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BUREAU OF SHIPS GR[redacted]

TECHNICAL INSPECTION REP[redacted]T.

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

3667749

U.S.S. CORTLAND (APA 75)

TEST ABLE [U] (8)

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

CONFIDENTIAL
Security Information

(6) OPERATION CROSSROADS.

DIRECTOR OF SHIP MATERIAL

JOINT TASK FORCE ONE

(11) 1947, (12) 50p. (14) XRD-66

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CONFIDENTIAL

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BUREAU OF SHIPS GROUP

TECHNICAL INSPECTION REPORT

[redacted]

[redacted]

Defense Atomic Support Agency
Washington, D. C. 20301

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APPROVED:

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

[redacted]

U.S.S. CORTLAND (APA75)

Page 1 of 50 Pages

CONFIDENTIAL

GROUP-3
Downgraded at 12 year intervals;
Not automatically declassified.

1 JAN 1965

TABLE OF CONTENTS

U.S.S. CORTLAND (APA 75)

SHIP CHARACTERISTICS

Building Yard: Consolidated Steel Corp.; Wilmington, California.

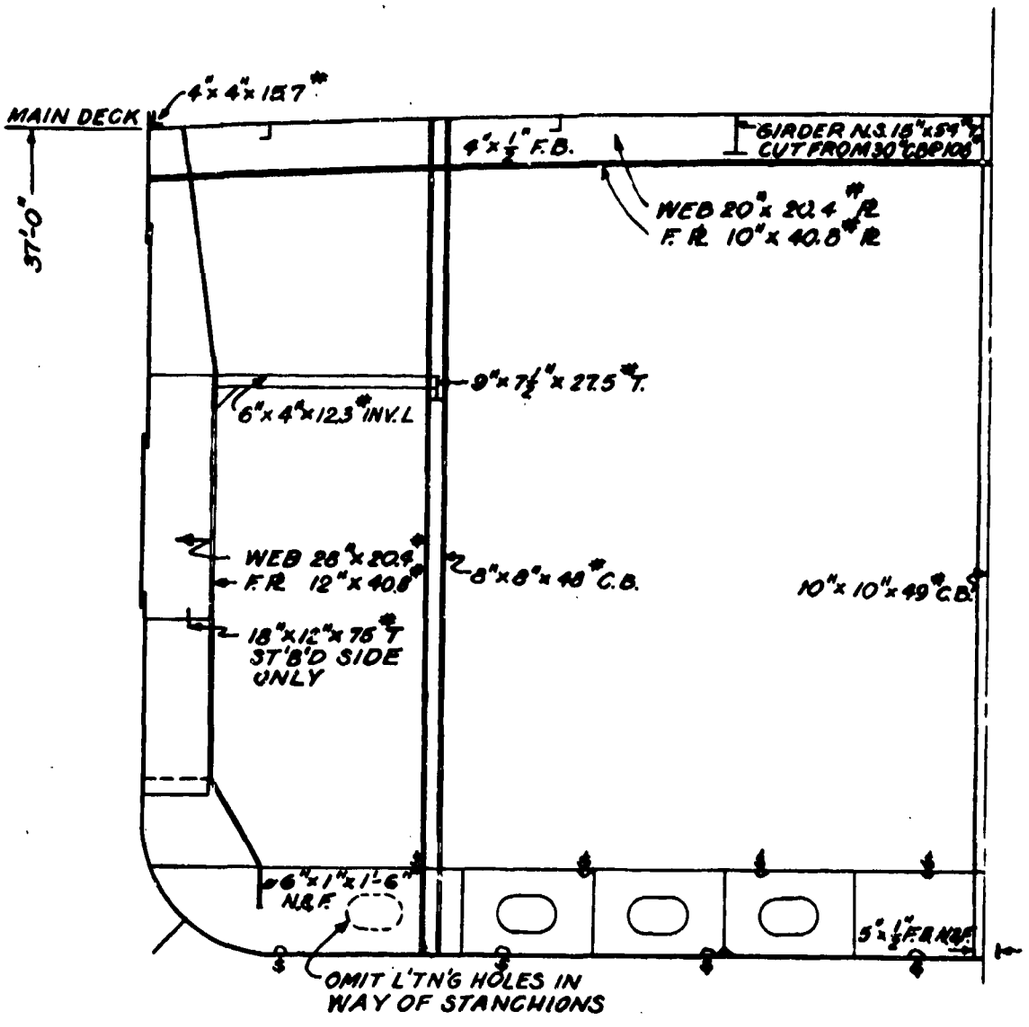
Commissioned: 1 January 1945.

HULL

Length Overall: 426 feet 0 inches.
Length on Waterline: 400 feet 0 inches.
Beam (extreme): 58 feet 0 inches.
Depth (molded to upper deck): 37 feet 0 inches.
Drafts at time of test: Fwd. 9 feet 6 inches.
Aft. 18 feet 6 inches.
Limiting displacement: 7,080 tons.
Displacement at time of test: 6,132 tons.

MAIN PROPULSION PLANT

Main Engines: Two sets of Westinghouse steam turbines, directly connected to Westinghouse main generators. Two main shaft motors.
Main Condensers: Two are installed in ship.
Boilers: Two Babcock and Wilcox boilers are installed in ship. 450 psi gauge - 750° F.
Propellers: Two are installed in ship.
Main Shafts: Two are installed in ship.
Ships Service Generators: Five are installed in ship.
Two - 250 KW. - 450 V. - A.C.
One - 150 KW. - 450 V. - A.C.
Two - 100 KW. - 120/240 V. - D.C.



FRAME 76 LOOKING AFT

MIDSHIP SECTION

TEST A

TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

I. Target Condition After Test.

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

HULL

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

MACHINERY

No data taken by machinery group.

ELECTRICAL

The drafts and list were not observed. No flooding occurred.

(b) Structural damage.

HULL

The only structural damage consists of distortion of the deckhouse side and deck plating on the upper and superstructure decks, frames 70, to 90, port. This damage was caused by fire.

MACHINERY

No comment.

ELECTRICAL

There was no structural damage noted that affected electrical equipment.

(c) Other damage.

HULL

Not observed.

MACHINERY

A fire burned up two boats nested at frame 60 port, main deck. The fire damaged the motor of No. 2 davit. There is no other damage to machinery.

ELECTRICAL

Electrical damage as follows occurred as a result of fire:

1. Cable supplying general lighting in officer's wardroom had its insulation burned off.

2. Cable supplying power to two bracket fans, one in the wardroom and one in the officer's stateroom on the deck above had their insulation burned off. The fans were destroyed.

3. Cable to 1MC general announcing reproducer in the wardroom had its insulation burned off. The reproducer was also burned and rendered inoperable.

4. Insulation burned off the cable to the davit limit switch.

5. Three lighting fixtures, one in a stateroom and two in the wardroom, were destroyed by the fire. One lighting circuit junction box in the stateroom was destroyed.

II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL

Heat from about 270 degrees relativ caused extensive scorching of exposed cordage but practically no damage to paint. Faint signs of blistering were found on the forward stack.

MACHINERY

Paint on the exposed side of deck machinery was scorched.

ELECTRICAL

There was slight evidence of radiant heat on the port side forward. This heat caused no damage to electrical equipment. Radiant heat probably started the boat fire which damaged electrical equipment as a secondary effect.

(b) Fires and explosions.

HULL

Fire damage was extensive, destroying two LCVP's, warping adjacent structural plating, darkening paint in compartments, rendering useless an electrical junction box, and hatch tarpaulins for #1 and #2 hatches.

It is believed that the fire started by direct heat radiation upon the fire hose chafing gear on the #2 davit bellygripe and spread to the boats and to the vessel. Similar chafing gear on adjacent davit gripes showed scorching almost to the burning point. The fire completely gutted both LCVP's and heat from the fire warped the 01 and 02 decks and deckhouse plating between frames 70 - 90. Fire spread to the wooden cabinet in the officer's wardroom, bulkhead 83, port, by the heated structure and caused blackening of internal paint work in the wardroom and the burning of an electrical junction box, located on bulkhead 83. Two staterooms on the 02 deck level were fired by the ignition of wooden berth moldings from the heated deckhouse side.

