Type of Survey: WIRE DRAG
Field No: RH 20-1-70
Office No: H-9172

LOCALITY
State: DELAWARE
General locality: DELAWARE BAY
Locality: NORTH OF LEWES

CHIEF OF PARTY
MERRITT N. WALTER

DATE: 4/22/71
INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State: DELAWARE

General locality: DELAWARE BAY

Locality: NORTH OF LEWES

Scale: 1:20,000  Date of survey: 9/29/68 to 8/19/70

Instructions dated: 25 JUNE 1970  Project No.: OPR-480

Vessel: RUDE & HECK

Chief of party: MERRITT N. WALTER

Surveyed by: GR SCHAEFER, A.Y. BRYSON, J.J. MORLEY

Soundings taken by echo sounder, hand lead, pole: NONE

Graphic record scaled by: NONE

Soundings penciled by: J.J. MORLEY, LTJG

Soundings in feet at MLW: XXXX

REMARKS:

__________________________________________

_____________________________  ____________________

Approved:  ____________________
DESCRIPTIVE REPORT  
TO ACCOMPANY  
WIRE DRAG FIELD NO. RH-20-1-70, SHEET "A"  
PROJECT OPR-480  
DELAWARE BAY ENTRANCE  
1970  
LCDR MERRITT N. WALTER  
USCG & US SHIPS RUIDE & HECK


B. CHARACTER AND LIMITS OF THE WORK - The purpose of this project is to clear the approaches to and within the anchorage area (LAT 38°55' N, LONG 75°12' W) in Delaware Bay Entrance.

The locality of the survey, covered by C&GS Chart 1218 is the entrance to Delaware Bay at effective depths greater than 60 ft. from the restricted area 207.105 Northwest to the anchorage area 110.157. The survey was conducted on a scale of 1:20,000 using visual and Raydist fixes for control.

C. CONTROL - Raydist control was utilized at all times except N day, 7 July 1970 and for wreck investigations at St. Jones River and at position LAT 39°00.1' N, LONG 75°12.3' W. Position of objects used for visual control and calibration were taken from horizontal control data, April 1960.

Wire drag party established Raydist 1968 control station on 17 Sept. 1968 by triangulation.

A listing of all signals (visual and electronic) used is given in Attachment I.

D. DATE OF SURVEY - Dragging for OPR-480 on Sheet "A" began 29 Sept. 1968 and was completed 19 August 1970.

E. TIDAL REDUCERS - Preliminary reduction of each day's data was made using predicted tides for the standard tide gage at Smith Piers, Lewes, Delaware from Eastern Daylight Savings Time. Actual tidal data was furnished by the Rockville Office from the standard tide gage at Lewes, Delaware.
Tide data for all strips north of the MO(A) buoy LAT 38°55'1" N,
LONG 75°08'1" W was corrected - High Water (+0h 20m and +0.6 ft)
Low Water (+0h 15m and 0.0 ft) +f;1970. In 1969 - High Water (+0h 30m and +0.6ft)
Low Water (+0h 30m and 0.0 ft)  (See tidal note, page 7, Attachment II)

F. JUNCTIONS - Sheet A joins Sheet B, but wire drag surveys will not
junction due to restricted area 207,105 in which permission to
drag was denied. This area will be covered by USCGS Ship WHITING
with Hydrographic Survey OPR-492, Sheet No. WH-10-1-70. 47° 9'.5'

G. SPLITS - All areas within the project limits were covered without
splits. All strips had sufficient overlap.  See area of insufficient overlap.

H. GROUNDINGS AND HANGS - See Attachment III. List of Groundings
and Hangs.

I. GENERAL NOTES - The Ships RUDE & HECK began working on Project
OPR-480, Sheet "A" on 29 September 1968. Both days of wire drag
that year were not claimed due to poor quality.

Work was resumed on 23 September 1969. O through K days were not
completed of which E and K days were not claimed due to poor
quality. Work in 1969 was done on a scale of 1:30,000. This data
was replotted to a scale of 1:20,000 and all work claimed was in
compliance with project instructions dated 25 June 1970.

Work on Sheet "A" was resumed on 1 July 1970 and completed on
19 August 1970.

Daily strip description is recorded in the daily journal.

J. CURRENTS - Drag strips planned with the use of OCS tidal current
tables gave satisfactory results. Excessive lift resulted when
strips were attempted before the direction of current had fully
changed to the direction of the drag.

