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BUREAU OF SHIPS

TECHNICAL INSPECTION REPORT

CONTEMPFUTAL
Security Information

Classification (Controlled) (Controlled by authority of Joint Chiefs of Staff JCS 17355/25 DATED 16 APRIL 1949)

By Authority of Joint Chiefs of Staff JCS 17355/25 DATED 16 APRIL 1949

OPERATION CROSSROADS,
U.S.S. YO 160,
TEST BAKER

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

OPERATION CROSSROADS

DIRECTOR OF SHIP MATERIAL

JOINT TASK FORCE ONE

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Overall Summary of Damage 3
Photographic Section 6
OVERALL SUMMARY

I. Target Condition After Test.

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

The YO-160 was sunk in test B. The Technical Observer in PBM Charlie reported at 0908 that he was unable to locate the ship in the array. She does not appear in any photographs taken after the smoke had cleared. At 0910, the Technical Observer officially reported her as sunk.

Part of the YO-160's flooding may have been due to swamping by the descending water column as seen in photographs on pages 13, 14, 15, 16, 17, and 18.

(b) Structural damage.

Unobserved.

(c) Other damage.

Unobserved.

II. Forces Evidenced and Effects Noted.

(a) Heat.

Unobserved.

(b) Fires and explosions.

Neither fire nor explosions were seen.

(c) Shock.

Unobserved except as in photograph on page 12.
(d) Pressure.

The descending water column shown in photographs on page 13, 14, 15, 16, and 17 exerted pressure on the ship's structure, probably damaging superstructure and hull girder. However, no dives were made and no confirmatory information is available. The wave caused by the underwater explosion lifted the YO-160's bow approximately 36' as shown on photographs taken from Enyu.

III. Results of Test on Target.

(a) Effect on propulsion and ship control.

Unobserved.

(b) Effect on gunnery and fire control.

Unobserved.

(c) Effect on watertight integrity and stability.

Both were completely destroyed.

(d) Effect on personnel and habitability.

Unobserved prior to sinking.

(e) Total effect on fighting efficiency.

Completely destroyed.

IV. General Summary of Observer's Impressions and Conclusions.

Available sources of information are photographs of burst taken from towers and planes after burst photographs taken of the array from PBM Charlie, the reports of the Technical Observer in PBM Charlie, and the Bureau of Ships Interim Report.

The YO-160 had been severely damaged in test A. Picture showing condition of YO-160 as she floated just prior to test B are shown on pages 7 through 10.
The YO-160 was seen briefly after the inception of the underwater explosion. After the ship was covered by the descending water column and mist she was never seen again.

The photograph on page 11 is the first frame showing the burst. The YO-160 can be seen to the left of the SARATOGA as indicated by the arrow. The photo on page 12 shows the ship engulfed by the shock wave three seconds after the burst. The photograph on page 13, taken 33 seconds after the burst shows the ship partially obscured by the shock wave. Water can be seen starting to fall from the column. The photograph on page 14, burst plus 42 seconds, shows the water column descending on the ship. Photographs on pages 15, 16, 17, and 18 taken at three second intervals after photograph on page 14 show the water column descending on and finally engulfing the YO-160.

V. Preliminary Recommendations.

None.

VL Pre-test Statistics.

Instructions for loading the vessel specified the following:

- Diesel Oil
- Gasoline
- Ammunition
- Potable and Reserve Feed Water
- Salt Water Ballast

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 Test 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.

The drafts of the YO-160 at time of burst were unknown as no draft marks were fitted. She had no list.
PHOTOGRAPHS
TEST BAKER

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U.S.S. YO-160

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BB-CR-227-520/20 July Print 112 - Pre "B" test view of YO-160's port quarter.

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BB-CR-227-520/20 July Print 105 - Pre "B" test view of YO-160's stern.

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DB-CR-T2-233-270 Print #1. Target array the instant after underwater explosion. YO-160 is beneath arrow.

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U.S.S. YO-160

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DB-CR-T2-233-270 Print #2. Approximately six seconds after explosion. YO-160 is covered by water shock wave.

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DB-CR-T2-233-270 Print #11. 33 seconds after burst. Bow of YO-160 just visible.

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U.S.S. YO-160

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42 seconds after explosion. YO-160 is still floating. Water column beginning to fall.
DB-CR-T2-233-270 Print #15. YO-160 still visible 45 seconds after burst.

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DB-CR-T2-233-270 Print #17. 51 seconds after burst.

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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-3665884 XRD-203-Section 12
✓ AD-3665894 XRD-200-Section 9
✓ AD-3665904 XRD-204-Section 13
✓ AD-3665914 XRD-183
✓ AD-3665864 XRD-201-Section 10
✓ AD-3674874 XRD-131-Volume 2
✓ AD-3675164 XRD-143
✓ AD-3674934 XRD-142
✓ AD-801410L XRD-138
✓ AD-376831L XRD-83
✓ AD-366759L XRD-80
✓ AD-376830L XRD-79
✓ AD-376828L XRD-76
✓ AD-367464L XRD-106
✓ AD-801404L XRD-105-Volume 1
✓ AD-367459L XRD-100
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✓
Subject: Declassification of Reports

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

ARDITH JARRETT
Chief, Technical Resource Center