About 10 square feet of #1 hatch tarpaulin and almost 6 square feet of #2 hatch tarpaulin burned. It is felt that these fires may have been caused by burning fragments from the boat fire.

MACHINERY

A fire of unknown origin burned out two boats nested at frame 60, port, main deck.

ELECTRICAL

Fire at #2 boat davit between frames 72-83 on the port side of the 01 deck spread to the officer's wardroom and to one officer's stateroom on the 02 deck. This fire caused all of the damage that occurred to electrical equipment as a result of this test. There was no evidence of explosion.

(c) Shock.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of shock to electrical equipment.

(d) Pressure.

HULL

The only evidence of damage caused by pressure is the slight dishing of certain sheet metal items.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of pressure affecting electrical equipment.

(e) Effects peculiar to the Atom Bomb.

HULL

None.

MACHINERY

None.

ELECTRICAL

There were no effects noted that are considered peculiar to the Atomic Bomb other than radioactivity and the intensity of the radiant heat.

III. Results of Test on Target.

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

HULL

Not observed.

MACHINERY

The fire mentioned above damaged the motor of No. 2 Welin davit, making the davit inoperable. The davit mechanism and the davit itself are undamaged. There is no other damage affecting machinery.

ELECTRICAL

There was no effect on the ship's electric plant other than the slight inconvenience due to the loss of lighting in the wardroom and in one stateroom, the loss of the one speaker and the loss of two bracket fans. There was no effect on ship control.

(b) Effect on gunnery and fire control.

HULL

Not observed.

MACHINERY

No comment.

ELECTRICAL

None.

(c) Effect on watertight integrity and stability.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

None.

(d) Effect on personnel and habitability.

HULL

None.

MACHINERY

It is not believed that the test would have had any effect on personnel below decks. Habitability was not affected.

ELECTRICAL

Except for the effects of radioactivity, it is considered that personnel and habitability would not have been affected by the test.

(e) Effect on fighting efficiency.

HULL

None.

MACHINERY

Inoperability of one Welin davit would reduce by 25% the ability of the vessel to lower boats, which is important to the military efficiency of a transport. However, this was caused by secondary effects of the test. The test had no direct effect on the fighting efficiency of this vessel as far as machinery is concerned.

ELECTRICAL

The fighting efficiency of the vessel would not have been affected by this test unless personnel casualties resulted from radioactivity.

IV. General Summary of Observers' Impressions and Conclusions.

HULL

Had this ship been manned, the fires could have been extinguished and little damage would have resulted.

MACHINERY

The CORTLAND was outside the effective range of the explosion in Test A.

ELECTRICAL

Due to the distance of this vessel from the center of the blast, there was no direct effect on electrical equipment. Had personnel been on board, the fire could have been controlled without damage to electrical equipment.

V. Preliminary Recommendations.

HULL

The displacement of cargo hatch closures on this ship on the fringe of the target array indicates the necessity of attention to the design of more adequate closures.

MACHINERY

None.

ELECTRICAL

None.

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.

(b) Structural damage.

The only structural damage consists of distortion of the deckhouse side and deck plating on the upper and superstructure decks, frames 70 to 90, port. This damage was caused by fire.

(c) Other damage.

Not observed.

II. Forces Evidenced and Effects Noted.

(a) Heat.

Heat from about 270° relative caused extensive scorching of exposed cordage but practically no damage to paint. Faint signs of blistering were found on the foreward stack.

(b) Fires and explosions.

Fire damage was extensive, destroying two LCVP's, warping adjacent structural plating, darkening paint in compartments, rendering useless an electrical junction box, and hatch tarpulins for #1 and #2 hatches.

It is believed that the fire started by direct heat radiation upon the fire hose chafing gear on the #2 davit bellygripe and spreak to the boats and to the vessel. Similar chafing gear on adjacent davit gripes showed scorching almost to the burning point. The fire completely gutted both LCVP's and heat from the fire warped the 01 and 02 decks and deckhouse plating between frames 70 - 90. Fire spread to the wooden cabinet in the officers wardroom, bulkhead 83, port, by the heated structure and caused blackening of internal paint work in the wardroom and the burning of an electrical junction box, located on bulkhead 83. Two staterooms on the 02 deck level were fired by the ignition of wooden berth moldings from the heated deckhouse side.

About 10 square feet of #1 hatch tarpaulin and almost 6 square feet of #2 hatch tarpaulin burned. It is felt that these fires may have been caused by burning fragments from the boat fire.

(c) Shock.

None.

(d) Pressure.

The only evidence of damage caused by pressure is the slight dishing of certain sheet metal items.

(e) Effects apparently peculiar to the atom bomb.

None.

III. Effects of Damage.

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

Not observed.

(b) Effect on gunnery and fire control.

Not observed.

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

None.

(d) Effect on personnel and habitability.

None.

(e) Effect on fighting efficiency.

None.

IV. General Summary of Observers' Impressions and Conclusions.

Had this ship been manned, the fires could have been extinguished and little damage would have resulted.

V. Preliminary General or Specific Recommendations of Inspection Group.

The displacement of cargo hatch closures on this ship on the fringe of the target array indicates the necessity of attention to the design of more adequate closures.

VI. Instructions for Loading the Vessel Specified the Following.

ITEM	LOADING
Fuel Oil	95%
Diesel Oil	95%
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.

DETAILED DESCRIPTION OF HULL DAMAGE

A. General Description of Hull Damage.

Fire destroyed two LCVP's stowed in #2 davit and partially burned the canvas tarpaulins over the two cargo hatches. This fire also damaged the port side of the superstructure and furnishings within the wardroom and officers staterooms. Photos pages 35 to 37 show general views of the exterior of the ship after Test A.

B. Superstructure.

(a) Description of damage.

Structural damage resulting from fire, was sustained by the port side of the superstructure between frames 70 and 90. Side plating and outboard deck plating at the superstructure deck level were buckled at many points to a depth of about 2 or 3 inches. A wooden cabinet leaning against bulkhead 83 port, in the wardroom burned, causing the bulkhead plating to dish aft about 2-1/2 inches over an area of about ten square feet. Exposed sheet metal items were slightly dished by pressure.

(b) Causes of damage in each area.

The damage was caused by fire and pressure.

(c) Evidences of fire in superstructure.

A fire completely burned two LCVP's stowed in #2 davit, frame 70, port, (photos 1737-3, 4; pages 38 and 39). Heat conducted through the house side ignited a wooden cabinet at bulkhead 83 in the wardroom and the wooden moulding on berths in two officers staterooms (photos 1737-6 and 1902-9, pages 41 and 40). Paint was burned and fiber glass inslulation disintegrated in the vicnity of these fires. Cork type anti-sweat paint around ports remained white in contrast with the other darkened paint but lost its adhesion to the metal and broke up when touched. Mattresses were burned.

(d) Estimate of relative effectiveness against heat and blast.

Insufficient evidence for comparison.

(e) Constructive criticism of superstructure design or construction, including important fittings and equipment.

No comment.

C. Turrets, Guns and Directors.

No damage.

D. Torpedo Mounts, Depth Charge Gear.

Not Applicable.

E. Weather Deck.

The canvas tarpaulin on both cargo hatches were partially burned (photo 1824-9, page 42). Several hatches boards on both hatches were lifted and dropped to the level below but were not damaged. There was some elastic deflection of the upper deck outboard of the forward cargo hatch. A tabulation of scratch gage location and readings is included as an Appendix.

F. Exterior Hull.

No damage.

G. Interior Compartments (above w.l.).

No damage.

H. Armor Decks and Miscellaneous Armor.

Not Applicable.

I. Interior Compartments (below w.l.).

No damage.

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.