K. DISCREPANCIES AND COMPARISON WITH PREVIOUS SURVEY AND CHARTS -
See Attachment IV, Item Investigation.

L. PERSONNEL AND EQUIPMENT - During 1968 and 1969 Field Seasons the
Ship HECK and RUDE acted as guide and end vessels respectively.
During the 1970 Field Season the Ship RUDE and HECK acted as
guide and end vessels respectively. The RUDE & HECK launches
equipped with DE-723 fathometers, were alternated as the drag
tender. During calm weather the RUDE or HECK skiff was used to
tend the drag. At times both a launch and skiff were used to
speed raising or lowering the drag when working shoal waters.
Reconnaissance hydrography was done by both ships strictly for
the purpose of figuring upright settings. This hydrography should
not be used for charting. Cuts to the end buoy and opposite vessel were made by gyro repeater.

The distance from the mast to the end buoy was 204 meters when a 600 ft. towline was used, and 265 meters when a 800 ft. towline was used.

Standard wire drag equipment was used throughout the survey. Maximum length of drag used was 7200 feet while 2000 feet was the minimum.

Officers on board during 1968 were LCDR D. J. Florwick, LT C. Andreasen, LTJG J. C. Veselenak, LTJG C. D. North.

Officers in 1969 were LCDR C. Andreasen, LT M. N. Walter, ENS F. L. Campbell, ENS J. J. Morley.

Officers in 1970 were LCDR M. N. Walter, LT G. R. Schaefer, LTJG A. Y. Bryson, ENS J. J. Morley.

M. MISCELLANEOUS - A Smooth Sheet will be prepared by one of the ship's officers working in the Norfolk processing office.

Sixtieth (60th) meridian time was used throughout the project.

List of floating aids to navigation is omitted as all aids will be covered by USCGS Ship WHITING's OPR-492. See appendix.

N. RECOMMENDATIONS - This survey is considered adequate with respect to the wire drag requested.

Submitted by,

A. Y. Bryson Jr.
LTJG A. Y. Bryson, Jr.
All records of this survey, prior to smooth plotting are hereby approved. The 1970 Field Work was personally supervised by the undersigned, and the boat sheet and records were inspected daily. Previous seasons' work has been reviewed and is approved where utilized in this survey. This survey is considered complete and adequate for charting. No additional field work is recommended.

Merritt N. Walter
LCDR USN
<table>
<thead>
<tr>
<th></th>
<th>Table of Attachments</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>CONTROL SIGNALS</td>
</tr>
<tr>
<td>II</td>
<td>TIDAL NOTE</td>
</tr>
<tr>
<td>III</td>
<td>GROUNDINGS AND HANGS</td>
</tr>
<tr>
<td>IV</td>
<td>ITEM INVESTIGATION</td>
</tr>
<tr>
<td>V</td>
<td>STATISTICS</td>
</tr>
</tbody>
</table>
## Control Signals

### 1968-69

<table>
<thead>
<tr>
<th>Name</th>
<th>Station</th>
<th>Source</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOD B AT</td>
<td>Harbor of Refuge North End Light</td>
<td>G-13691</td>
<td>1933</td>
</tr>
<tr>
<td>ABE</td>
<td>Harbor of Refuge Lighthouse</td>
<td>G-3016</td>
<td>1927</td>
</tr>
<tr>
<td>DOG</td>
<td>Delaware Breakwater Lighthouse</td>
<td>G-3016</td>
<td>1927</td>
</tr>
<tr>
<td>GREEN</td>
<td>Delaware Breakwater West End Light</td>
<td>G-1751</td>
<td>1933</td>
</tr>
<tr>
<td>RED</td>
<td>Raydist 1968 - Established by Wire Drag Party</td>
<td></td>
<td>1968</td>
</tr>
<tr>
<td></td>
<td>Bayside Lab</td>
<td>G-13691</td>
<td>1962</td>
</tr>
</tbody>
</table>

