

9563

Diag. Cht. No. 77-3

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey Hydrographic
Field No. AHP-05-9-75
Office No..... H-9563

LOCALITY

State Maryland
General Locality Baltimore Harbor
Locality Curtis Creek to Sollers Point

1975-76

CHIEF OF PARTY
J.O. Rolland, W.R. Daniels

LIBRARY & ARCHIVES

DATE March 20, 1979

Area-2
Charts
12281
12278

HYDROGRAPHIC TITLE SHEET

H-9563

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

FIELD NO.

AHP-05-9-75

State Maryland

General locality Baltimore Harbor

Locality Curtis Bay Creek to Sollers Point

Scale 1:5,000 Date of survey 22 Sept. 75 - 10 Nov. 1976

Instructions dated July 9, 1975 * Project No. OPR-514-AHP-75

Vessel Launch 1207, Skiff 570, Launch 1282

Chief of party Lt. Cdr. J.O. Rolland, Lt. Cdr. W.R. Daniels

Surveyed by Lt. D. Drake and Lt. (jg) K. Perrin

Soundings taken by echo sounder, hand lead, pole all

Graphic record scaled by EW, DD, WS, WO, RL, GH, MR, KP, IG, EH

Graphic record checked by DD, IG, KP, WO Verification Branch (AMC)

Protracted by N/A Automated plot by AMC^{EDP} - CALCOMP 618

Verification by AMC - Verification Branch L.G. Cran

Soundings in ~~XXXX~~ feet at MLW ~~XXXX~~

REMARKS: Time meridian for all data is 0° (GMT)

All notes in red made by verifier during verification

*Change No. 1 dated July 30, 1975

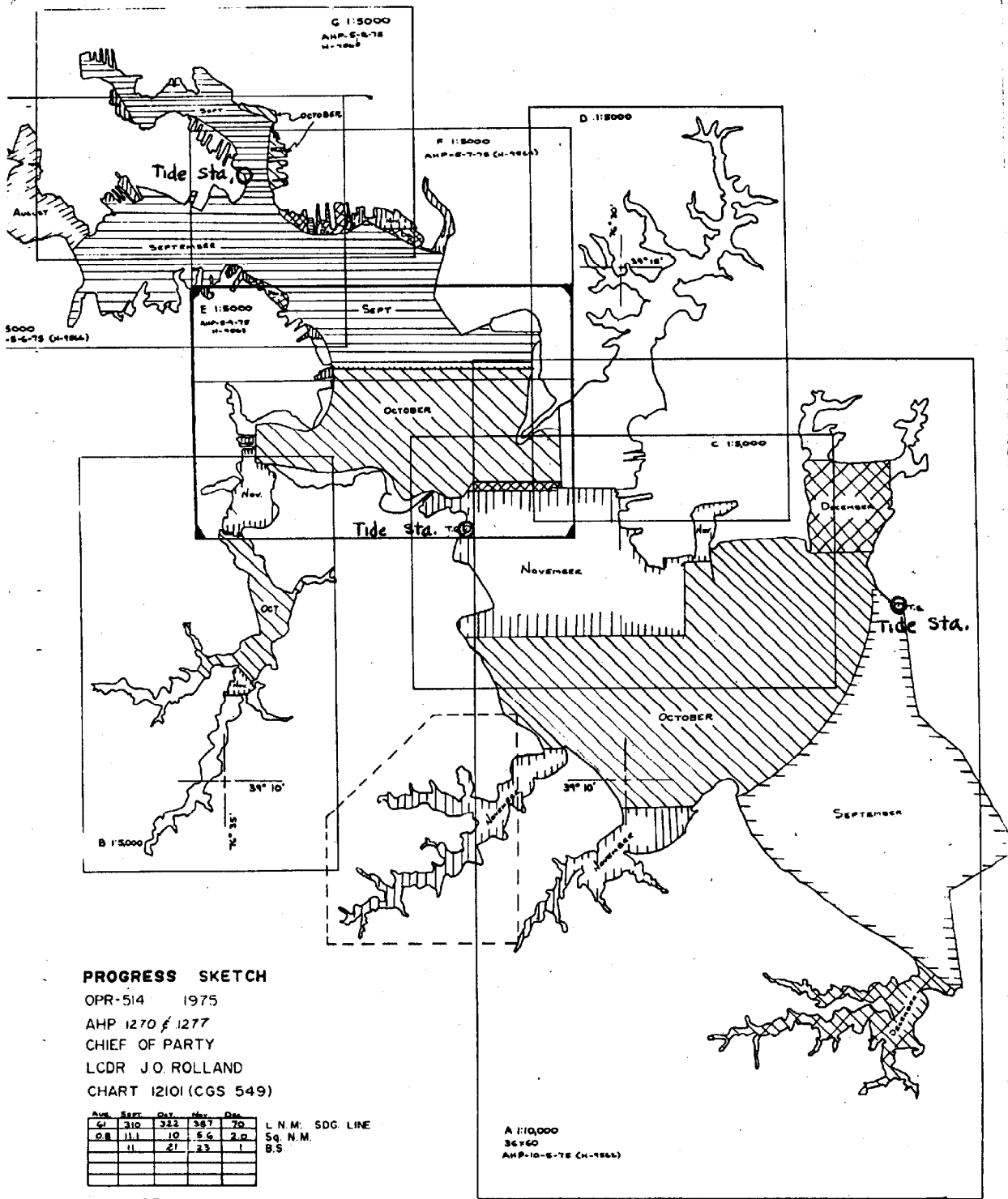
*Change No. 2 dated July 20, 1976

Applied to slide
WST 8-17-79

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✓ = Misc. items removed from the D.R. and filed with the field records



PROGRESS SKETCH

OPR-514 1975
 AHP 1270 & 1277
 CHIEF OF PARTY
 LCDR J.O. ROLLAND
 CHART 12101 (CGS 549)

| | Aug | Sept | Oct | Nov | Dec |
|-----|------|------|-----|-----|-----|
| sq | 310 | 322 | 387 | 70 | |
| 0.8 | 11.1 | 10 | 5.6 | 2.0 | |
| | 11 | 21 | 23 | 1 | |
| | | | | | |
| | | | | | |

L.N.M. SDG. LINE
 Sq. N.M.
 B.S.

JAN. 1976
 23
 0
 18

L.N.M. SDG. LINE
 Sq. N.M.
 B.S.

DESCRIPTIVE REPORT
TO
ACCOMPANY HYDROGRAPHIC SURVEY H-9563

A. PROJECT

This survey is on Project OPR-514-AHP-75, Baltimore Harbor, Maryland, in accordance with project instructions dated 9 July 1975 and Change No. 1 to project instructions dated 30 July 1975, change No. 2 dated 20 July 1976.

B. AREA SURVEYED

This survey covers the area of Curtis Bay, Baltimore Harbor, Maryland, and is enclosed by the approximate limits:

| Latitude N | Longitude W |
|-------------|-------------|
| 39° 12' 35" | 76° 34' 55" |
| 39° 14' 35" | 76° 30' 40" |

The survey was conducted from 22 September 1975 through January 1976 and from 6 August 1976 through 10 November 1976.

C. SOUNDING VESSEL

Launch 1207 and Skiff 570 were used to obtain hydrographic data during the first part of the survey in 1975. Launch 1282 finished the inshore portion of the survey in 1976.

Launch 1207 is a 26-foot automated "Super Pig." Its draft is 3.8 feet and was used in deep water only. Skiff 570 is a 16-foot Boston Whaler with twin 25 hp outboards and was used for only a small portion of the survey in the northwest corner. Launch 1282, a 21-foot Menark skiff, is powered by a 140 hp Evinrude outboard and was used for most of the inshore work. Prior to JD 265, Launch 1282 was powered by one 85hp OMC.

D. SOUNDING EQUIPMENT AND CORRECTION TO ECHO SOUNDINGS

All soundings obtained with skiff 570 and Launch 1282 were recorded to the nearest two-tenths of a foot. For depths less than 2.0 feet or when the echo sounder had an unreadable trace, pole soundings were taken. For depths greater than 2.0 feet echo sounders were used to obtain soundings. Leadlines were taken along faces of docks and piers when the launch was unable to get alongside. The echo sounder in Skiff 570 was a Raytheon DE-723 serial 1888.

The echo sounder in Launch 1282 was a Raytheon DE-723 serial #1272 from 6 August 1976 through 26 August 1976; a Raytheon DE-723 Serial #925 from 1 September 1976 through 21 September 1976, and a Raytheon DE-723 Serial #1279 from 22 September 1976 through end of survey. 1207 used DE-723-D

The graphic records were scanned and checked scanned by trained personnel in accordance with the requirements specified in the Provisional Hydrographic Manual.

Bar checks were taken daily on days that Hydrography was actually run to ensure an accurate echo sounder correction to depth.

The echo sounder initial was checked and kept at zero usually not varying more than 0.1 feet. F scale checks were made frequently each day.

Settlement and squat corrections to be applied to Launch 1207 soundings are from tests previously run while assigned to MT MITCHELL. Corrections to be applied to Skiff 570 are also from tests previously run by AHP. S&S corrections for 1282 were determined from tests conducted 6 October 1976, when it was powered by an 85 hp engine and another test run 10 November 1976 when the engine was changed to a 140 hp.

Results of these tests, curves and tabulations are included in this report under Settlement and Squat.

E. HYDROGRAPHIC SHEETS

This survey consists of a 1:5,000 scale boat sheet and one development overlay. All soundings, bottom samples and buoys were plotted on one sheet. The boat sheet projection was drawn by AMC and checked by party personnel.