T. Coverings.

Painted surfaces were not greatly affected by heat radiation. In a few places, such as on the forward stack, very faint but definite signs of blistering and scorching is found (photo 1737-1, Page 43).

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.

A fire burned up two boats nested at frame 60 port, main deck. The fire damaged the motor of No. 2 davit. There is no other damage to machinery.

II. Forces Evidenced and Effects Noted.

(a) Heat.

Paint on the exposed side of deck machinery was scorched.

(b) Fires and explosions.

A fire of unknown origin burned out two boats nested at frame 60 port, main deck.

(c) Shock.

No evidence.

(d) Pressure.

No evidence.

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

None.

III. Effects of Damage.

(a) Effect on machinery, and ship control.

The fire mentioned above damaged the motor of No. 2 Welin davit, making the davit inoperable. The davit mechanism and the davit itself are undamaged. There is no other damage affecting machinery.

(b) Effect on gunnery and fire control.

No comment.

(c) Effect on watertight integrity and stability.

No comment.

(d) Effect on personnel and habitability.

It is not believed that the test would have had any effect on personnel below decks. Habitability was not affected.

(e) Total effect on fighting efficiency.

Inoperability of one Welin davit would reduce by 25% the ability of the vessel to lower boats, which is important to the military efficiency of a transport. However, this was caused by secondary effects of the test. The test had no direct effect on the fighting efficiency of this vessel as far as machinery is concerned.

IV. General Summary of Observers' Impressions and Conclusions.

The CORTLAND was outside the effective range of the explosion of Test A.

V. Preliminary Recommendations.

None.

DETAILED DESCRIPTION OF MACHINERY DAMAGE

A. General Description of Machinery Damage.

(a) Overall condition.

A fire of undertermined origin burned up two boats nested at frame 60 port, main deck. The fire also damaged the motor of No. 2 Welin davit, making the davit inoperable. Otherwise, the overall condition of the machinery of this vessel was not changed by Test A and no damage is apparent.

(b) Areas of major damage.

No damage.

(c) Primary causes of damage.

Not applicable.

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

The test had no effect on the overall operation of the machinery plant, except to make No. 2 Welin davit inoperable because of damage to its motor. This vessel shifted berths under her own power after Test A, at which time all machinery was operated.

B. Boilers.

Undamaged. Both boilers were steamed after Test A. Performance was normal. Hydrostatic tests indicate no change in the tightness of the boilers.

HYDROSTATIC TESTS ON BOILER #1

	Before Test A.	After Test A.
Initial Pressure	450 lb./sq. in.	450 lb./sq. in.

Time required for pressure to drop

200 lb.	2 minutes	6 minutes
400 lb.	17 minutes	15 minutes
Pressure dropped to 0	3 hours	2-1/2 hours

C. Blowers.

Undamaged. All blowers were operated under service conditions after Test A. Performance was normal.

D. Fuel Oil Equipment.

Undamaged. The fuel oil equipment was tested in operation after Test A.

E. Boiler Feedwater Equipment.

Undamaged. The boiler feedwater equipment was tested in operation after Test A.

F. Main Turbines.

Undamaged. The main turbines were operated at no load and 1000 RPM for 1/2 hour and were used while the ship was shifting berth under her own power after Test A.

G. Reduction Gears.

Not applicable.

H. Shafting and Bearings.

Undamaged. All shafting, bearings, stern tubes, and packing glands were inspected during operation.

I. Lubrication System.

Undamaged. The lubrication system was tested in operation after Test A.

J. Condensers and Air Ejectors.

Undamaged. Main condensers, auxiliary condensers and air ejectors were tested in operation and each was able to maintain a vacuum of 29''.

K. Pumps.

Undamaged. All pumps were operated under service conditions after Test A. Performance was normal.

L. Auxiliary Generators (Turbine and Gears).

Undamaged. All turbo-generators were operated under service conditions after Test A. Performance was normal.

M. Propellers.

Undamaged. Both propellers were checked while the ship was underway. Performance was normal.

N. Distilling Plant.

Undamaged. The distilling plant was placed in operation immediately after Test A. Performance was normal.

O. Refrigerating Plant.

Undamaged. The refrigeration plant was placed in operation immediately after Test A. Performance was normal.

P. Windlasses, Winches, and Capstans.

Welin davit No. 2 is inoperable because of damage to the motor from a fire in boats nested inboard of it (see Item U below). There appears to be no damage to the winch mechanism or the davit itself.

There is no damage to other equipment included under this heading, all of which has been operated under service conditions since Test A.

Q. Steering Engine.

Undamaged. Both steering units were tested through full throw of the rudder from all three stations.

R. Elevators, Ammunition Hoists, Etc.

Undamaged. The gasoline hoist and the two ammunition hoists have been operated since Test A. Performance was normal.

S. Ventilation (Machinery).

Undamaged. The ventilation machinery has all been tested in operation since Test A. Performance was normal.

T. Air Compressors.

Undamaged. The air compressor was operated under service conditions after Test A. Performance was normal.

U. Diesels (Generators and Boats).

The two diesel fire pumps were in use for two hours at 60 lb. sq. in. and no defects were found.

The emergency diesel generator was in use for three hours at 90 KW and no defects were found.

Two boats nested on main deck about frame 60 port, caught fire (cause unknown) and were completely burned up. This fire is believed to have been caused by a burning ember from another vessel in the target array. There were numerous small fires in cordage, etc., on the topsides of nearby vessels.

V. Piping.

Undamaged. All piping systems were either used in operation or tested after Test A. and no defects were found.

W. Miscellaneous.

Undamaged. All laundry, galley and machine shop equipment was operated after Test A. and no defects were found.

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.

The drafts and list were not observed. No flooding occurred.

(b) Structural damage.

There was no structural damage noted that affected electrical equipment.

(c) Other damage.

Electrical damage as follows occurred as a result of fire;

Cable supplying general lighting in officer's wardroom had its insulation burned off.

Cable supplying power to two bracket fans, one in the wardroom and one in the officer's stateroom on the deck above had their insulation burned off. The fans were destroyed.

Cable to 1MC general announcing reproducer in the wardroom had its insulation burned off. The reproducer was also burned and rendered inoperable.

Insulation burned off the cable to the davit limit switch.

Three lighting fixtures, one in a stateroom and two in the wardroom, were destroyed by the fire. One lighting circuit junction box in the stateroom was destroyed.

II. Forces Evidenced and Effects Noted.

(a) Heat.

There was slight evidence of radiant heat on the port side forward. This heat caused no damage to electrical equipment. Radiant heat probably started the boat fire which damaged electrical equipment as a secondary effect.

(b) Fires and explosions.

Fire at #2 boat davit between frames 72-83 on the port side of the 01 deck spreak to the officer's wardroom and to one officer's stateroom on the 02 deck. This fire caused all of the damage that occurred to electrical equipment as a result of this test. There was no evidence of explosion.

(c) Shock.

There was no evidence of shock to electrical equipment.

(d) Pressure.

There was no evidence of pressure affecting electrical equipment.

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

There were no effects noted that are considered peculiar to the atomic bomb other than radioactivity and the intensity of the radiant heat.

III. Effects of Damage.

(a) Effect on propulsion and ship control.

There was no affect on the ships electric plant other than the slight inconvenience due to the loss of lighting in the

wardroom and in one stateroom, the loss of the one speaker and the loss of two bracket fans. There was no affect on ship control.

(b) Effect on gunnery and fire control.

None.

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

None.

(d) Effect on personnel and habitability.

Except for the effects of radioactivity, it is considered that personnel and habitability would not have been affected by the test.

(e) Total effect on fighting efficiency.

The fighting efficiency of the vessel would not have been affected by this test unless personnel casualties resulted from radioactivity.

IV. General Summary of Observers' Impressions and Conclusions.

Due to the distance of this vessel from the center of the blast there was no direct effect on electrical equipment. Had personnel been on board, the fire could have been controlled without damage to electrical equipment.

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

None.

DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

A. General Description of Electrical Damage.

(a) Overall condition.

