e) Total effect on fighting efficiency.

No effect occurred.

IV. General Summary of Observers' Impressions and Conclusions.

This ship was located too great a distance from the subsurface blast to suffer any damage to the electrical equipment.

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

None.

SECRET

USS LST52

DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

A. General Description of Electrical Damage.

(a) Overall condition.

The electrical plant is the same as before Test B.

(b) Areas of major damage.

No electrical damage occurred.

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

No electrical damage occurred.

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

No effect occurred.

(e) Types of equipment most affected.

No equipment was affected.

B. Electric Propulsion Rotating Equipment.

Not applicable.

C. Electric Propulsion Control Equipment.

Not applicable.

D. Generators - Ship's Service.

No damage.

E. Generators - Emergency.

Not applicable.

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USS LST 52

F. Switchboards, Distribution and Transfer Panels.

No damage.

G. Wiring, Wiring Equipment and Wireways.

No damage.

H. Transformers.

Not Applicable.

I. Submarine Propelling Batteries.

Not Applicable.

J. Portable Batteries.

No damage.

K. Motors, Motor Generator Sets and Motor Controllers.

No damage.

L. Lighting Equipment.

No damage.

M. Searchlights.

No damage.

N. Degaussing Equipment.

No damage.

O. Gyro Compass Equipment.

No damage.

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USS LST52

P. Sound Powered Telephones.

No damage.

Q. Ship's Service Telephones.

No damage.

R. Announcing Systems.

No damage.

S. Telegraphs.

No damage.

T. Indicating Systems.

No damage.

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

Not Applicable.

V. F.C. Switchboard.

Not Applicable.