### 1970

<table>
<thead>
<tr>
<th>Name</th>
<th>Station</th>
<th>Source</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>BANK</td>
<td>Fourteen Foot Bank</td>
<td>G-1751</td>
<td>1933</td>
</tr>
<tr>
<td>WINE</td>
<td>Brandwine Shoals Lighthouse</td>
<td>G-1895</td>
<td>1932</td>
</tr>
<tr>
<td>HARB</td>
<td>Harbor of Refuge Lighthouse</td>
<td>G-3016</td>
<td>1927</td>
</tr>
<tr>
<td>FACT</td>
<td>Lewes West Oil Factory Chimney</td>
<td>G-13691</td>
<td>1962</td>
</tr>
<tr>
<td>LITE</td>
<td>Harbor of Refuge North End Light</td>
<td>G-13691</td>
<td>1933</td>
</tr>
<tr>
<td>TANK</td>
<td>Lewes Municipal Water Tank</td>
<td>G-13691</td>
<td>1962</td>
</tr>
<tr>
<td>GREEN</td>
<td>Raydist 1968 - Established by Wire Drag Party</td>
<td></td>
<td>1968</td>
</tr>
<tr>
<td>RED</td>
<td>Bayside Lab</td>
<td>G-13691</td>
<td>1962</td>
</tr>
<tr>
<td>DELA</td>
<td>Delaware Breakwater West End Light</td>
<td>G-1751</td>
<td>1933</td>
</tr>
<tr>
<td>BOWERS</td>
<td>Mianauil Shoal Light</td>
<td>G-1751</td>
<td>1933</td>
</tr>
<tr>
<td>RRL</td>
<td>Murderkill River Rear Range Light</td>
<td>G-1751</td>
<td>1933</td>
</tr>
<tr>
<td>BOWERS</td>
<td>Murderkill River Front Range Light</td>
<td></td>
<td>1970</td>
</tr>
<tr>
<td>F.R.L.</td>
<td>Big Stone Beach Tower - Established by Wire Drag Party</td>
<td>1970</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Signal names changed to conform with 1970 Wns.
TIDAL NOTE

Hourly tide heights were supplied by the Washington Office, (Chief, Tides Section G3312-186-SSS), for Lewes (Breakwater Harbor) Delaware. Breakwater Harbor - LAT. 38° 47' N., LONG. 75° 06' W. All field work was done on 60°W meridian time.

No range or time corrections were made to tides for drag strips south of MO(A) buoy - LAT. 38° 54' N., LONG. 75° 08' W.

Range and time corrections to tides for all drag strips north of MO(A) buoy - LAT. 38° 54' N., LONG. 75° 08' W., are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>High Water</th>
<th>Time</th>
<th>Low Water</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>+ 0h 30m</td>
<td>+ 0.6 ft.</td>
<td>+ 0h 30m</td>
<td>+ 0.0 ft.</td>
</tr>
<tr>
<td>1970</td>
<td>+ 0h 20m</td>
<td>+ 0.6 ft.</td>
<td>+ 0h 45m</td>
<td>+ 0.0 ft.</td>
</tr>
</tbody>
</table>
TIDE NOTE FOR HYDROGRAPHIC SHEET

February 5, 1971

Atlantic Marine Center

Plane of reference approved in
10 volumes of records for
wire drag

HYDROGRAPHIC SHEET 9172

Locality: Delaware Bay

Year: 1969 and 1970

Plane of reference is mean low water

Tide Station Used (Form C&GS-681):

Lewes, Delaware

Height of Mean High Water above Plane of Reference is as follows:

South of Lat. 38°54'N = 4.1 ft.
North of Lat. 38°54'N = 4.7 ft.