There was practically no electrical damage to this vessel as a result of this test. Cables supplying general lighting, bracket fans and a 1MC reproducer in the wardroom and one stateroom had their insulation burned off. Cable to the #2 boat davit limit switch had its insulation burned off. One 1MC reproducer, three lighting fixtures, one lighting circuit junction box and two bracket fans were destroyed by fire.

(b) Areas of major damage.

The area of major damage was between frames 72 and 83 on the port side of the 01 and 02 decks.

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

All electrical damage was a result of fire in boats in #2 davit which apparently was started by radiant heat.

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

The effects of the test on the overall operation of the electric plant were negligible. Lighting and cable damage could have been temporarily repaired by the ship's force. Had the ship's force been aboard the fire could have been controlled without effect on electrical equipment.

(e) Types of equipment most affected.

Cable was the type of equipment which was most affected by the test. This was due to the fact that cable happened to be nearest to the fire and not as a result of any inherent weakness of the cable.

B. Electric Propulsion Rotating Equipment.

No damage.

C. Electric Propulsion Control Equipment.

No damage.

D. Generators - Ships Service.

No damage.

E. Generators - Emergency.

No damage. This emergency generator was operating during the test and was found in operable condition upon returning to the vessel.

F. Switchboards, Distribution Panels.

No damage.

G. Wiring, Wiring Equipment and Wireways.

(a) The following cables had their insulation destroyed by fire:

1. General lighting cable in the officer's wardroom.

2. Lighting cable in one stateroom on the 02 deck, port side, above the wardroom.

3. Cable to limit switch on #2 boat davit.

4. Cable to the 1MC general announcing reproducer in the wardroom.

(b) One lighting circuit junction box located in the stateroom on the 02 deck, portside, above the wardroom was destroyed by fire.

H. Transformers.

No damage.

I. Submarine Propelling Batteries.

Not Applicable.

J. Portable Batteries.

No damage.

K. Motors, Motor Generator Sets and Motor Controllers.

No damage.

L. Lighting Equipment.

Three overhead lighting fixtures, two in the officer's wardroom and one in the stateroom above, were burned beyond repair by the fire. Other fixtures in these areas were blackened and charred but were operable when cable was renewed.

M. Searchlights.

No damage.

N. Degaussing Equipment.

No damage.

O. Gyro Compass Equipment.

No damage.

P. Sound Powered Telephones.

No damage.

Q. Ship's Service Telephones.

Not Applicable.

R. Announcing Systems.

One general announcing 1MC reproducer located in the officer's wardroom was burned beyond repair. There was no other damage to the announcing system.

S. Telegraphs.

No damage.

T. Indicating Systems.

No damage.

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

No damage.

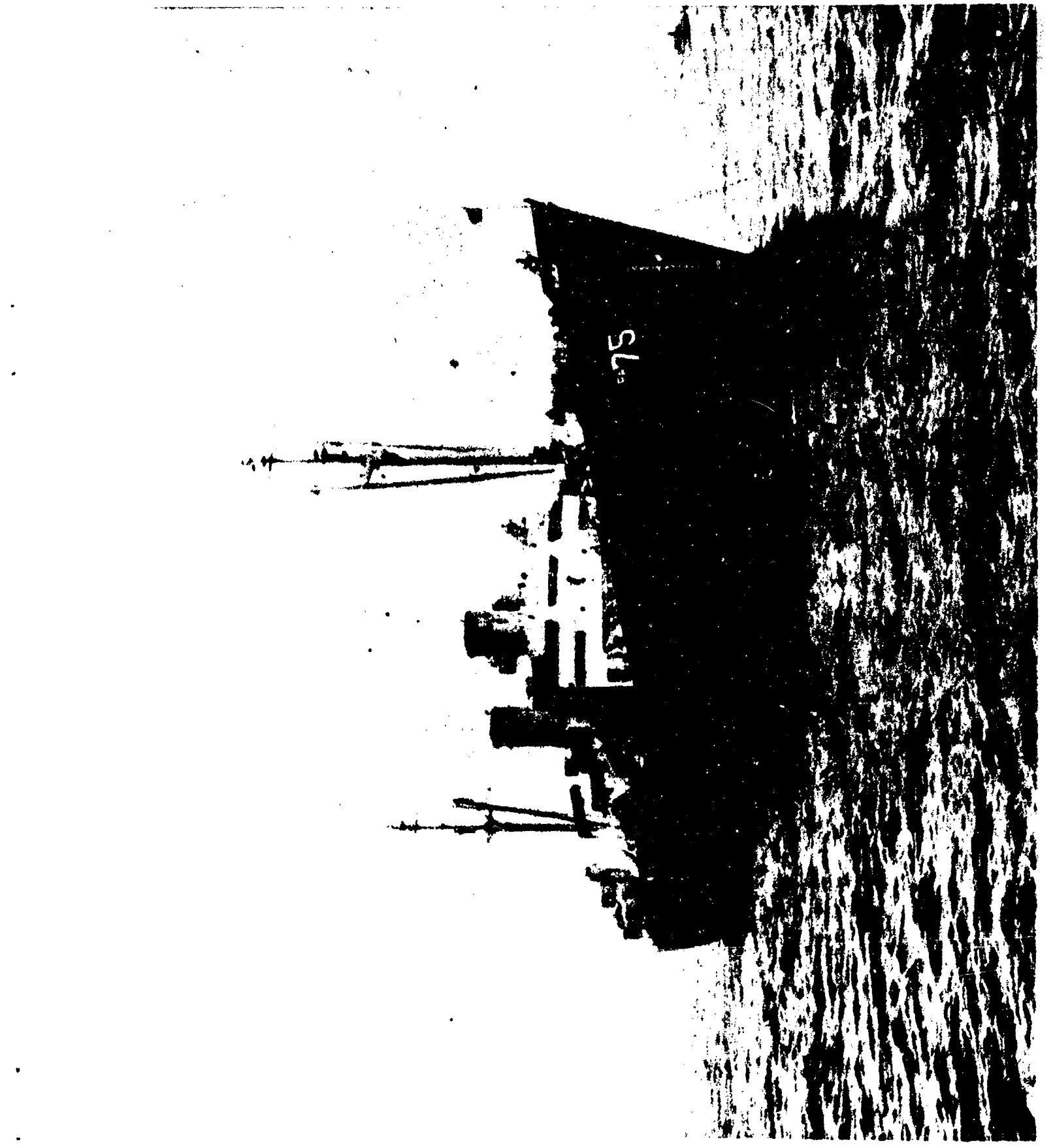
V. F.C. Switchboard.

No damage.