All work accomplished by Launch 1207 was plotted on the field sheet at AMC by CALCOMP-618 from tapes produced by the onboard hydrolog equipment. Other hydro accomplished by Skiff 570 and Launch 1282 was manually plotted on the same sheet.

Sheet Limits:

| <u>Latitude N</u> | <u>Longitude W</u> |
|-------------------|--------------------|
| 39°12'35" | 76°34'55" |
| 39°14'45" | 76°30'40" |

All records and boat sheets will be sent to Processing Division at the Atlantic Marine Center, Norfolk, VA. for verification and smooth plotting.

F. CONTROL STATION

All stations for Del Norte were located by Photo Party 61. Pier corners and other well defined points on the manuscripts were used for signal location and electronic control sites as per Change No. 1 to project instructions. Methods of location and a list of geographic positions are included in the Horizontal Control Report prepared by Photo Party 61.

G. Hydrographic Position Control

Position control for the most part was visual-hydrolog being supplemented with Del Norte Range/azimuth.

Digital sextants were loaned to the field party by the Rockville office along with the required remote thumbwheel station and Hazelow interface. This system worked very good with only a few minor problems encountered.

Calibration of the digital sextants was performed at the factory prior to delivery to the field party. Daily initializing consisted of zeroing the sextants on the horizon, setting the Hazelow interface to zero and rechecking this initializing periodically during the day.

Near the end of the survey, one of the digital sextants became defective (serial No. TU-3601). With no backup available it was necessary to change to standard sextants which required the anglers to "thumb-in" their angles. This system worked equally as well as the digital sextants.

The Range/azimuth method used by Skiff 570 and Launch 1282 was one Del Norte distance and one intersecting azimuth angle. In all cases the T-2 observer occupied the same signal location as the Del Norte equipment.

Del Norte equipment used by Skiff 570 was DMU#162, Master #185, Remote #180. Del Norte equipment used by Launch 1282 was DMU #122, Master #187A, Remote #249D. Remote #189B was used on shore station 3 November 1976 only.

The Del Norte was calibrated twice daily to ensure its accuracy; once in the morning and once in the evening. Calibration was done over a measured baseline.

The azimuth angle was obtained with the use of a theodolite Wild T-285658. The instrument was initialed at the beginning of each setup and checked frequently to ensure its accuracy.

H. SHORELINE

Shoreline detail was taken from the following T-sheets: TP-00842 and TP-00843. All sheets are at the scale of 1:5,000. Field edit of all sheets was completed by Photo Party 61. No change in the shoreline is to be noted by the hydrographer.

I. CROSSLINES

Crosslines were run in excess of 10% of the regular system of sounding lines. The agreement between the crosslines and main scheme hydro was good with differences of not more than one foot in most cases. Hydro run by Launch 1207 on J.D. 329(1975) crossed hydro run earlier in the season and shows disagreement of 2 to 3 feet. It was noted on the printout for that day that the tide was approximately 2 feet above normal. This disagreement should be resolved when smooth tides are applied. *The disagreement was resolved*

It should also be noted that there is disagreement between 1975 and 1976 hydro in the vicinity of Latitude 39°13.4', Longitude 76°31.3'. This is due to "fill dredging" operations for the bridge construction and also pipeline trenching in the immediate area. These operations were being conducted during both field seasons (1975 & 1976).

J. JUNCTIONS

This survey, H-9563, AHP-05-9-75, has no junction with any prior surveys. The project area does junction with three contemporary surveys, H-9581 to the southwest; contemporary survey H-9564 to the north; and with contemporary survey H-9582 to the southeast. The junctions are good with differences of no more than one foot.

K. COMPARISON WITH PRIOR SURVEYS

Survey H-9568, AHP-05-9-75, was compared with one prior survey, the survey H-4371, 1:10,000, 3 August 1924. The area around Curtis Bay has shown excessive shoaling since the 1924 survey. Soundings differ by as much as 10' to 12' feet along the shoreline. The main channel depths are much deeper now than before, as much as 10 feet deeper than the 1924 survey. 1976 soundings in the general nonchannel areas in Baltimore Harbor agree fairly close to each other. The shoreline has changed considerably on the north side of the Harbor. Seven presurvey review items occur on this sheet. They are as follows:

- ✓ #19 - Dangerous Sunken Wreck, PA charted in Latitude 39°12.94'N, Longitude 76°31.0'W. The area was wire dragged, an obstruction was found at the charted position. ^{Lead line} A least depth of 12 feet, with 11 ft just south of this area (50 meters) observed. It is recommended that wreck remain as charted with the designation PA being removed. Vol. 5, pg. 35, pos. 8052.
 concur *Shown as 13 wk on survey*
- #20 - Visible Wreck, PA charted in Latitude 39°12.92'W, Longitude 76°31.2'W. The area was wire dragged since there were no visible signs of the wreck. There were no obstructions located in the area of the wreck. It is recommended that the visible wreck symbol be deleted from the chart. Vol. 5, pgs. 35-38.
 concur pos # 8053 to 8072
- #21 - Dangerous Sunken Wreck (11-ft. Rep.) charted in Latitude 39°13.1'N, Longitude 76°33.62'W. The area of the wreck was wire dragged with ^{one} ~~no~~ obstructions being located in the area of the wreck. It is recommended that the sunken wreck (11-ft. Rep.) be ^{retained on} ~~deleted~~ from the chart. ~~As no plot of this wreck was provided, I would recommend retention of this item unless subsequent information indicates otherwise. Pos # 7948 to 7961 as Pos # 7949 end of drag has note "snag", this seems possible for wreckage~~
- #22 - Submerged Piles charted in Latitude 39°13.2'N Longitude 76°34.63'W. The area of the submerged piles was wire dragged but no piles or any obstructions were located. It is recommended that the submerged pile symbol be deleted from the chart. ^{note} Pos # 7948-7961 *concur* 8176 to 8180. Retain charted note (See Q.C. Report-item 7)
- #23 - Visible Wreck PA charted in Latitude 39°12.61', Longitude 76°32.07'. The area of the wreck was dragged for since the wreck was not visible. There was no wreck located but the area is foul with debris and trash. It is recommended that the Visible Wreck PA be deleted from the chart and a designation foul area be indicated on the chart at the same G.P. No drag information found during verification, however T-sheet information shows shoreline on top of this object. *concur* with recommendation to delete this item. No limits were included for dashed foul area.

- #25 - Submerged Pile charted in Latitude 39°13.85', Longitude 76°31.78' the area of the submerged pile was wire dragged for. There was no pile or any obstruction located. It is recommended that the submerged pile designation and symbol be deleted from the chart.
Drag Pos # 8138 - 8167 concur
- #28 - Mooring Buoy charted at Latitude 39°13.18', Longitude 76°33.38'. The buoy no longer exists at this location. *concur*

Visible Wrecks Enclosed by Triangles

The visible wreck charted at Latitude 39°14.54', Longitude 76°31.4'. The wreck is still visible and exists as charted. It is recommended the wreck remain as charted. *concur*

The ^{submerged wreck and} visible wreck ^{in the vicinity of} charted at Latitude 39°14.38', Longitude 76°31.07'. The area was visibly inspected since water was shallow enough to see bottom. The wrecks no longer exist. It is recommended that the wrecks be deleted from the chart. *concur*

The visible wrecks charted at Latitude 39°13.0', Longitude 76°33.4' were not visible so the area was wire dragged. No wrecks or obstructions were found at this location. It is recommended that the visible wreck symbol be deleted from the chart. *concur/w/ deletion of visible wreck symbol but should be revised to sunken wreck as drag plot does not appear adequate to disprove possible wreckage this area. Position # 8210 to Pos # 8217*

Dashed Circled Items

- ✓ The 18-foot sounding charted at Latitude 39°13.1', Longitude 76°34.65'. A development of hydrographic sounding lines was run to determine a least depth in the area. 15-foot soundings were found at Latitude 39°13.11', Longitude 76°34.68' and Latitude 39°15.12', Longitude 76°34.64'. Soundings between these varied from 16 to 18 feet. It is recommended that the 15-foot soundings be charted in lieu of the 18-foot soundings. *concur*
- ✓ The 6-foot sounding charted at Latitude 39°13.46', Longitude 76°33.66'. A development of hydrographic sounding lines was run to determine the least depth in the area. A 6-foot sounding was located at the existing G.P. ^{Lat 39°13' 46" Long 76°33' 23"} It is recommended that the 6-foot sounding ~~remain as~~ ^{be} charted. *concur*

The visible wrecks charted at Latitude 39°12.94', Longitude 76°33.45'. The area was wire dragged. The area is foul with debris and submerged obstruction. One visible wreck charted at Latitude 39°12.96'N, Longitude 76°33.47'W exists as charted. All others are submerged. It is recommended that the chart be changed to indicate as such. *concur* All of the wrecks were not specifically located. *Recommended charting remaining charted visible and submerged wrecks as submerged.*

✓ The rocks charted at Latitude 39°12.66', Longitude 76°32.92'. The area of the rocks was wire dragged for. The rocks ^{was} were found to exist as charted. A least depth of 1.0 foot was observed. It is recommended that the rock remain as charted. *Pos # 8197 to Pos 8203 concur Reduced to X(0) on smooth sheet H-9563.*

✓ The wreck charted at Latitude 39°12.75', Longitude 76°32.54'. The area was wire dragged for the wreck. An obstruction was

located at Latitude 39°12.74', Longitude 76°32.56'. The area has several large boulders from the shoreline near the area of the wreck. It is recommended that the ^{visible}wreck symbol be deleted from the chart and that an ^{obstruction}obstruction symbol be added at the new G.P. ~~It is recommended the revision of the wreck symbol to include and the addition of a foot note~~

The wrecks charted at Latitude 39°12.65', Longitude 76°32.35'. The area has several wrecks at the general G.P. They are as follows:

| | | |
|--------------------|---------------------|-----------------------|
| Latitude 39°12.63' | Longitude 76°32.48' | (cluster of 3 wrecks) |
| Latitude 39°12.65' | Longitude 76°32.45' | |
| Latitude 39°12.76' | Longitude 76°32.34' | |
| Latitude 39°12.71' | Longitude 76°32.30' | |
| Latitude 39°12.68' | Longitude 76°32.36' | |
| Latitude 39°12.71' | Longitude 76°32.36' | |

It is recommended that these wrecks be charted at their G.P.'s. ~~to comply with the T-sheet sheet location. (IP-00843)~~

L. COMPARISON WITH CHART See Verifier's Report

This survey H-9563, AHP-05-9-75 was compared with NOS Chart No. 12281 (545), August 16, 1975. The major change between the chart and the new survey was that the shoreline on the north side at Latitude 39°14'35", Longitude 76°31'15" has changed due to bulkheading and landfill. In general the soundings on the new survey agree fairly close to the soundings on the chart, in areas of little dredging, or in area where chart has been updated by recent Co.F.E. maint'd. channels.