Remarks

J.M. Simmons
Chief, Tides and Currents Branch

USCOMM-DC 6680-P84
<table>
<thead>
<tr>
<th>POS. NO. AND DAY</th>
<th>LAT</th>
<th>LONG</th>
<th>GROUND DEPTH</th>
<th>CLEAR STRIP DEPTH</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1G/1C</td>
<td>38°56'10&quot;</td>
<td>75°11'00&quot;</td>
<td>61'</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>1G/15C</td>
<td>38°54'35&quot;</td>
<td>75°09'12.8&quot;</td>
<td>61.9</td>
<td>J-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>7D/7D</td>
<td>38°57'08&quot;</td>
<td>75°11'18&quot;</td>
<td>58.9</td>
<td>G-1</td>
<td>Disproved w/70</td>
</tr>
<tr>
<td>12D/13D</td>
<td>38°56'36&quot;</td>
<td>75°10'25&quot;</td>
<td>60.94</td>
<td>RA-1</td>
<td>Disproved w/70</td>
</tr>
<tr>
<td>1F/1F</td>
<td>38°53'50&quot;</td>
<td>75°07'35&quot;</td>
<td>62.6</td>
<td>JA-2</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>6F/6F</td>
<td>38°51'15&quot;</td>
<td>75°06'35&quot;</td>
<td>62</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>11H/1H</td>
<td>38°59'25&quot;</td>
<td>75°13'40&quot;</td>
<td>60</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>10H/13H</td>
<td>38°57'55&quot;</td>
<td>75°12'35&quot;</td>
<td>60</td>
<td>31.2</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>34/6J</td>
<td>38°54'12&quot;</td>
<td>75°09'15&quot;</td>
<td>60</td>
<td>31.2</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>7J/8J</td>
<td>38°53'55&quot;</td>
<td>75°09'00&quot;</td>
<td>60</td>
<td>31.2</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>35J/36J</td>
<td>38°50'00&quot;</td>
<td>75°04'15&quot;</td>
<td>62</td>
<td>AA-2</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>15L/20L</td>
<td>38°56'45&quot;</td>
<td>75°10'05&quot;</td>
<td>58</td>
<td>None</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>29L/30L</td>
<td>38°57'35&quot;</td>
<td>75°11'10&quot;</td>
<td>59</td>
<td>R-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>31L/33L</td>
<td>38°57'50&quot;</td>
<td>75°11'50&quot;</td>
<td>59</td>
<td>R-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>34L/36L</td>
<td>38°57'50&quot;</td>
<td>75°11'50&quot;</td>
<td>59</td>
<td>R-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>2LM/27M</td>
<td>38°57'30&quot;</td>
<td>75°11'50&quot;</td>
<td>62</td>
<td>R-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>25N/30N</td>
<td>38°53'30&quot;</td>
<td>75°08'20&quot;</td>
<td>62</td>
<td>R-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>46N/47N</td>
<td>38°55'30&quot;</td>
<td>75°09'55&quot;</td>
<td>63</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>25F/26F</td>
<td>38°53'10&quot;</td>
<td>75°07'00&quot;</td>
<td>61</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>26N/28F</td>
<td>38°53'25&quot;</td>
<td>75°07'40&quot;</td>
<td>61</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>16Q/17Q</td>
<td>38°57'30&quot;</td>
<td>75°10'35&quot;</td>
<td>61</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>20Q/22Q</td>
<td>38°58'00&quot;</td>
<td>75°11'15&quot;</td>
<td>60</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>19Q/22Q</td>
<td>38°57'35&quot;</td>
<td>75°11'25&quot;</td>
<td>60</td>
<td>R-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>27Q/29Q</td>
<td>38°50'05&quot;</td>
<td>75°14'05&quot;</td>
<td>61</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>8R/11R</td>
<td>38°58'30&quot;</td>
<td>75°11'40&quot;</td>
<td>57</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>53S/56S</td>
<td>38°53'40&quot;</td>
<td>75°04'55&quot;</td>
<td>68</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>32T/41T</td>
<td>38°50'15&quot;</td>
<td>75°03'25&quot;</td>
<td>59</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>55T/58T</td>
<td>38°53'12&quot;</td>
<td>75°05'10&quot;</td>
<td>61</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>55T/58T</td>
<td>38°53'10&quot;</td>
<td>75°05'30&quot;</td>
<td>61</td>
<td>LA-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>1V/3V</td>
<td>39°00'13&quot;</td>
<td>75°13'35&quot;</td>
<td>58</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>5V/8V</td>
<td>39°00'08&quot;</td>
<td>75°13'08&quot;</td>
<td>52</td>
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<tr>
<td>15V/23V</td>
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<td>75°12'30&quot;</td>
<td>55.1</td>
<td>V-3</td>
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</tr>
<tr>
<td>39F/42F</td>
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<td>75°11'20&quot;</td>
<td>48</td>
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</tr>
<tr>
<td>23W/25W</td>
<td>38°53'10&quot;</td>
<td>75°05'19&quot;</td>
<td>62</td>
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<tr>
<td>17T/20Y</td>
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<td>75°09'35&quot;</td>
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</tr>
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</tr>
<tr>
<td>18Z/20Z</td>
<td>38°57'35&quot;</td>
<td>75°11'15&quot;</td>
<td>62</td>
<td>R-1</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>10AA/11AA</td>
<td>38°58'55&quot;</td>
<td>75°13'30&quot;</td>
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<td>Charted Shoal</td>
</tr>
<tr>
<td>11AA/16AA</td>
<td>38°58'30&quot;</td>
<td>75°13'12&quot;</td>
<td>37</td>
<td>NONE</td>
<td>Charted Shoal</td>
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<tr>
<td>24A/25A</td>
<td>38°57'25&quot;</td>
<td>75°12'20&quot;</td>
<td>38</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>27AA/28AA</td>
<td>38°57'05&quot;</td>
<td>75°11'55&quot;</td>
<td>38</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>28BA</td>
<td>39°01'59&quot;</td>
<td>75°01'18&quot;</td>
<td>62</td>
<td>HA-3</td>
<td>Hang 6x6x9 Cement</td>
</tr>
</tbody>
</table>