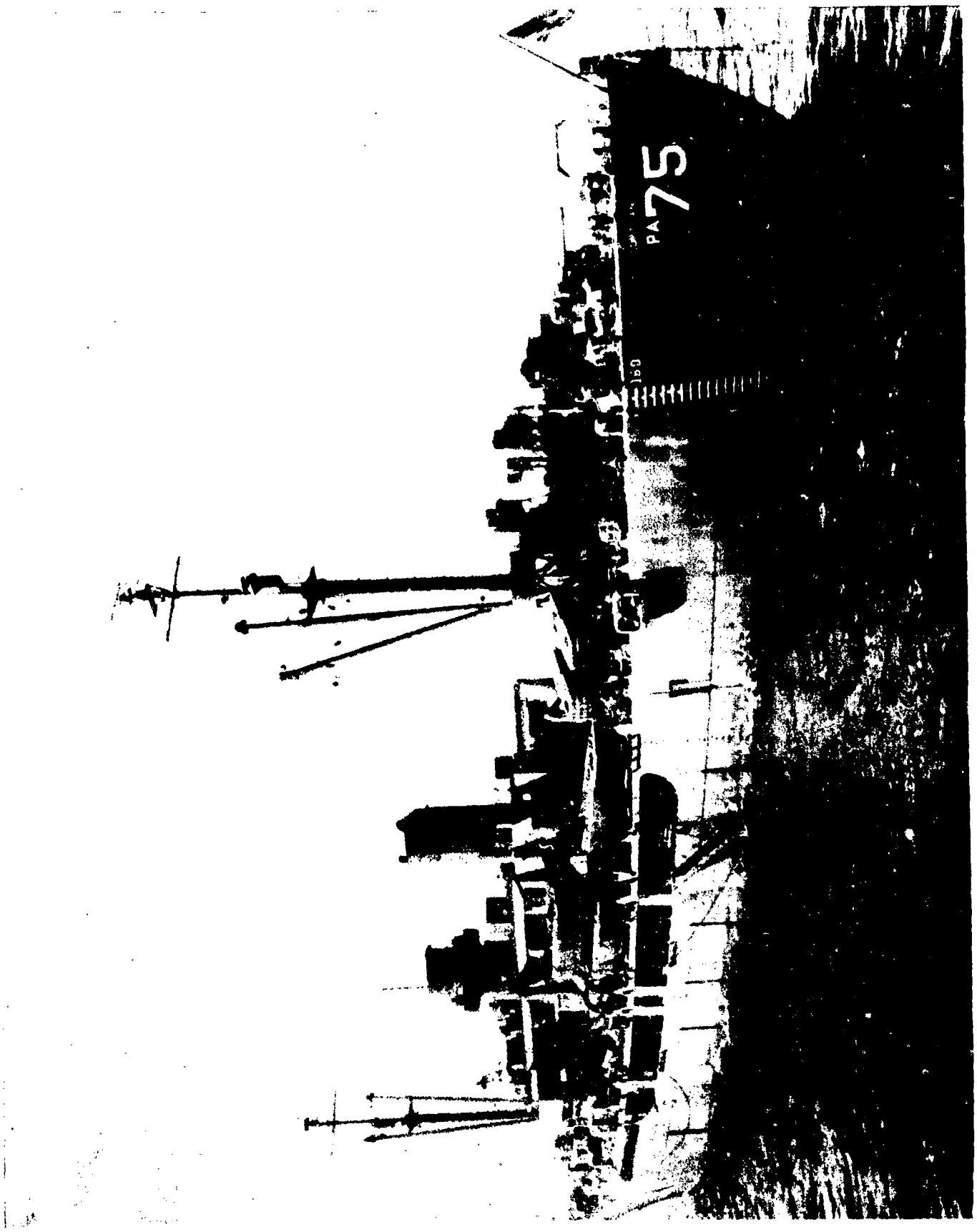
SECTION IV

PHOTOGRAPHS

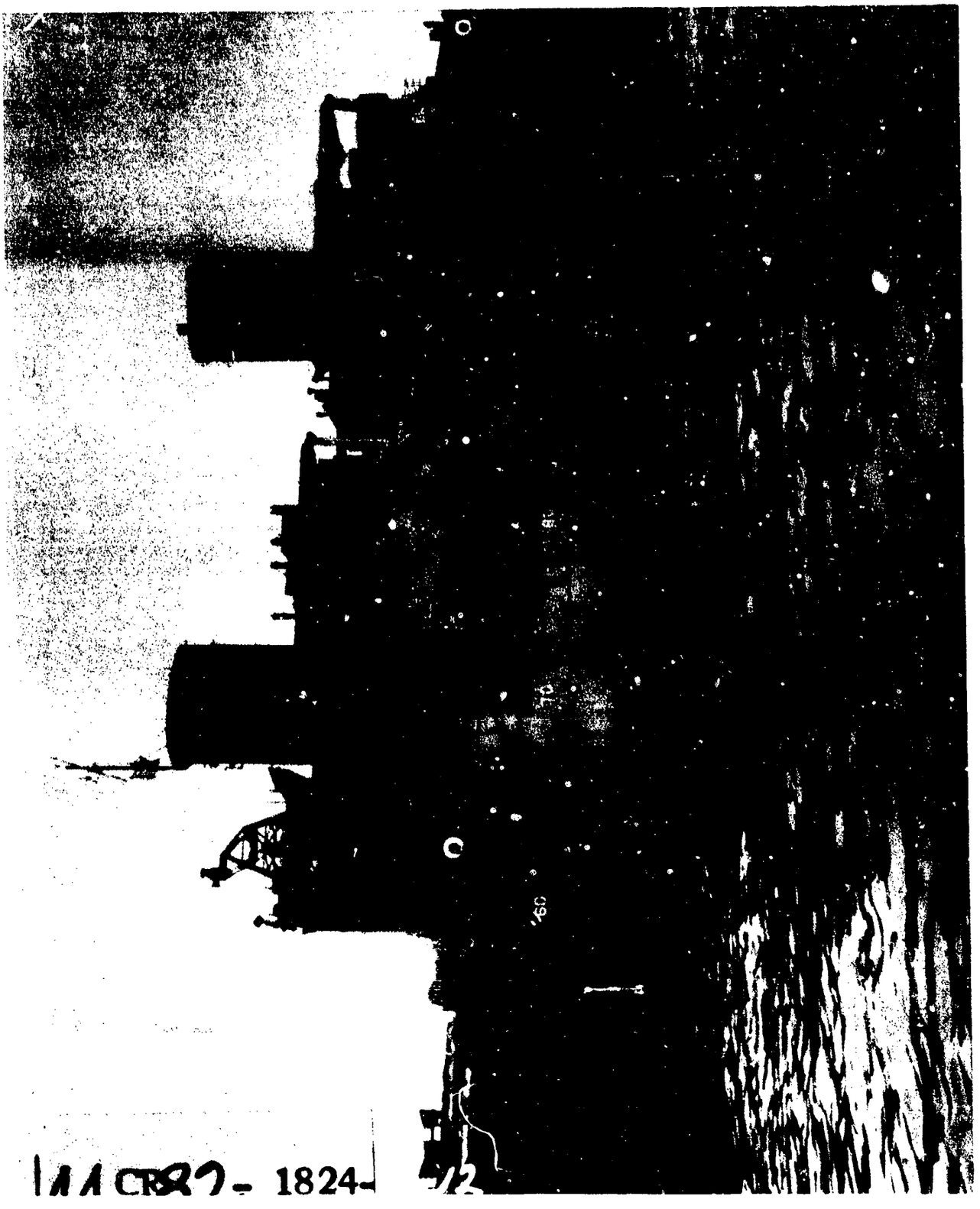
TEST ABLE



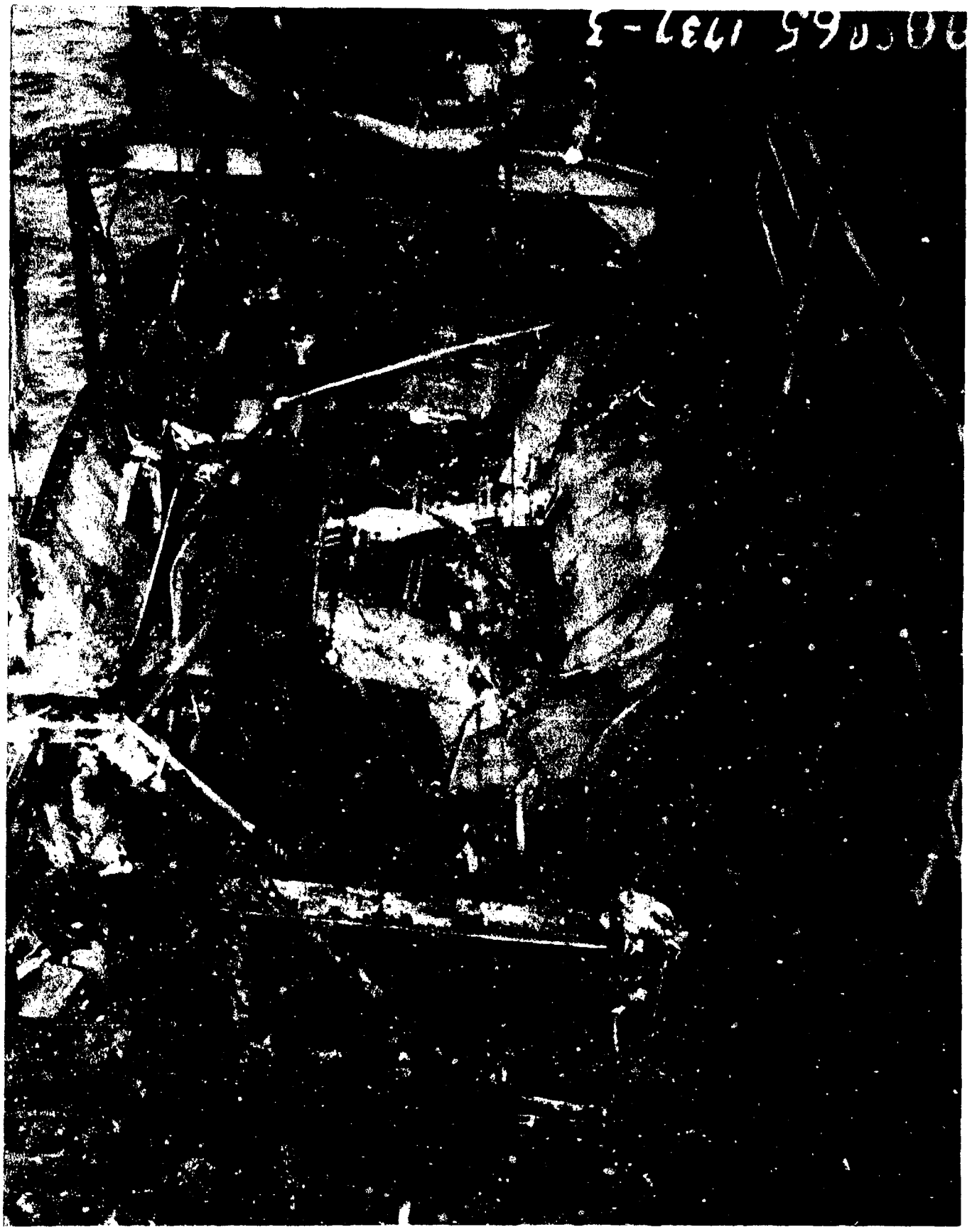