M. ADEQUACY OF SURVEY /

This survey, H-9563, AHP-05-9-75, is complete and adequate and should supersede all prior surveys.

N. AIDS TO NAVIGATION /

All floating and non-floating aids to navigation were located to verify their charted position. The buoys and markers adequately serve the purpose for which they were established. (See Q.C. Report - item 6)

In comparison with the G.P.s of the buoys from the chart and the G.P.'s determined during the survey, the following results were obtained. Only buoys with discrepancies are indicated.

| <u>Position No.</u> | <u>Buoy</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Distance From Chart Position</u> |
|---------------------|-------------|-----------------|------------------|-------------------------------------|
| 7663 | N"4" | 39°11.05' | 76°31.35' | 45 meters SW ✓ |
| 7664 | C"3" | 39°14.08' | 76°31.38' | 30 meters W ✓ |
| 8181 | C"11" | 39°13.05' | 76°34.54' | 15 meters N ✓ |
| 7974 | R"2" | 39°12.95' | 76°30.99' | No Bell ✓ |
| 7977 | C"11S" | 39°12.68' | 76°31.71' | 15 meters N ✓ |
| 7975 | R"6M" | 39°12.84' | 76°31.42' | 60 meters SSE ✓ |
| 7976 | C"5M" | 39°12.74' | 76°31.48' | 165 meters SE ✓ |
| 7656 | C"5" | 39°14.18' | 76°31.20' | 25 meters N ✓ |
| 7652 | N"6" | 39°14.16' | 76°31.16' | 25 meters S ✓ |
| 8042 | N"4" | 39°13.35' | 76°32.85' | 30 meters E ✓ |
| 8043 | C"3" | 39°13.25' | 76°32.86' | 15 meters E ✓ |

| <u>Position No.</u> | <u>Buoy</u> | <u>Latitude</u> | <u>Longitude</u> | <u>Distance From Chart Position</u> |
|---------------------|-------------|-----------------|------------------|-------------------------------------|
| 8044 | N"2" | 39°13.36' | 76°32.33' | 132 meters SE |
| 8045 | "9M" | 39°13.45' | 76°32.29' | 63 meters E |
| 8046 | C"1" | 39°13.26' | 76°32.30' | 90 meters ESE |
| 8047 | "8M" | 39°13.34' | 76°31.90' | 15 meters NE |
| 8108 | N"8" | 39°14.32' | 76°31.85' | 15 meters E |
| 8110 | "5" | 39°14.13' | 76°32.17' | 15 meters NE |
| 8111 | "6" | 39°14.08' | 76°32.10' | 35 meters ESE |
| 8112 | C"3" | 39°14.04' | 76°32.28' | 63 meters ENE |
| 8113 | NRW"2" | 39°13.91' | 76°32.33' | 105 meters NE |
| 8114 | "10M" | 39°13.79' | 76°32.40' | 25 meters E |
| 8115 | R"2" | 39°14.34' | 76°32.58' | 45 meters E |
| 8116 | "12M" | 39°14.22' | 76°32.88' | 30 meters SE |
| 8117 | "11M" | 39°14.10' | 76°32.96' | 90 meters NE |
| 8118 | "13S" | 39°14.06' | 76°33.18' | 90 meters SSE |
| 8182 | S"2" | 39°13.45' | 76°34.56' | 80 meters ENE |
| 8184 | S"6" | 39°13.53' | 76°34.75' | 72 meters SE |

O. STATISTICS

| | <u>Launch 1207</u> | <u>Skiff 570</u> | <u>Launch 1282</u> | <u>Total</u> |
|---------------------------|--------------------|------------------|--------------------|--------------|
| Miles sounding lines | 138 | 11.8 | 53.2 | 203.0 |
| Miles Crossline | 15 | 2.0 | 4.6 | 21.6 |
| % Crosslines | 11% | 17.0% | 8.6% | 12.2% |
| Total areas of boat sheet | 3.5 | 0.5 | 1.0 | 5.0 SNM |
| Total number of positions | 2613 | 242 | 1217 | 4072 |
| Number of bottom samples | - | - | 62 | 62 |
| Miles Wire Drag | - | - | 7.3 | 7.3 |

P. MISCELLANEOUS

A number of strays were indicated on the fathograms obtained by Launch 1207 in 1975. When Launch 1282 returned in 1976 to complete the survey, a number of these strays were investigated with a wire drag. Nothing was found at these locations and it is believed the stray soundings on 1207 fathograms are a result of excessive gain. (Vol.6, JD 310)

On Launch 1282 a modified sweep was utilized to search for submerged objects. The sweep consisted of two trawl boards 18" x 24", with 65 feet of small chain between them. The trawl boards were bridled and towed in such a manner as to drag along the bottom. The distance between the two trawl boards while dragging is approximately 40 to 45 feet. The distance of the drag astern of the vessel was determined in a ratio of 1:3; water depth/length of tow line. Upon snagging an object the two lines which were generally 60° apart would come together slowly allowing sufficient time for the coxswain to stop the vessel. The sweep was then pulled aboard until the snagged object was close enough to the vessel to get a sounding pole or leadline sounding on the object.

Q. RECOMMENDATIONS

None

R. AUTOMATED DATA PROCESSING

| <u>Program Title</u> | <u>Program Number</u> | <u>Version Date</u> |
|----------------------------------|-----------------------|---------------------|
| Grid and Signal Plot | RK201 | 4/18/75 |
| Lambert P.C. Conversion | AM400 | 4/1/73 |
| Geodetic Direct/Inverse | RK407 | 8/15/74 |
| Predicted Tides | AM500 | 11/10/72 |
| Elinore | AM602 | 5/21/75 |
| Visual Hydrolog | RK175 | 5/1/75 |
| Visual Hydrolog Loader | RK171 | 5/1/75 |
| Visual Station Table Load & Plot | AM202 | 1/21/71 |
| Visual Position & Sounding Plot | AM205 | 1/21/71 |

S. REFERENCE TO REPORTS

1. Horizontal Control Report OPR-514-Baltimore Harbor, 1975.
2. Field Edit Report OPR-514-Baltimore Harbor, 1975.

Both reports were submitted by Photo Party 61.

Respectfully submitted,

Robert Lewis
Robert Lewis
Cartographic Tech.

FIELD TIDE NOTE
(1975 Season)

Field tide reduction of soundings was based on predicted tides from Baltimore Harbor, MD and were interpolated by PDP-8/e computer utilizing AM-500. All times of both predicted and recorded tides are GMT.

No gages were installed within the limits of Survey Sheet.

A bubbler gage was installed in Curtis Creek near the survey area and two ADR- Punch Tape gages were installed at the mouth of the Patapsco River. The ADR/gages remained in service for the entire season.

| <u>Site & Gage Name</u> | <u>Location</u> | <u>Period</u> |
|-----------------------------|-----------------|------------------------------|
| North Point #857-4779 | 39°11'45" | 8/12/75 to end of season. |

Gage and staff were installed and in operation on August 12, 1975. Staff was leveled in August 19, 1975. Very good records were obtained from this gage.

| <u>Site & Gage Name</u> | <u>Location</u> | <u>Period</u> |
|-----------------------------|-----------------|------------------------------|
| Hawkins Point #857-4821 | 39°12'30" | 8/11/75 to end of season. |

Gage and staff installed and in operation 11 August 1975. Staff was leveled in 19 August 1975. Excellent records were obtained from this gage.

| <u>Site & Gage Name</u> | <u>Location</u> | <u>Period</u> |
|-----------------------------|----------------------|-----------------------------------|
| Curtis Creek #857-4878 | 39°11.7' 76°34.6' | 102 days 30 Sept 75 - 9 Jan 76 |

Gage and staff were installed, leveled, and began operation 30 September 1975. Good records were obtained for 102 days with no interruptions. The marigram reads the same as the staff.

Zoning

Zoning information will be furnished by Chief, Tides Branch, Rockville.

FIELD TIDE NOTE
(1976 Season)

Field Tide reduction of soundings was based on predicted tides from Baltimore, MD corrected to Ft. Carroll, MD and were interpolated by PDP-8/e computer utilizing AM500. All times of both predicted and recorded tides are GMT.