**Remarks:**
- Charted Shoal
- Disproved w/70 Work
- Hang 6x6x9 Cement
- Clump
### GROUNDINGS AND HANGS

#### POS. NO.
**AND DAY LETTER**

<table>
<thead>
<tr>
<th>POS. NO.</th>
<th>LETTER</th>
<th>LAT</th>
<th>LONG</th>
<th>GROUND DEPTH</th>
<th>CLEAR BY STRIP DEPTH</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>33BA/35BA</td>
<td>38(^\circ)52'00&quot;</td>
<td>75(^\circ)07'35&quot;</td>
<td>61'</td>
<td>JA-2</td>
<td>57'</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>37BA/40BA</td>
<td>38(^\circ)52'40&quot;</td>
<td>75(^\circ)08'20&quot;</td>
<td>61'</td>
<td>NONE</td>
<td>NONE</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>47CA/6CA</td>
<td>38(^\circ)51'10&quot;</td>
<td>75(^\circ)06'20&quot;</td>
<td>60'</td>
<td>CA-2</td>
<td>58'/57'</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>12DA/11DA</td>
<td>38(^\circ)54'10&quot;</td>
<td>75(^\circ)09'25&quot;</td>
<td>53'</td>
<td>DA-2</td>
<td>50'</td>
<td>Charted Shoal</td>
</tr>
<tr>
<td>12FA/16FA</td>
<td>38(^\circ)52'55&quot;</td>
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**NOTE:** In the "Clear By Strip and Clear Eff. Depth" column, none indicates a planned grounding at the start or end of a strip outside the project limits.
The following navigation buoy locations were not found in any of the volumes for this survey. They were assigned day letter "a" (red) for identification purposes on the smooth sheet. Verification Br., AMC

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ITEM B

The lighted wreck awash, shown on chart 1218 at LAT. 39° 04'0, LONG. 74° 23'0, was not plotted on the smooth sheet or A & D sheet because this item was not located.

Upon investigating this item, whose results are recorded in smooth tester Vol. III, MA Day, it was found that no lighted wreck awash was in the area, or had ever been in the area. The skiff was positioned over the approximate location of the wreck obtained by taking several sextant fixes. The divers then performed a circle search from the skiff out to a radius of 250'. No obstruction was located. Extensive wire drag to disprove the item was considered unfeasable due to lack of control and shoal water (depth of water was only four to five feet).

Command recommended that the charts be changed to show a sunken wreck position approximate with no light or marker.
ITEM INVESTIGATION
PRE-SURVEY REVIEW 14 AUGUST 1968

ITEM 1

The sunken wreck, position approximate at LAT 38°56'5.5, LONG 75°10'1.1, was cleared in one direction to a depth of 73 feet on R1 Day. It was only cleared 0.3 mile wide by 2.3 miles long due to steep bottom slope on both sides of the position. Its location has not been disproved, but it constitutes no hazard to navigation. The wreck had been previously cleared in two directions on N day, strip #2 to a depth of 62 feet. Recommend the wreck be removed from charts of the area.

ITEM 2

The sunken wreck charted at LAT 38°52'0.9, LONG 75°07'9.9 was cleared in one direction on J4 day, strip #2 to a depth of 52 feet. No change to the charts is recommended. AMO granted verbal authority to limit search on this item to one day in view of its location outside project limits.