AA-CR-227-87-20. Starboard bow after Test A.



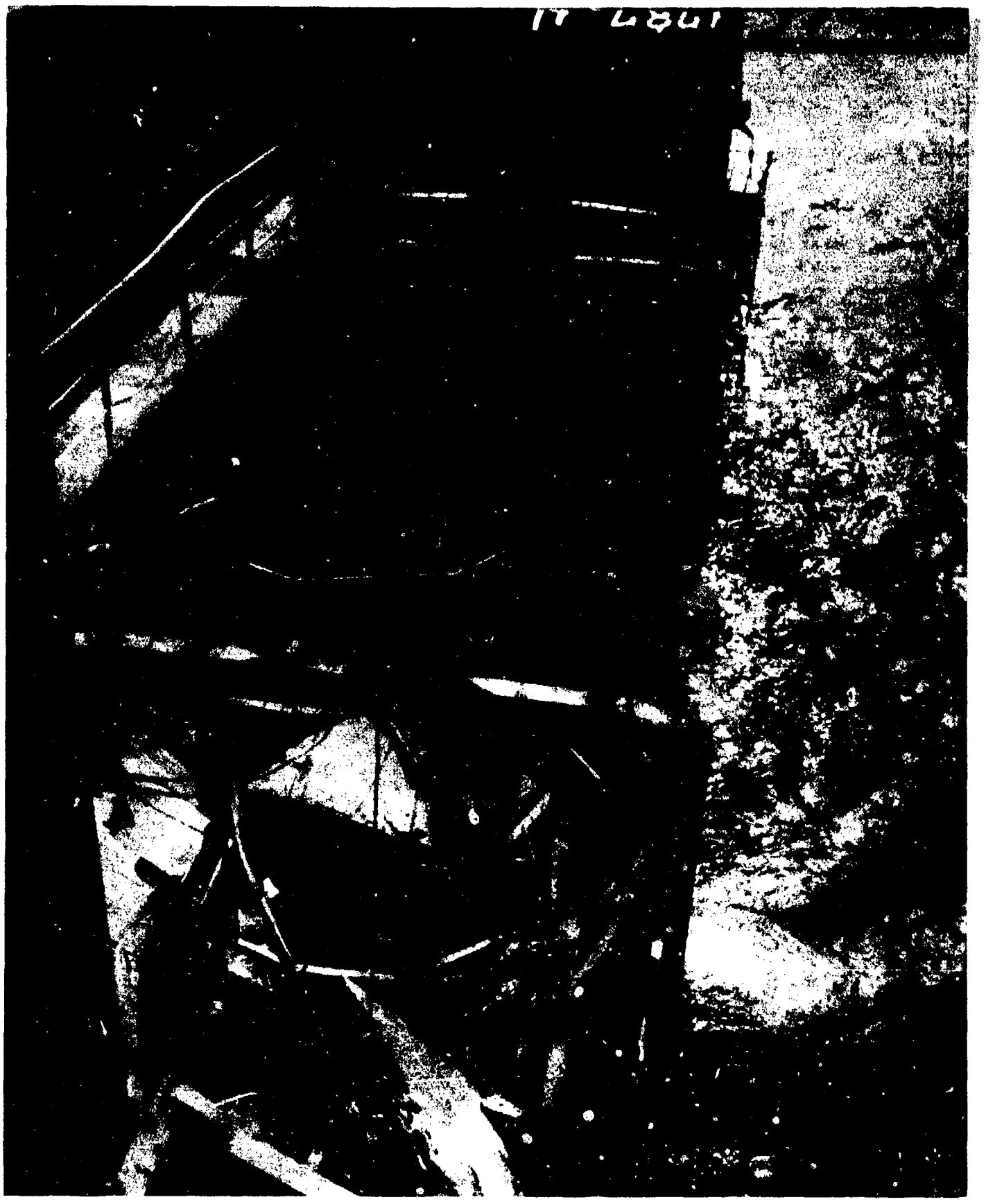
AA-CR-227-87-16. Port quarter after Test A.