One Bristol Bubbler Tide Gage was installed near the survey area, and two ADR tide gages were installed near the survey area. The locations and periods of operation are as follows:

| <u>Site</u> | <u>Location</u> | <u>Period</u> |
|---------------------------------|--|----------------------------------|
| Curtis Creek (GSA) #857-4878 | Lat. 39°11.7'N Long. 76°34.6'W | 59 days 20 JUL 76 - 17 SEP 76 |
| Hawkins Point (1) #857-4821 | Lat. 39°12'30"N Long. 76°32'56" 31 | 16 days 15 JUL 76 - 31 JUL 76 |
| Hawkins Point (2) #857-4821 | Lat. 39°12'N Long. 76°32'W | 91 days 12 AUG 76 - 11 NOV 76 |

Curtis Creek (GSA)

Gage S/N 71A-13314) was installed and began operation 20 July 1976. The staff was installed and leveled 21 July 1976. Very good records were obtained for 65 days except for a four day interruption from 17 Sept. - 21 Sept when the gage was shut down. The gage lost approximately ten to fifteen minutes a day but was adjusted each day when the gage was checked. The marigram reads the same as the staff.

Hawkins Point

Gage (7006A5833M21) was installed and began operation 15 July 1976. The staff was installed and leveled 15 July 1976. Very good records were obtained for 16 days. On 6 August 1976 the tide gage was destroyed by fire. The tape reads the same as the staff.

Hawkins Point

Gage (7006A5833M20) was installed and began operation 12 August 1976. The staff was installed and leveled 12 August 1976. Very good records were obtained for 91 days. The ADR tape reads the same as the staff. Ten hours were lost between 12 October - 15 October 1976. Sixteen hours were lost between 1 November - 5 November 1976.

Levels

In a comparison of level records the Tide Staff at all locations had a negligible shift of less than 0.006 foot.

System zoning of the survey area is recommended.

SIGNAL LIST

H-9563

AHP. 05-9-75

| | | | | | | | | | | | |
|-----|---|----|----|-------|-----|----|-------|-----|------|--------|---|
| 210 | 7 | 39 | 14 | 30000 | 076 | 31 | 00000 | 243 | 0000 | 000000 | Grid intersection |
| 212 | 7 | 39 | 14 | 30000 | 076 | 32 | 00000 | 243 | 0000 | 000000 | Grid intersection |
| 214 | 7 | 39 | 14 | 30000 | 076 | 33 | 00000 | 243 | 0000 | 000000 | Grid intersection |
| 216 | 7 | 39 | 14 | 30000 | 076 | 34 | 00000 | 243 | 0000 | 000000 | Grid intersection |
| 220 | 7 | 39 | 13 | 30000 | 076 | 31 | 00000 | 243 | 0000 | 000000 | Grid intersection |
| 222 | 7 | 39 | 13 | 30000 | 076 | 32 | 00000 | 243 | 0000 | 000000 | Grid intersection |
| 224 | 7 | 39 | 13 | 30000 | 076 | 33 | 00000 | 243 | 0000 | 000000 | Grid intersection |
| 518 | 7 | 39 | 14 | 19210 | 076 | 33 | 39842 | 254 | 0003 | 000000 | Shell, 1975 (resection) |
| 526 | 7 | 39 | 12 | 45735 | 076 | 32 | 02473 | 243 | 0000 | 000000 | Bridge, 1975 (resection) |
| 528 | 7 | 39 | 13 | 02042 | 076 | 31 | 34867 | 243 | 0000 | 000000 | East, 1975 (traverse) |
| 534 | 7 | 39 | 13 | 31419 | 076 | 29 | 00618 | 139 | 0000 | 000000 | Sparrows Point, Tank 1958, 1975 |
| 550 | 7 | 39 | 14 | 46981 | 076 | 32 | 04638 | 139 | 0000 | 000000 | Dundalk Tank, 1975 (intersection) |
| 552 | 7 | 39 | 14 | 11975 | 076 | 33 | 51655 | 139 | 0000 | 000000 | Shell oil Company Tank, 1930-1975 |
| 55 | 7 | 39 | 13 | 22448 | 076 | 34 | 37836 | 254 | 0004 | 000000 | Corner of pier (TR 00842)* |
| 556 | 7 | 39 | 12 | 55613 | 076 | 34 | 26467 | 254 | 0003 | 000000 | End of catwalk (TR 00842)* |
| 558 | 7 | 39 | 13 | 58959 | 076 | 34 | 42620 | 139 | 0000 | 000000 | Curtis Bay, Fairfield Chem. water tank, 1958 |
| 560 | 7 | 39 | 14 | 42902 | 076 | 32 | 20354 | 254 | 0003 | 000000 | Corner of Seawall (TR 00843) scaled |
| 580 | 7 | 39 | 14 | 13700 | 076 | 31 | 06700 | 243 | 0003 | 000000 | End of breakwater (TR 00843)* |
| 582 | 7 | 39 | 12 | 49200 | 076 | 32 | 23800 | 254 | 0003 | 000000 | Hawkins Pt. pier ht. (TR 00843)* |
| 584 | 7 | 39 | 12 | 51952 | 076 | 31 | 12709 | 139 | 0000 | 000000 | Fort Carroll Lighthouse, 1915, 1975 |
| 590 | 7 | 39 | 15 | 32380 | 076 | 33 | 47880 | 139 | 0000 | 000000 | Sanford & Brooks Co. Tank, 1915, 1975 |
| 596 | 7 | 39 | 15 | 38499 | 076 | 32 | 40581 | 139 | 0000 | 000000 | Western Electric Co. chimney 1936, 1975 |
| 598 | 7 | 39 | 14 | 37724 | 076 | 34 | 56461 | 139 | 0000 | 000000 | Maryland Drydock Co. Tall Tank 1939, 1975 |
| 602 | 7 | 39 | 13 | 08548 | 076 | 31 | 41894 | 254 | 0003 | 000000 | West, 1975 (traverse) |
| 604 | 7 | 39 | 14 | 15855 | 076 | 30 | 59999 | 139 | 0000 | 000000 | Sollers Consolidated Gas & Elect. Stack, 1934 |
| 608 | 7 | 39 | 13 | 36368 | 076 | 33 | 51282 | 139 | 0000 | 000000 | Pan American Refinery stack, 1934, 1975 |
| 610 | 7 | 39 | 13 | 41500 | 076 | 34 | 43080 | 139 | 0000 | 000000 | Livingston Stack, 1915 |
| 612 | 7 | 39 | 13 | 09236 | 076 | 35 | 01039 | 243 | 0000 | 000000 | Stack (TR 00842)* ** |
| 614 | 7 | 39 | 12 | 26192 | 076 | 32 | 27614 | 139 | 0000 | 000000 | Hawkins Point Glidden Co. Tank 1957, 1975 |
| 618 | 7 | 39 | 13 | 30285 | 076 | 34 | 03867 | 243 | 0000 | 000000 | Tug, 1975 (traverse) |
| 620 | 7 | 39 | 13 | 38672 | 076 | 34 | 14508 | 243 | 0000 | 000000 | B.P., 1975 (traverse) |
| 622 | 7 | 39 | 13 | 15769 | 076 | 34 | 36091 | 243 | 0000 | 000000 | Ship, 1975 (traverse) |
| 700 | 7 | 39 | 13 | 23980 | 076 | 34 | 49160 | 254 | 0000 | 000000 | Corner of bldg (TR 00842)* |
| 701 | 7 | 39 | 13 | 30710 | 076 | 34 | 49270 | 254 | 0000 | 000000 | Corner of pier (TR 00842)* |
| 790 | 7 | 39 | 12 | 48500 | 076 | 32 | 23190 | 254 | 0000 | 000000 | Corner of pier (TR 00843)* |
| 791 | 7 | 39 | 12 | 54140 | 076 | 31 | 45090 | 254 | 0000 | 000000 | Lt. on bridge dol. (TR 00843)* |
| 792 | 7 | 39 | 12 | 36580 | 076 | 31 | 59540 | 254 | 0000 | 000000 | Corner of seawall (TR 00843)* |
| 795 | 7 | 39 | 12 | 54560 | 076 | 31 | 08880 | 254 | 0000 | 000000 | Center face of platform (TR 0043)* |
| 800 | 7 | 39 | 13 | 07730 | 076 | 33 | 19750 | 243 | 0000 | 000000 | Corner of bldg (TR 00842)* |
| 801 | 7 | 39 | 13 | 03100 | 076 | 34 | 20510 | 243 | 0000 | 000000 | Tank (TR 00842)* |
| 900 | 7 | 39 | 13 | 46927 | 076 | 33 | 50825 | 243 | 0000 | 000000 | Tank (TR 00842)* |
| 905 | 7 | 39 | 14 | 28120 | 076 | 31 | 37480 | 254 | 0000 | 000000 | Corner of bldg (TR 00843)* |
| 906 | 7 | 39 | 14 | 20760 | 076 | 31 | 59740 | 254 | 0000 | 000000 | Corner of bldg (TR 00843)* |
| 907 | 7 | 39 | 14 | 00924 | 076 | 31 | 29812 | 243 | 0000 | 000000 | Sollers Point Mooring Light (TR 00843)* |

* Scaled by Marine Chart Division (digitizer)
 ** T-sheet and landmarks for charts has this ^{sheet} _{stack, 1933} Baltimore, U.S. Alcohol Company.

H-9563
AHP-05-9-75

Electronic Control Report

Del Norte was used exclusively for the range/azimuth portion of the survey. Equipment used was as follows:

| <u>Vessel</u> | <u>DMU</u> | <u>MASTER</u> | <u>REMOTE</u> | <u>J.D.</u> |
|---------------|------------|---------------|---------------|-------------|
| 570 | 162 | 185 | 180 | All days |
| 1282 | 122 | 187A | 249D | 219-307 |
| | 123 | 187A | 189B | 308 |
| | 123 | 187A | 249D | 310-315 |

The Del Norte was calibrated twice daily either using two triangulation points with a known inverse or by measuring a baseline on the shore with a geodimeter and setting the Del Norte equipment on these points.