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USS LST52

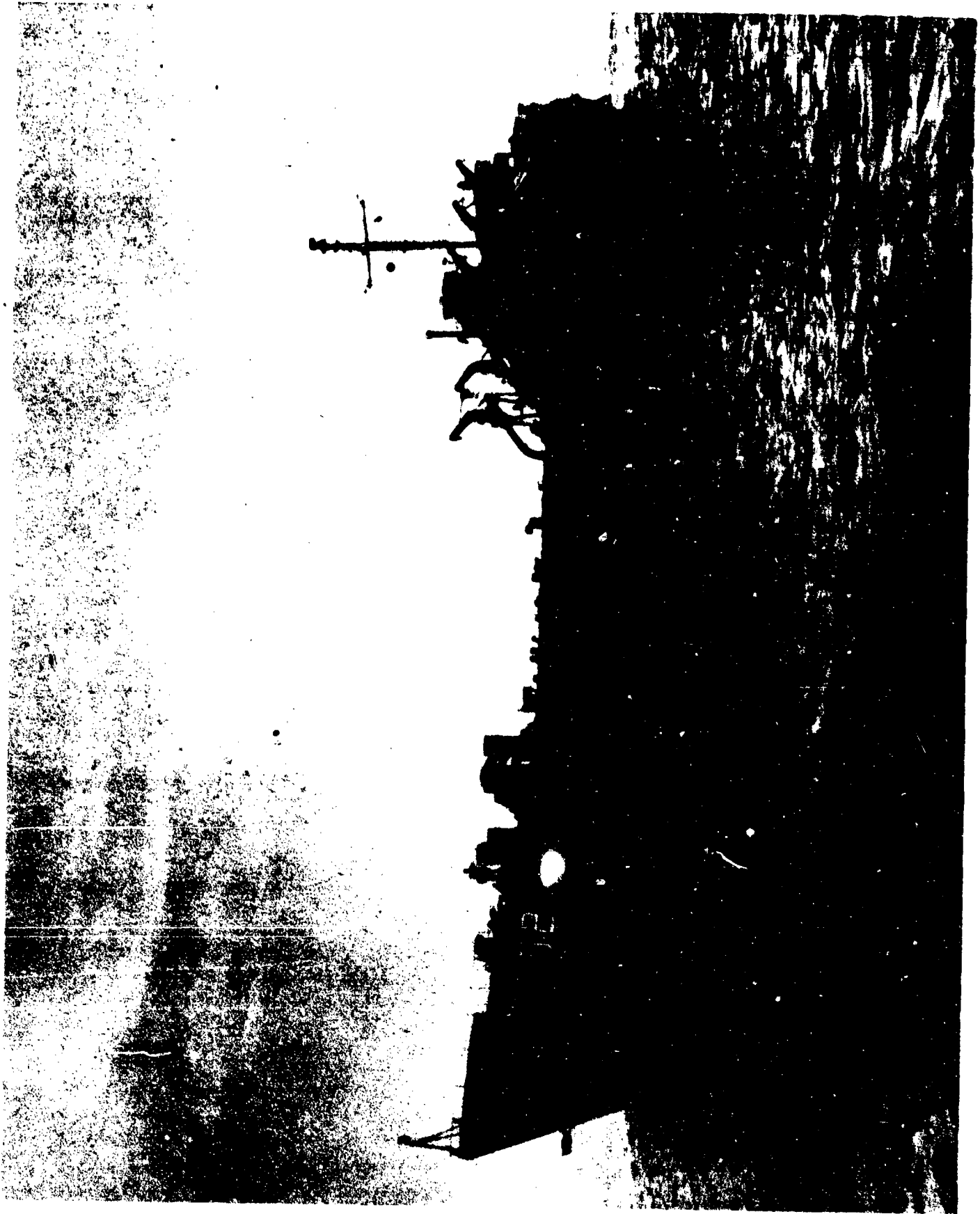
SECTION IV

PHOTOGRAPHS

TEST BAKER

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USS LST 52



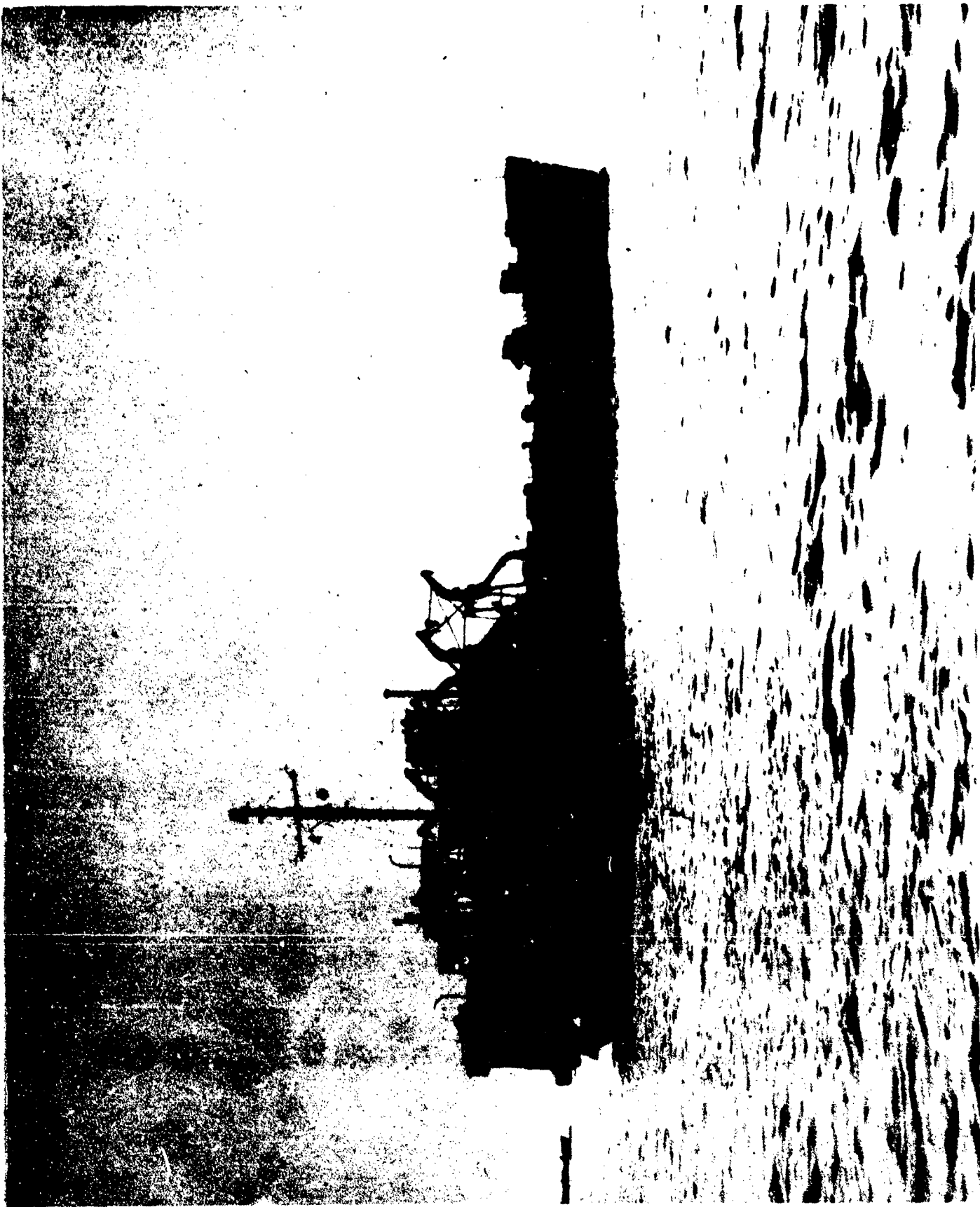
AB-CR-227-289-151. View from off port bow after Test A.