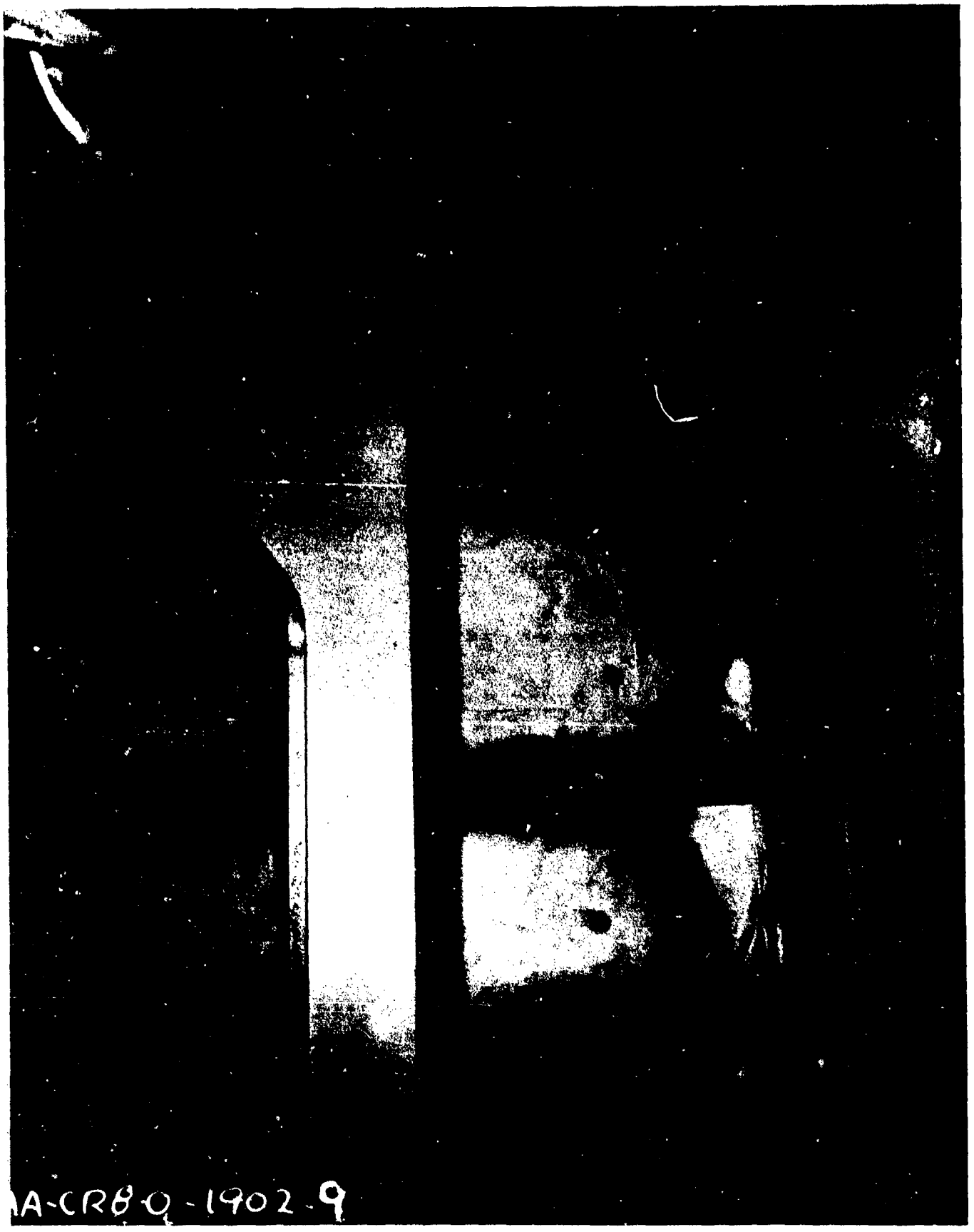
AA-CR-82-1824-12. Port side, frames 50 to 110.



AA-CR-65-1737-3. Looking forward and down at remains of two burned LCVP's.

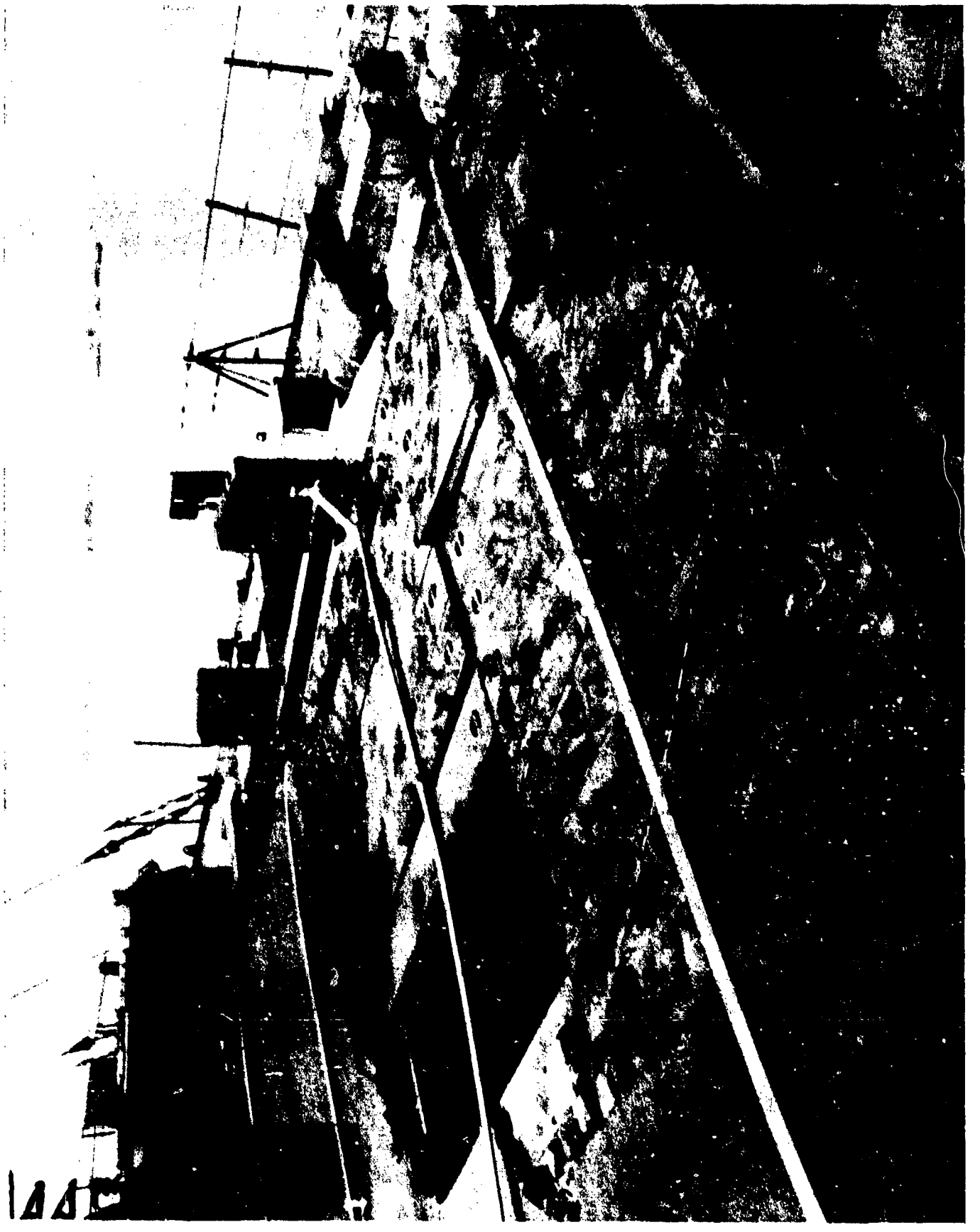


AA-CR-65-1737-4. Looking aft and down at remains of two burned LCVP's.