The Del Norte equipment worked very good with morning and afternoon readings agreeing within 1 meter.

Table # 1

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET. FEET OPR-514

NOAA FORM 75-21 (10-72) U.S. DEPARTMENT OF COMMERCE - NOAA NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship AHP-207 Fath #37010-DE-723D

CDR John O. Rolland Comdg.

These corrections are to be used between 1 Sept. 1975 and 20 Oct. 1975 in the locality Baltimore Harbor Maryland for hydrographic surveys Nos. H-9564, H-9563

Leh 1207
J.D. 245-293

Table # 1

| DEPTH RANGE | CORRECTION |
|---------------|------------|
| 0.0 - 20.0 | 0.0 |
| 20.1 - 28.0 | +0.2 |
| 28.1 - 37.5 | +0.4 |
| 37.6 - 56.7 | +0.6 |
| 56.8 - Deeper | +0.8 |

(For deep water add a 0 to these figures)

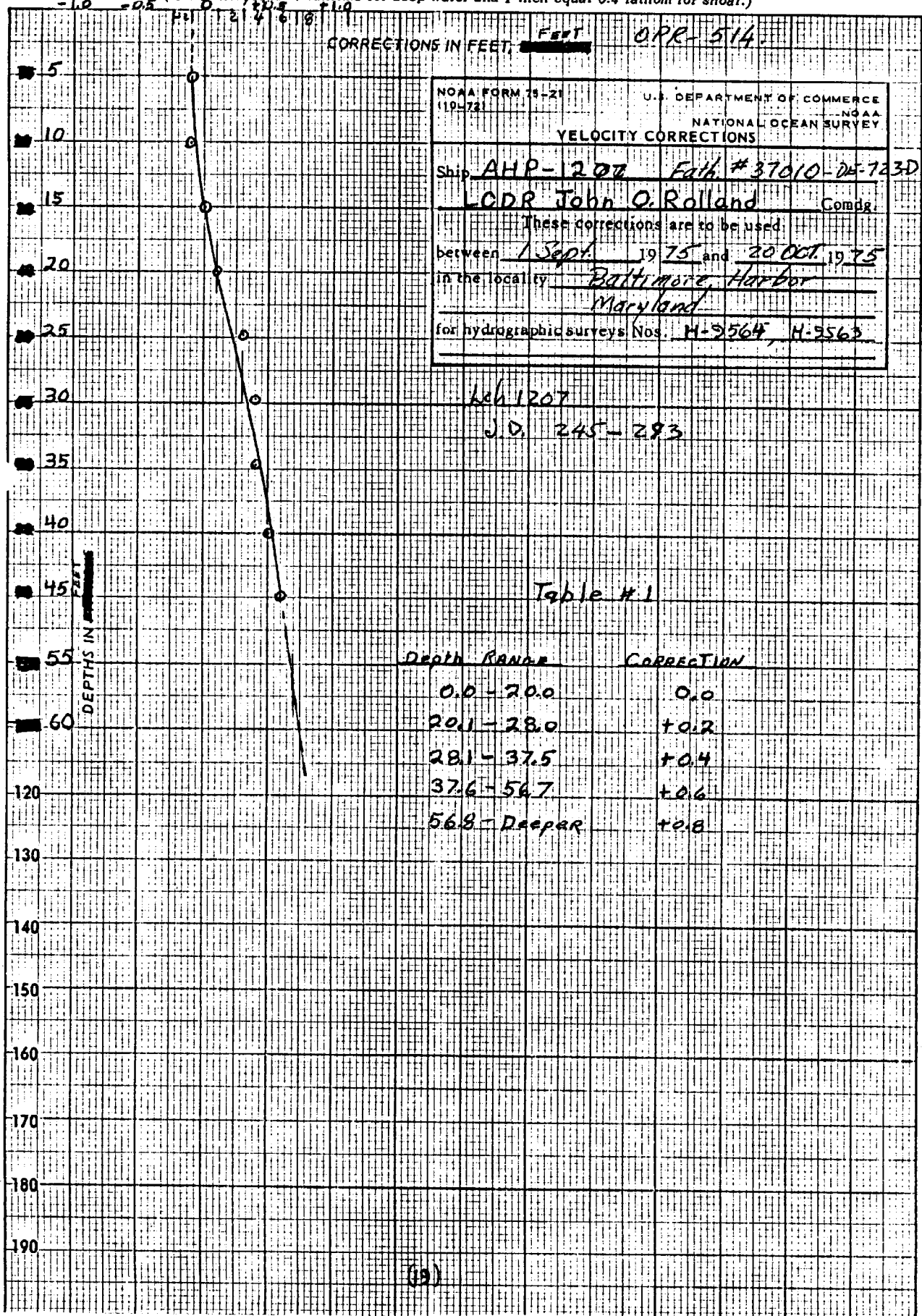
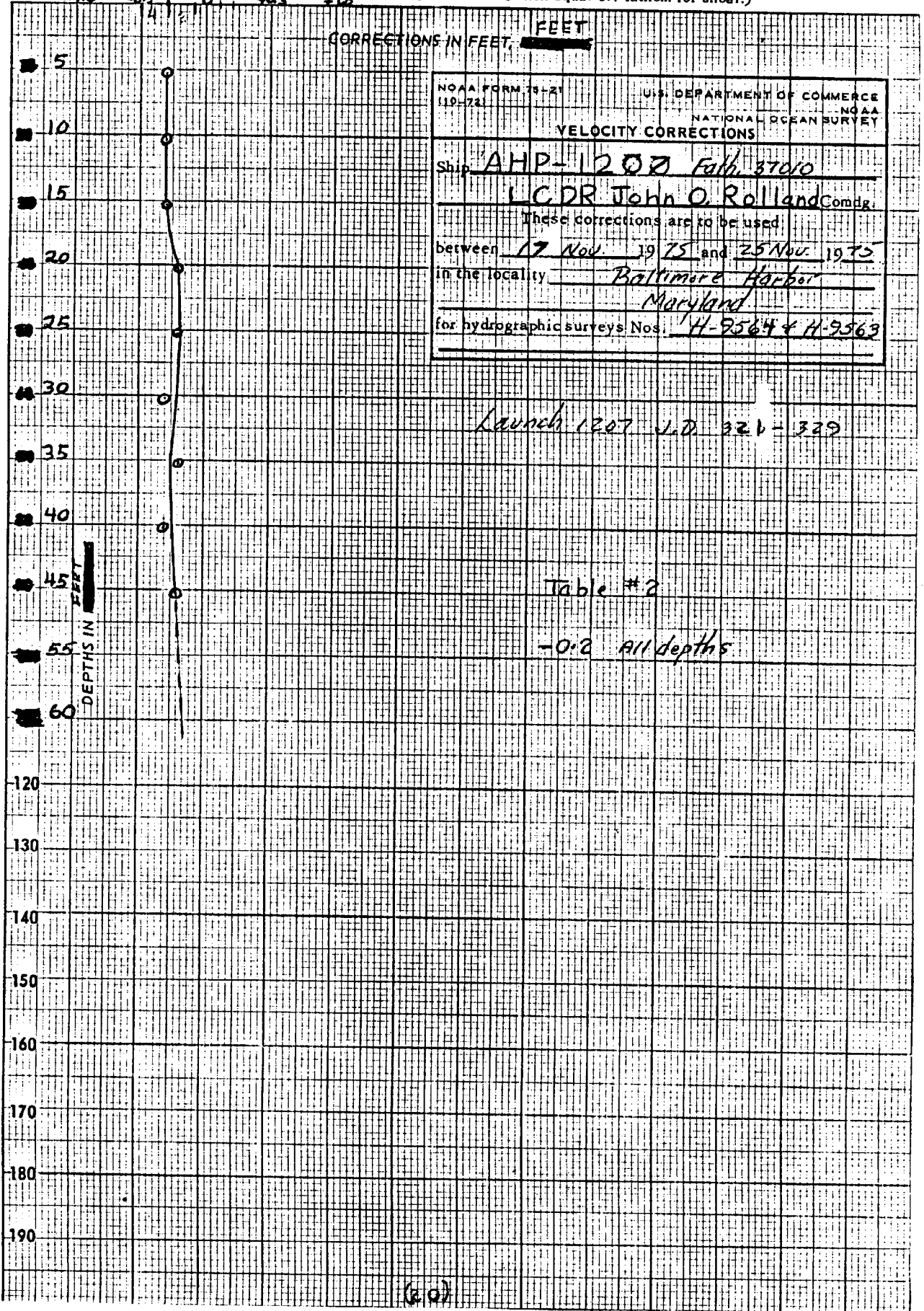