ITEM 3

The charted 46 foot at LAT 38°50'1.6, LONG 75°03'1.3 was cleared in two directions on T day, strip #1 to a depth of 62 feet and strip #2 to a depth of 59 feet. Recommend the sounding be changed to 59 feet.

ITEM 4

The sunken wreck is located in restricted area 207.105. Authorization to drag this area was denied.

ITEM 5

Located on Sheet B.

ITEM 6

Located on Sheet B.
ITEM A
Located on Sheet B.

ITEM B
The lighted awash wreck, position approximate at LAT 39° 04.0', LONG 75° 23.0' was investigated on MA day with a 250 ft. radius circle search. Results are recorded in smooth tester Vol. III, MA day. An extensive wire drag to disprove the item at this time is considered unfeasable due to lack of control and sheel water. AMU concurred. Recommend the charts be changed to show a sunken wreck position approximate with no light or marker. See Item 27, supplement to Attachment IV, charted as filed.

ITEM C
The sunken wreck at position LAT 39° 00.1', LONG 75° 12.3' was investigated and recorded in smooth tester Vol. III, L day. A three point fix made when visibility had increased is recorded in wire drag Vol. XII, QA day.

Recommend the charts be changed to indicate a wreck awash at mean low water. Also indicate wreck is marked by Red MUN Buoy. Reference - Notice To Mariners, 31(3756)70. No position or buoy furnished

Charted as 21:19

Computed fix
$\phi 39^\circ 00' 02.116''$
$\lambda 75^\circ 12' 17.150''$
## ATTACHMENT V

### STATISTICS

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<td>X</td>
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<td>1.0</td>
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</table>

**TOTALS**: 42  60  11  1129  136.6  67.8
GENERAL

This survey was smooth plotted by LTJG Joseph J. Morley working under the immediate supervision of Branch personnel.

Field work was started in 1968 and continued in 1969 and 1970. The days listed below were rejected in the field because of sub-par work.

<table>
<thead>
<tr>
<th>DAY</th>
<th>DATE</th>
<th>DAY</th>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>9/29/68</td>
<td>U</td>
<td>7/15/70</td>
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<tr>
<td>B</td>
<td>10/13/68</td>
<td>X</td>
<td>7/20/70</td>
</tr>
<tr>
<td>E</td>
<td>10/1/69</td>
<td>GA</td>
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</tr>
<tr>
<td>G</td>
<td>10/7/69</td>
<td>FA</td>
<td>8/14/70</td>
</tr>
<tr>
<td>K</td>
<td>10/17/69</td>
<td>JA</td>
<td>8/19/70</td>
</tr>
</tbody>
</table>

The quality of the drag work was generally good but the necessity of dragging very close to the bottom caused a greater number of groundings than are normally experienced in area dragging. These groundings are shown on the smooth and A and D in small penciled circles. The firm hangs are shown in the same manner and, in addition, have leaders to notes giving available hang data. Effective depths should be checked against sounded depths when modern surveys are made in the area.

A list of positions for floating aids, recorded on blue line paper, was found in the survey records. These positions were assigned numbers for identification purposes and plotted on the smooth sheet as interim locations until they are located at a later date as noted in paragraph "M". The field recording is appended to this report.

The wreck located under item "C", page 11, was plotted by computing the angles recorded on QA day, Guide Launch. Other data on this item are recorded on "L" Smooth tender record no. 3. Positional data in this record could not be plotted as Ship Rude was apparently used as an object in the fix. There also appears to be some confusion as to the meridian time used.

It is believed the data on item "C" and the locations of floating aids should be confirmed when hydrographic surveys are resumed in the area.

Norfolk, Va.
April 16, 1971

Hugh L. Profitt
Chief, Verification Br., AMC
<table>
<thead>
<tr>
<th>Name on Survey</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<th>F</th>
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**PREPARED BY**

[Signature]

**CARTOGRAPHIC TECHNICIAN**

**APPROVED BY**

[Signature]

**CHIEF GEOGRAPHER**
HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. 9172 W.D.

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

<table>
<thead>
<tr>
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<th>AMOUNT</th>
<th>RECORD DESCRIPTION</th>
<th>AMOUNT</th>
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<td>1</td>
<td>BOAT SHEETS</td>
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<td>DESCRIPTIVE REPORT</td>
<td>OVERLAYS</td>
<td>1-Envelope</td>
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<th>HORIZ. CONT. RECORDS</th>
<th>PRINTOUTS</th>
<th>TAPE ROLLS</th>
<th>PUNCHED CARDS</th>
<th>ABSTRACTS/SOURCE DOCUMENTS</th>
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T-SHEET PRINTS (List)
SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey.