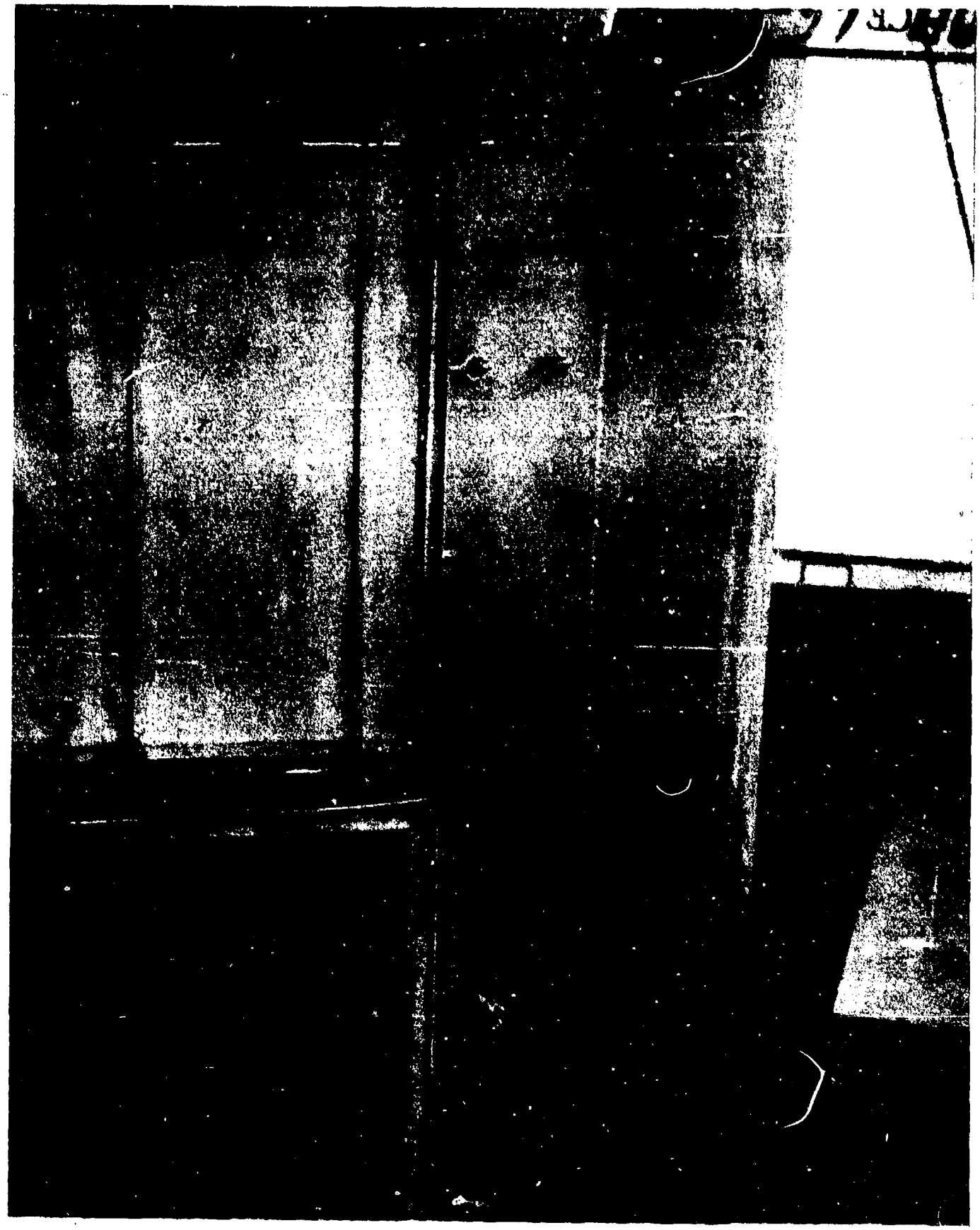


AA-CR-80-1902-9. Damage to interior of stateroom caused by heating of exterior of bulkhead.

AA-CR-65-1737-6. Damage to wardroom bulkhead caused by fire.



AA-CR-82-1824-9. Forward cargo hatch cover, showing burned tarpaulin and displaced cover panels.



AA-CR-65-1737-1. Paint damage to port after sector of forward stack.

APPENDIX

SHIPS MEASUREMENT DIAGRAM

TEST ABLE

SHIP MEASUREMENT DATA

Deflection Scratch Gages.

Six scratch gages were installed to record movement between the main and upper decks. A tabulation of gage locations and readings is on Page 46 .

DECK DEFLECTION GAGES

SHIP U.S.S. CORTLAND (APA-75) **TEST** A

LOCATION			MAXIMUM	MAXIMUM	PERMANENT SET		REMARKS
FR. NO.	DECK	DIST. OFF ℄	COMP.	EXP.	DISTANCE	EXP./COMP.	
23	MAIN	PORT	NONE	NONE	NONE	NONE	NONE
48	"	STBD.	0-0-5/16	0-0-1/16	"	"	"
48	"	PORT	NONE	NONE	"	"	"
48	"	STBD.	0-0-30	0-0-5/16	"	"	"
48	"	PORT	0-0-5/16	0-0-1/16	"	"	"
128	"	PORT	NONE	NONE	"	"	"

APPENDIX

COMMANDING OFFICERS REPORT

TEST ABLE

REPORT #11

COMMANDING OFFICERS REPORT

SECTION I

I. The U.S.S. CORTLAND (APA-75) is of the GILLIAM type and was located in the extreme western edge of the target array, 3750 yards bearing 247° true from the center.

At the time of the test the ship was in good material condition and completely sealed up, except for the emergency diesel generator. This generator was running and the vent used to supply it with required air was left open.

Army equipment including a 5 gallon blitz can of aviation gasoline and the same amount of diesel oil was displayed on the forecastle.

Boats (LCVP) from the boat pool were stowed at all davits; it is considered these boats constituted an additional fire hazzard to the ship.

The drafts before and after the test were the same; there was no structural damage; there was no change in the operability of machinery. There was no evidence of intense heat except that a fire was started in the boats at number two davit. It is estimated that there would have been no personnel casualties.

II. Forces Evidenced and Effects Noted.

(a) Heat.

There is some evidence of heat on the port side forward. This evidence is not of a general nature; i.e. with two adjacent objects one showed evidence of heat while the other did not. It would appear that sparks or burning embers caused this heat rather than the bomb itself. Horizontal surfaces showed more signs of heat than did vertical surfaces, on these individual objects.

(b) Fires.

Two boats at number two davit were burned up. The heat and sparks from this fire caused small fires in the ward-room and two officers staterooms on the deck above. Also the canvas covers on both hatches were burned and army equipment stowed on the forecastle was singed slightly. The internal fires extinguished themselves.

(c) Shock.

There was no evidence of shock.

(d) Pressure.

There was no evidence of pressure.

(e) Any Effects Peculiar to the Atom Bomb.

There was no evidence of effects peculiar to the Atom Bomb.

III. Results of Test on Target.

(a) Propulsion and Ship Control.

Not affected.

(b) Gunnery and Fire Control.

Not affected.

(c) Watertight Integrity and Stability.

Not affected.

(d) Personnel and Habitability.

Not affected.

(e) Fighting Efficiency.

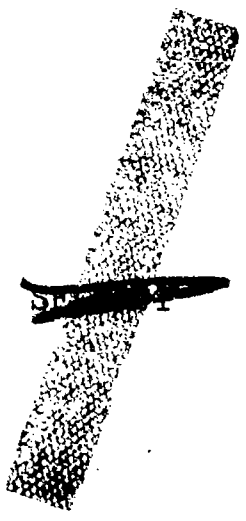
Not affected.

IV. General Summary.

It is not believed that the fires described in II (b) were caused by the Atom Bomb directly, but rather from some other external source. The reason for this belief is that other objects very close to the boats and more inflamable, did not catch fire, nor show any signs of heat.

V. There are no recommendations.

From observation it is believed that there was little effect on this ship as a direct result of the Atom Bomb. If personnel had been on board they would have not been affected and, further, these personnel would have extinguished the small amount of fire.



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[redacted]

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

TRC

10 April 1997

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

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency (formerly Defense Nuclear Agency) Security Office has reviewed and declassified the following reports:

AD-366718	XRD-32-Volume 3
AD-366726	XRD-12-Volume 2
AD-366703	XRD-16-Volume 1
AD-366702	XRD-14-Volume 2
AD-376819L	XRD-17-Volume 2
AD-366704	XRD-18
AD-367451	XRD-19-Volume 1
AD-366705	XRD-20-Volume 2
AD-376028L	XRD-4
AD-366694	XRD-1
AD-473912	XRD-193
AD-473891	XRD-171
AD-473899	XRD-163
AD-473887	XRD-166
AD-473888	XRD-167
AD-473889	XRD-168

AD-366705

ST-A 28 JAN 80 made target

TRC 10 April 1997

SUBJECT: Declassification of Reports

AD-B197749	XRD-174
AD-473905	XRD-182
AD-366719	XRD-33 Volume 4
AD-366700	XRD-10
AD-366712	XRD-25 Volume 1
AD-376827L	XRD-75
AD-366756	XRD-73
AD-366757	XRD-74
AD-366755	XRD-72
AD-366754	XRD-71
AD-366710	XRD-23 Volume 1
AD-366711	XRD-24 Volume 2
AD-366753	XRD-70
AD-366749	XRD-66
AD-366701	XRD-11
AD-366745	XRD-62.

All of the cited reports are now **approved for public release; distribution statement "A" applies.**

Ardith Jarrett

ARDITH JARRETT
Chief, Technical Resource Center

copy furn: FC/DSWA (DASIAC)
KSC

Completed

E.W