Table # 2

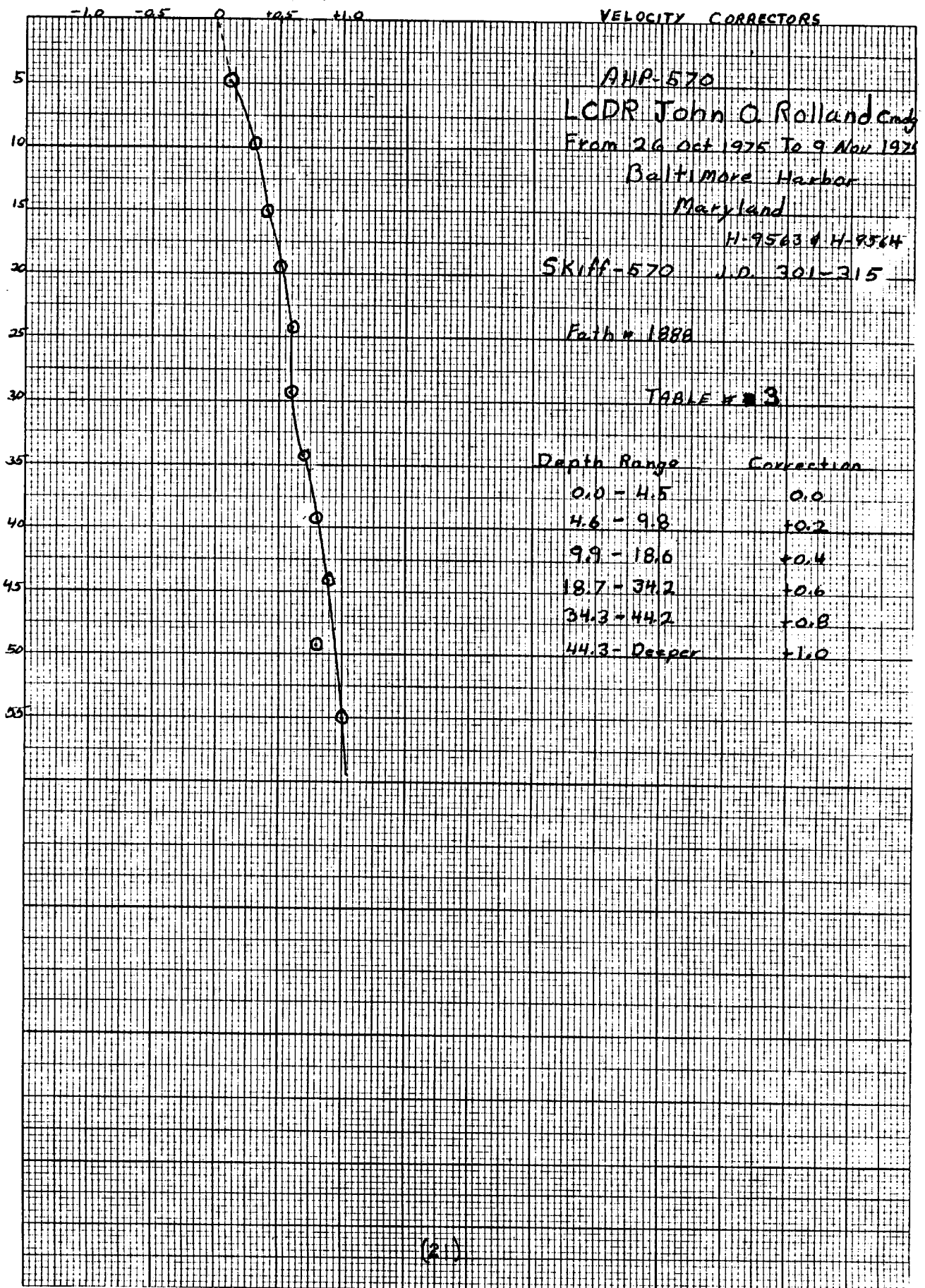
(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)



20 X 40 TO THE INCH
7 X 10 INCHES
KEUFFEL & ESSER CO.

ELIENE DIETZEN CO.
MADE U.S.A.

NO. 341-20 DIETZG GRAPH PAPER
20" PE. NCH



0.5 0 (Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.) Table #4

CORRECTIONS IN FEET, PERCENTS

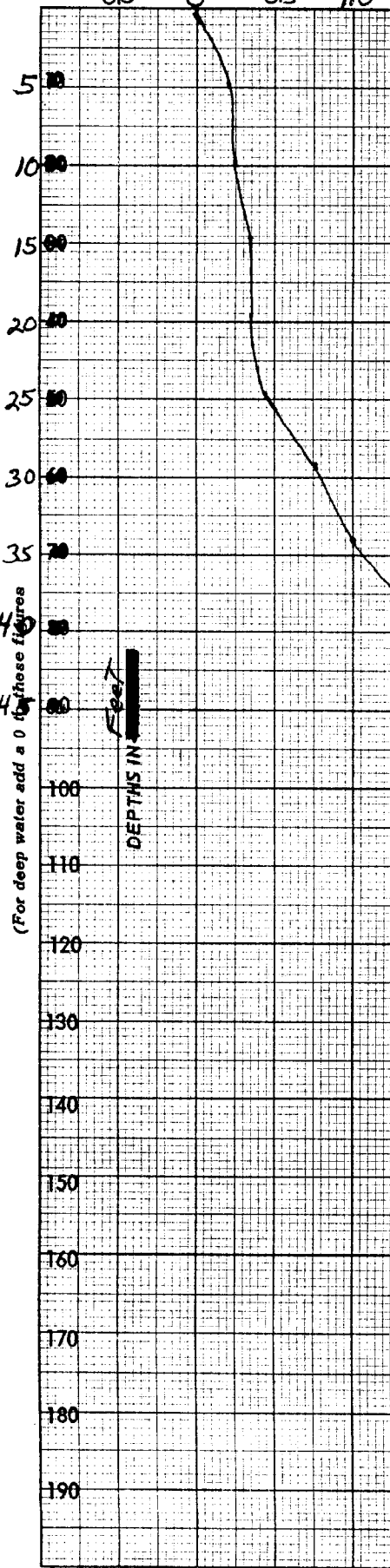
01E723
Fathometer # 1272

FORM C&GS-117 (4-62) U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship LAUNCH 1282
LCDR William Daniels Comdg.

These corrections are to be used
 between Aug 10 1976 and Sept 1 1976
 in the locality Baltimore Harbor
Baltimore, Maryland
 for hydrographic surveys Nos. H-2563
H-2643



| Depth | Correction |
|-------------|------------|
| 0-2.2 | 0.0 |
| 2.3-12.7 | 0.2 |
| 12.8-25.5 | 0.4 |
| 25.6-28.6 | 0.6 |
| 28.7-32.2 | 0.8 |
| 32.3-35.4 | 1.0 |
| 35.5-37.6 | 1.2 |
| 37.7-39.9 | 1.4 |
| 40.0-Deeper | 1.6 |

Table #4

20 X 20 TO THE INCH 5 1240
 7 X 10 INCHES
 KEUFFEL & E CO.

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.) Table #5

CORRECTIONS IN FEET. ~~0.0~~ DE 727

Fathoms # 925

FORM C&GS-17 (4-62) U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship Launch 1282
LCDR William R. Daniels Comdg.

These corrections are to be used
 between Sept 1 1976 and Sept 22 1976
 in the locality Baltimore Harbor, Maryland

for hydrographic surveys Nos. H-9581, H-9563
H-9543

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145
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170
175
180
185
190

DEPTHS IN FEET

(For deep water add a 0 to these figures)

| Depth | Corrections |
|---------------|-------------|
| 0.0 - 0.5 | 0.0 |
| 0.6 - 3.0 | +0.2 |
| 3.1 - 17.0 | +0.4 |
| 17.1 - 27.8 | +0.6 |
| 27.9 - 39.0 | +0.8 |
| 39.1 - Origin | +1.0 |