<table>
<thead>
<tr>
<th>PROCESSING ACTIVITY</th>
<th>PRE-VERIFICATION</th>
<th>VERIFICATION</th>
<th>REVIEW</th>
<th>TOTALS</th>
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<td>POSITIONS ON SHEET</td>
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<td>DEPTH SOUNDINGS REVISED</td>
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<td>DEPTH SOUNDINGS ERRONEOUSLY SPACED</td>
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<td>SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED</td>
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<tr>
<td>TOPOGRAPHIC DETAILS</td>
<td>TIME (MANHOURS)</td>
<td></td>
<td></td>
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<tr>
<td>JUNCTIONS</td>
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<td>VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS</td>
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<td>SPECIAL ADJUSTMENTS</td>
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<tr>
<td>ALL OTHER WORK</td>
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<tr>
<td>TOTALS</td>
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</table>

PRE-VERIFICATION BY                                       | BEGINNING DATE   | ENDING DATE   |
VERIFICATION BY                                            | BEGINNING DATE   | ENDING DATE   |
REVIEW BY                                                  | BEGINNING DATE   | ENDING DATE   |
**INSTRUCTIONS** - This form serves to identify items of a checklist in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

**CL - Check List Items:** should be checked as having been completed during the verification processes.

**R - Report Item:** This column refers to those items reported to the reviewer and is used to indicate the items discussed.

---

### Part I - DESCRIPTIVE REPORT

**Note:** The verifier should first read the Descriptive Report for general information and problems.

1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken.
   **Remarks Required:** None

2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification.
   **Remarks Required:** None

3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year.
   **Remarks Required:** None

---

### Part II - SHORELINE AND SIGNALS

4. Source of shoreline signals
   **Remarks Required:** List all surveys
   a. Give earliest and latest dates of photographs
   b. Field inspection date
   c. Field date
   d. Reviewed-Unreviewed

5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography.
   **Remarks Required:** Discuss remaining differences.

6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet.
   **Remarks Required:** None

7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet.
   **Remarks Required:** List those signals still unidentified.

---

### Part III - JUNCTIONS

**Note:** Make a cursory comparison preliminary to linking soundings in area of overlap.

8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical.
   **Remarks Required:** None

9. The notation in slanted lettering "JOINS H-----(19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil.
   **Remarks Required:** None

---

### Part III - JUNCTIONS (Continued)

10. Junctions with contemporary surveys were satisfactory except as follows:
    **Remarks Required:** Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED.

---

### Part IV - VOLUMES

11. All items affecting the plotting of the survey which are entered in the remarks column of the sounding records were noted and checked marked. In all cases appropriate action was taken and exceptions noted in the volumes.
    **Remarks Required:** None

12. Condition of sounding records was satisfactory except as follows:
    **Remarks Required:** Mention deficiencies in completeness of notes or actions for the following:
    a. rocks
    b. line turns
    c. position values of beginning and ending of lines
    d. bar check or velocity correctors
    e. time recording
    f. notes or markings on fathographs
    g. was reduction of soundings accurately done?
    h. was scanning accurate?
    i. were peaks at uneven intervals missed?
    j. were stumps completed?
    k. references to adjacent features

---

### Part V - PROTRACTING

13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp.
    **Remarks Required:** None

14. The protracting and plotting of all unsatisfactory crossings were verified.
    **Remarks Required:** None

15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible.
    **Remarks Required:** None

---

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### Part V - Protracting (Continued)

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<tbody>
<tr>
<td>16.</td>
<td>The protracting was satisfactory except as follows:</td>
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<tr>
<td></td>
<td>Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable reploting or adjustments.</td>
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<td>17.</td>
<td>The protractor has been checked within the last three months.</td>
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<td></td>
<td>Remarks Required: -- Date of check, type of protractor and number.</td>
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### Part VI - Sounding