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AB-CR-227-289-147. View from off starboard quarter after Test A.

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APPENDIX

COMMANDING OFFICERS REPORT

TEST BAKER

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USS LST 52

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COMMANDING OFFICERS REPORT

REPORT # 5

SECTION - 1

Due to the very short period I was allowed to be aboard my ship to inspect. There appeared to be no added damage to the hull of ship's structure than has been previously reported after Test A.

All machinery seemed to be intact as far as could be determined, no machinery was tested due to batteries being runned down.

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USS LST 52



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 4	XRD-131-Volume 2 L
✓AD-367516 4	XRD- 1 143✓
✓AD-367493 4	XRD-142✓
AD-801410L✓	XRD-138
AD-376831L✓	XRD-83
AD-366759 L	XRD-80
✓AD-376830L 4	XRD-79✓
✓AD-376828L 4	XRD-76✓
✓AD-367464 X	XRD-106✓
AD-801404L✓	XRD-105-Volume 1
✓AD-367459 X	XRD-100✓

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18 April 1997

Subject: Declassification of Reports

✓AD-367517✗	XRD-141 ✓
AD-366762✓	XRD-84
AD-366760✓	XRD-81
AD-366761✓	XRD-82
AD-367501✓	XRD-158-Volume 1
AD-367507L ✓	XRD-152-Volume 4
✓AD-367495 ✗	XRD-184 ✓
✓AD-367485 ✗	XRD-129 ✓
✓AD-367484 ✗	XRD-128 ✓
✓AD-367483 ✗	XRD-127 ✓
✓AD-367482 ✗	XRD-126 ✓
AD-367488 ✓	XRD-132
✓AD-367480 ✗	XRD-124 ✓
AD-801409L ✓	XRD-135
✓AD-367490 ✗	XRD-136 ✓
AD-367492 ✗	XRD-137 ✓
AD-801411L ✓	XRD-139
AD-367518 ✗	XRD-140 ✓
AD-367515 ✓	XRD-144
AD-367514 ✓	XRD-145
AD-367468 ✗	XRD-110-Volume 2 ✓
AD-367513 ✓	XRD-146
AD-367497 ✗	XRD-162 ✓

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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.**

Arduith Jarrett
ARDITH JARRETT
Chief, Technical Resource Center