Table No 5

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.) Table #6

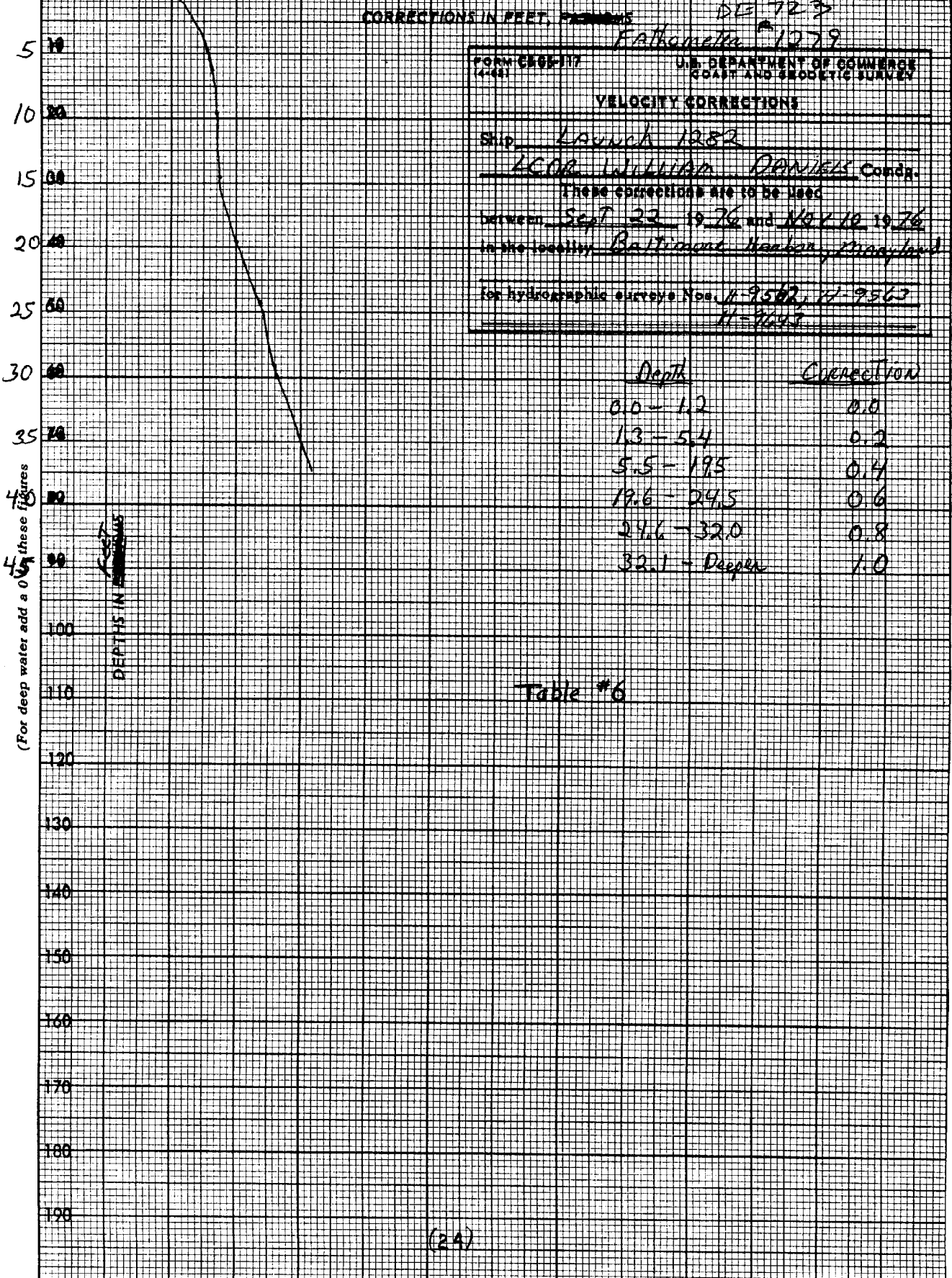


Table #6

(2A)

20 X 20 TO THE INCH KEUFFEL & ESSER 358-10 1/2 MADE IN U.S.A.

(For deep water add a 0.5 to these figures)

OPR-514
Bar Check Abstract
H-9564 (AMP-05-7-75)
H-9563

Launch - 1207
Fath. # 37010

"E" and "F"

Table #1

| 1975 | J.D. | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
|----------|------------|------|------|------|------|------|------|------|------|------|
| | 245 | -0.2 | 0.0 | 0.0 | +0.2 | +0.4 | +0.6 | | | |
| | 245 | -0.1 | 0.0 | 0.0 | +0.2 | +0.4 | +0.6 | | | |
| | 254 | 0.0 | 0.0 | +0.2 | +0.3 | +0.3 | +0.5 | +0.6 | +0.7 | |
| | 259 | -0.2 | 0.0 | +0.2 | +0.3 | +0.3 | +0.5 | +0.4 | | |
| | 262 | -0.1 | -0.1 | +0.1 | +0.2 | +0.4 | +0.2 | | | |
| Table #1 | E 265 | -0.2 | -0.1 | 0.0 | +0.2 | +0.2 | +0.3 | | | |
| | E 272 | 0.0 | -0.1 | +0.1 | +0.2 | +0.4 | +0.4 | +0.4 | +0.3 | |
| | E 273 | -0.2 | -0.2 | -0.1 | +0.1 | +0.2 | +0.3 | +0.5 | | |
| | E 275 | -0.2 | 0.0 | +0.2 | +0.2 | +0.2 | +0.2 | | | |
| | E 276 | -0.1 | -0.3 | -0.2 | -0.1 | +0.2 | 0.0 | +0.3 | +0.2 | +0.6 |
| | E 280 | 0.0 | -0.1 | 0.0 | +0.1 | +0.4 | +0.4 | +0.5 | | |
| | E 287 | -0.3 | -0.3 | 0.0 | -0.1 | +0.2 | +0.4 | +0.4 | | |
| | E 293 | -0.3 | -0.3 | 0.0 | -0.1 | +0.1 | +0.3 | +0.3 | +0.3 | +0.6 |
| | Mean Corr. | -0.1 | -0.1 | -0.0 | +0.2 | +0.3 | +0.4 | +0.4 | +0.5 | +0.6 |

Table #2

| | | | | | | | | | | |
|----------|------------|------|------|------|------|------|------|------|------|------|
| Table #2 | E 323 | -0.3 | -0.4 | -0.1 | -0.1 | -0.1 | -0.3 | -0.1 | -0.3 | |
| | E 324 | 0.0 | -0.3 | -0.3 | -0.2 | -0.1 | -0.2 | -0.1 | -0.1 | |
| | E 326 | -0.4 | -0.4 | -0.3 | -0.1 | | | | | |
| | E 329 | -0.5 | -0.3 | -0.4 | -0.5 | -0.3 | -0.5 | -0.5 | -0.5 | -0.2 |
| | Mean Corr. | -0.3 | -0.3 | -0.3 | -0.2 | -0.2 | -0.3 | -0.2 | -0.3 | -0.2 |

OPR-514
Bar Check Abstract
H-9564 (AMP-05-7-75)
H-9563

SK:AA-570
Fath. # 1888

Table #3

| 1975 | J.D. | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | A | B | 50 | 55 |
|----------|------------|------|------|------|------|------|------|------|------|------|------|------|------|----|
| | E 301 | 0.0 | +0.3 | +0.3 | +0.3 | +0.4 | +0.5 | +0.7 | +0.9 | | | | | |
| | E 302 | 0.0 | +0.0 | +0.1 | +0.3 | +0.3 | +0.4 | +0.4 | +0.5 | +0.6 | | | | |
| | 307 | 0.0 | +0.3 | +0.5 | +0.4 | +0.5 | +0.6 | +0.6 | +0.8 | | | | | |
| Table #3 | E 308 | +0.3 | +0.3 | +0.3 | +0.6 | +0.7 | +0.7 | +0.8 | +0.9 | | | | | |
| | E 309 | +0.2 | +0.4 | +0.5 | +0.8 | +0.7 | +0.8 | +0.7 | +1.0 | +1.0 | | | | |
| | E 311 | +0.2 | +0.4 | +0.5 | +0.8 | +0.7 | +0.8 | +0.9 | +1.0 | +1.0 | | | | |
| | 315 | +0.2 | +0.3 | +0.4 | +0.6 | +0.7 | +0.5 | +0.7 | +0.6 | +0.8 | +0.7 | +0.8 | +1.0 | |
| | Mean Corr. | +0.1 | +0.3 | +0.4 | +0.5 | +0.6 | +0.6 | +0.7 | +0.8 | +0.9 | +0.7 | +0.8 | +1.0 | |

(25)

H-9563 (ANP-05-9-75)
Bar Check Abstract

Table #4

LAUNCH 1282 BAR Check Fathometer #1272

| J.O. | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
|---------|-----------------|-----------------|-----------------|-----------------|-----------------|------|-----------------|-----|
| 223 | 0.8R | 0.8R | 0.8R | 1.0R | 1.2R | 1.0 | 1.0 | 1.4 |
| | 0.8R | 0.2 | 0.6 | 0.6 | 0.8R | - | 1.2 | 1.4 |
| 224 | 0.8R | 0.8R | 0.2 | 0.4 | 0.6 | 0.8 | 1.2 | |
| | 0.2 | 0.2 | 0.2 | 0.4 | 0.6 | 0.8 | 1.2 | |
| 229 | 0.2 | 0.2 | 0.3 | 0.5 | 0.6 | 0.9 | | |
| | 0.1 | 0.2 | 0.2 | 0.3 | 0.5 | 0.8 | | |
| 230 | 0.1 | 0.8R | 0.2 | 0.2 | 0.3 | | | |
| | 0.2 | 0.4 | 0.5 | 0.8R | 0.5 | | | |
| 231 | 0.3 | 0.3 | 0.4 | 0.3 | 0.2 | | | |
| | 0.1 | 0.8R | 0.8R | 0.8R | 0.8R | | | |
| 232 | 0.2 | 0.3 | 0.6 | 0.5 | 0.7 | | | |
| | 0.5R | 0.5R | 0.6 | 0.6 | 0.7 | | | |
| 233 | 0.2 | 0.2 | 0.2 | 0.4 | 0.4 | | | |
| | 0.2 | 0.2 | 0.2 | 0.4 | 0.4 | | | |
| 234 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | | | |
| | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | | | |
| 237 | 0.2 | 0.2 | 0.4 | 0.4 | 0.6 | 0.8 | 0.8 | |
| | 0.2 | 0.2 | 0.4 | 0.2 | 0.2 | 0.8 | 0.8 | |
| 239 | 0.2 | 0.2 | 0.8R | 0.2 | 0.4 | 0.8 | 0.8R | |
| | 0.4 | 0.4 | 0.4 | 0.2 | 0.4 | 0.6 | 0.8 | |
| 243 | 0.2 | 0.2 | 0.4 | 0.4 | 0.4 | 0.6 | | |
| | 0.2 | 0.4 | 0.4 | 0.2 | 0.4 | 0.6 | | |
| 244 | 0.2 | 0.2 | 0.2 | 0.4 | 0.2 | | | |
| | 0.1 | 0.8R | 0.8R | 0.2 | 0.8R | | | |
| AVERAGE | 0.2 | 0.24 | 0.34 | 0.35 | 0.44 | 0.77 | 1.0 | 1.4 |