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<tbody>
<tr>
<td>18.</td>
<td>All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings.</td>
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<td>Remarks Required: -- None</td>
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<tr>
<td>19.</td>
<td>Sounding line crossings were satisfactory except as follows:</td>
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<td>Remarks Required: -- Discuss adjustments.</td>
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<tbody>
<tr>
<td>21.</td>
<td>The scanning, reduction, spacing, plotting of questionable soundings have been verified.</td>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>The smooth plotting of soundings was satisfactory except as follows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.</td>
<td></td>
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</tbody>
</table>

### Part VII - Curves

<p>| | | | | | | | |</p>
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</thead>
<tbody>
<tr>
<td>23.</td>
<td>The depth curves have been inspected before inking.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Remarks Required: -- By whom was the penciled curves inspected.</td>
<td></td>
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</tr>
</thead>
<tbody>
<tr>
<td>24.</td>
<td>The low-water line and delineation of shoal areas have been properly shown in accordance with the following:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>a. From T-Sheet in dotted black lines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. From soundings in orange</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Approximate position of sketched curve is dashed orange</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Approximate position of shoal area not sounded in black dashed</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remarks Required: -- None</td>
<td></td>
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</tr>
</tbody>
</table>

### Part VIII - Aids to Navigation

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>25.</td>
<td>Depth curves were satisfactory except as follows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>(This statement should not refer to the manner in which the curves were drawn).</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.</td>
<td></td>
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</tbody>
</table>

### Part IX - Boatsheet

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>26.</td>
<td>All fixed aids located together with those on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the contemporary topographic sheets, have been shown on the survey.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Remarks Required: -- Conflicts of any nature listed.</td>
<td></td>
<td></td>
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</tr>
</thead>
<tbody>
<tr>
<td>27.</td>
<td>All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remarks Required: -- None</td>
<td></td>
<td></td>
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</tbody>
</table>

### Part X - General

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</thead>
<tbody>
<tr>
<td>28.</td>
<td>The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Remarks Required: -- None</td>
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</tr>
</thead>
<tbody>
<tr>
<td>29.</td>
<td>Heights of rocks awash were correctly reduced and compared with topographic information.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Remarks Required: -- Note excessive conflicts with topographic information.</td>
<td></td>
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</tbody>
</table>

### Part XI - Notes to the Reviewer

<p>| | | | | | | | |</p>
<table>
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</thead>
<tbody>
<tr>
<td>30.</td>
<td>All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2).</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Remarks Required: -- None</td>
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</tr>
</thead>
<tbody>
<tr>
<td>31.</td>
<td>Unnecessary pencil notes have been removed from the sheet.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Remarks Required: -- None</td>
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<td></td>
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</tr>
</tbody>
</table>

### Unresolved discrepancies and questionable soundings.

### Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.

### Supplemental information.

---

**Verified by**

**Date**
### INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

<table>
<thead>
<tr>
<th>CHART</th>
<th>DATE</th>
<th>CARTOGRAPHER</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1219</td>
<td>6-2-71</td>
<td>L. R. EVERHART</td>
<td>Part Before Verification Review Inspection Signed Via</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drawing No. <strong>APPLIED CRITICAL CORRECTIONS</strong></td>
</tr>
<tr>
<td>1217</td>
<td>6-3-71</td>
<td>L. R. EVERHART</td>
<td>Part Before Verification Review Inspection Signed Via</td>
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<td></td>
<td></td>
<td></td>
<td>Drawing No. <strong>APPLIED CRITICAL CORRECTIONS</strong></td>
</tr>
<tr>
<td>411</td>
<td>11-2-71</td>
<td>B. Ferrenexo</td>
<td>Part Before Verification Review Inspection Signed Via</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drawing No. <strong>App. critical cor. only</strong></td>
</tr>
<tr>
<td>1103</td>
<td>12-11-74</td>
<td>B. Ferrenexo</td>
<td>Part Before Verification Review Inspection Signed Via</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drawing No. <strong>App. critical cor. only</strong></td>
</tr>
<tr>
<td>1000</td>
<td>7-11-74</td>
<td>J. Bailey</td>
<td>Full Part Before After Verification Review Inspection Signed Via</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drawing No. <strong>61 Consider fully Appl. No hydro detail shown in area on this chart</strong></td>
</tr>
<tr>
<td>12304</td>
<td>12-9-96</td>
<td>S. Scherr</td>
<td>Full Part Before After Verification Review Inspection Signed Via</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drawing No. <strong>61 no corrections</strong></td>
</tr>
</tbody>
</table>