Bar Check Abstract

Table #5

LAUNCH 1282 Bar Check FATHOMETER # 925

| J.D. | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
|---------|----------------|----------------|----------------|----------------|----------------|------|----------------|
| 251 | 0.4 | 0.2 | 0.4 | 0.6 | 0.6 | 0.6 | 0.4 |
| | 0.4 | 0.2 | 0.6 | 0.6 | 0.6 | 0.8 | 0.6 |
| 252 | 0.2 | 0.2 | 0.2 | 0.4 | 0.6 | 0.6 | 0.8 |
| | 0.4 | 0.2 | 0.4 | 0.4 | 0.4 | 0.8 | 0.8 |
| 264 | 0.2 | 0.2 | 0.4 | 0.4 | 0.6 | 0.8 | 0.8 |
| | 0.2 | 0.4 | 0.4 | 0.6 | 0.6 | 0.8 | 0.8 |
| 265 | 0.4 | 0.4 | 0.6 | 0.8 | 0.8 | 1.0 | 1.0 |
| | 0.4 | 0.4 | 0.6 | 0.6 | 0.8 | 1.0 | 1.0 |
| Average | 0.34 | 0.29 | 0.49 | 0.51 | 0.6 | 0.73 | 0.76 |

H-9563 (AHP-05-9-75)

Velocity Tables

000200 0 0000 0001 000 120700 009563 /
000280 0 0002
000375 0 0004
000567 0 0006
001000 0 0008
999999 0 0008
001000 1 0002 0002 000 120700 009563
999999 1 0002
000045 0 0000 0003 000 570000 009563
000098 0 0002
000186 0 0004
000342 0 0006
000442 0 0008
001000 0 0010
999999 0 0010
000023 0 0000 0004 000 128200 009563
000128 0 0002
000256 0 0004
000287 0 0006
000323 0 0008
000356 0 0010
000378 0 0012
000400 0 0014
999999 0 0016
000006 0 0000 0005 128200 009563
000031 0 0002
000171 0 0004
000279 0 0006
000391 0 0008
999999 0 0010
000013 0 0000 0006 128200 009563
000055 0 0002
000196 0 0004
000246 0 0006
000321 0 0008
999999 0 0010

Settlement and Squat Correctors

Launch 1207

| <u>RPM's</u> | <u>Corrector</u> |
|--------------|------------------|
| 1100-1500 | +0.1 |
| 1500-2400 | +0.2 |

Note: Values from tests run by Mt. Mitchell

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, FATHOMS.

| | |
|---|--|
| NOAA FORM 75-21 110-721 | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEAN SURVEY NOAA |
| Settlement & Squat INSTRUCTIONS FOR CORRECTIONS | |
| Ship <u>SKIFF 570</u> | |
| Tests <u>8/2/72</u> Comdg. _____ | |
| These corrections are to be used | |
| between _____ 19____ and _____ 19____ | |
| in the locality _____ | |
| for hydrographic surveys Nos. _____ | |

For deep water add 0 to these figures

Correction Ft.

Slow Spd. Fast Spd (Standard hydro) Fast Plane (not used for hydro)

+0.4
+0.2
0.0
-0.2
-0.4

Corr. Ft.
Slow Spd. +0.2
Fast Spd (Standard) +0.4

Settlement and Squat Test

25 June 1976

J.D. 177

Launch 1282

(85 hp)

Three runs were made at 3 mph, 5 mph, 10 mph, 15 mph and 20 mph these speeds are the boat's range of hydro speeds.

The procedure was to have a person with a level on shore and a person holding a level rod on the boat. The vessel would run by the observer at each speed and a reading was taken from the level rod. After a comparison of data was made, the average value for each hydro speed was determined. A curve constructed and a settlement and squat table was prepared. The changes in tidal heights were taken into consideration.

Run #1

Note at no time did the tide change more than 0.1 foot during each S&S run.

| | <u>3 mph</u> | <u>5 mph</u> | <u>10 mph</u> | <u>15 mph</u> | <u>20 mph</u> |
|-----------|--------------|--------------|---------------|---------------|---------------|
| Still | 9.5' | 9.5' | 9.5' | 9.5' | 9.5' |
| Underway | 9.6' | 9.8' | 10.1' | 9.8' | 9.7' |
| S&S Corr. | 0.1' | 0.3' | 0.6' | 0.3' | 0.2' |

| Run #2 | <u>3 mph</u> | <u>5 mph</u> | <u>10 mph</u> | <u>15 mph</u> | <u>20 mph</u> |
|-----------|--------------|--------------|---------------|---------------|---------------|
| Still | 9.7' | 9.7' | 9.7' | 9.7' | 9.7' |
| Underway | 9.8' | 10.0' | 10.3' | 10.0' | 9.8' |
| S&S Corr. | 0.1' | 0.3' | 0.6' | 0.3' | 0.1' |

| Run #3 | <u>3 mph</u> | <u>5 mph</u> | <u>10 mph</u> | <u>15 mph</u> | <u>20 mph</u> |
|-----------|--------------|--------------|---------------|---------------|---------------|
| Still | 9.7' | 9.7' | 9.7' | 9.7' | 9.7' |
| Underway | 9.8' | 10.0' | 10.2' | 10.0' | 9.8' |
| S&S Corr. | 0.1' | 0.3' | 0.5' | 0.3' | 0.1' |

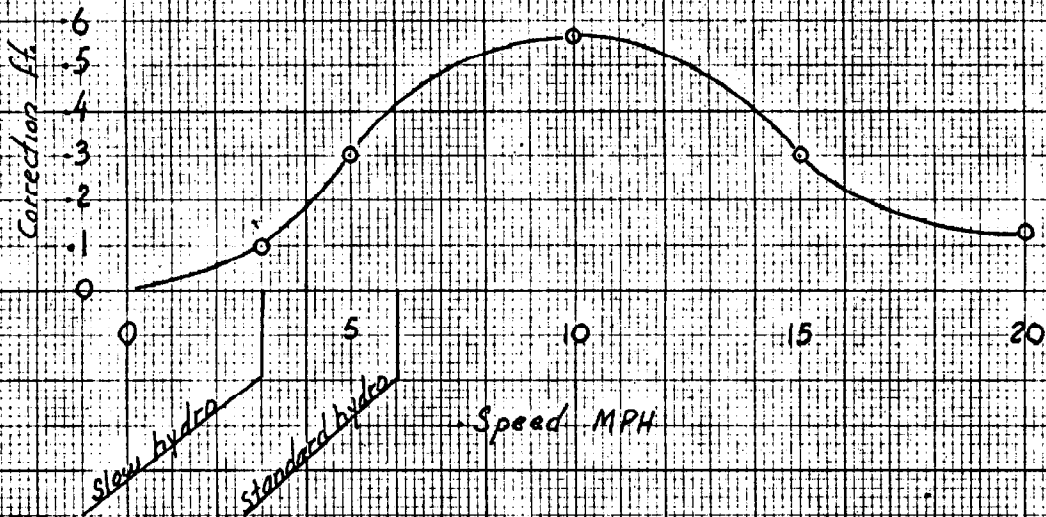
Average Correctors For Each Speed:

| | |
|--------|------|
| 3 mph | 0.1 |
| 5 mph | 0.3 |
| 10 mph | 0.57 |
| 15 mph | 0.3 |
| 20 mph | 0.13 |

Settlement & Squat

Launch 1282

25 June 1976



Corr.

SETTLEMENT AND SQUAT TEST

October 20, 1976

Launch 1282

140 hp outboard

Four runs were made at five speeds, 1000 rpm, 1500 rpm, 2000 rpm, 2500 rpm and 3000 rpm. The boats speed range for hydrography is 1000 rpm to 2000 rpm. Two runs were made at each speed in one direction and two runs were made in the opposite direction.

The procedure was to have a person with a level on shore and a person holding a level rod on the boat. The vessel would run by the observer at each speed and a reading was taken from the level rod. After a comparison of data was made, the average value for each hydro speed was determined. A curve constructed and a settlement and squat table was prepared. The changes in tidal heights were taken into consideration.

Test Run - 20 October 1976

NOTE: At no time did the tide change during each settlement and squat run.

Run #1

| | <u>1000</u> | <u>1500</u> | <u>2000</u> | <u>2500</u> | <u>3000</u> |
|----------------|-------------|-------------|-------------|-------------|-------------|
| Still | 9.65 | 9.65 | 9.65 | 9.65 | 9.65 |
| Underway | 9.70 | 9.80 | 9.90 | 9.95 | 10.00 |
| S&S Correction | 0.05 | 0.15 | 0.25 | 0.30 | 0.35 |

Run #2

| | <u>1000</u> | <u>1500</u> | <u>2000</u> | <u>2500</u> | <u>3000</u> |
|----------------|-------------|-------------|-------------|-------------|-------------|
| Still | 9.70 | 9.70 | 9.70 | 9.70 | 9.70 |
| Underway | 9.75 | 9.85 | 9.95 | 10.00 | 10.00 |
| S&S Correction | 0.05 | 0.15 | 0.25 | 0.30 | 0.30 |

Run #3

| | <u>1000</u> | <u>1500</u> | <u>2000</u> | <u>2500</u> | <u>3000</u> |
|----------------|-------------|-------------|-------------|-------------|-------------|
| Still | 9.70 | 9.70 | 9.70 | 9.70 | 9.70 |
| Underway | 9.75 | 9.85 | 9.95 | 10.00 | 10.05 |
| S&S Correction | 0.05 | 0.15 | 0.25 | 0.30 | 0.35 |

Run #4

| | <u>1000</u> | <u>1500</u> | <u>2000</u> | <u>2500</u> | <u>3000</u> |
|----------------|-------------|-------------|-------------|-------------|-------------|
| Still | 9.75 | 9.75 | 9.75 | 9.75 | 9.75 |
| Underway | 9.80 | 9.90 | 10.00 | 10.05 | 10.05 |
| S&S Correction | 0.05 | 0.15 | 0.25 | 0.30 | 0.30 |

Average Correctors for each speed

| | <u>1000</u> | <u>1500</u> | <u>2000</u> | <u>2500</u> | <u>3000</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| | 0.05 | 0.15 | 0.25 | 0.30 | 0.33 |

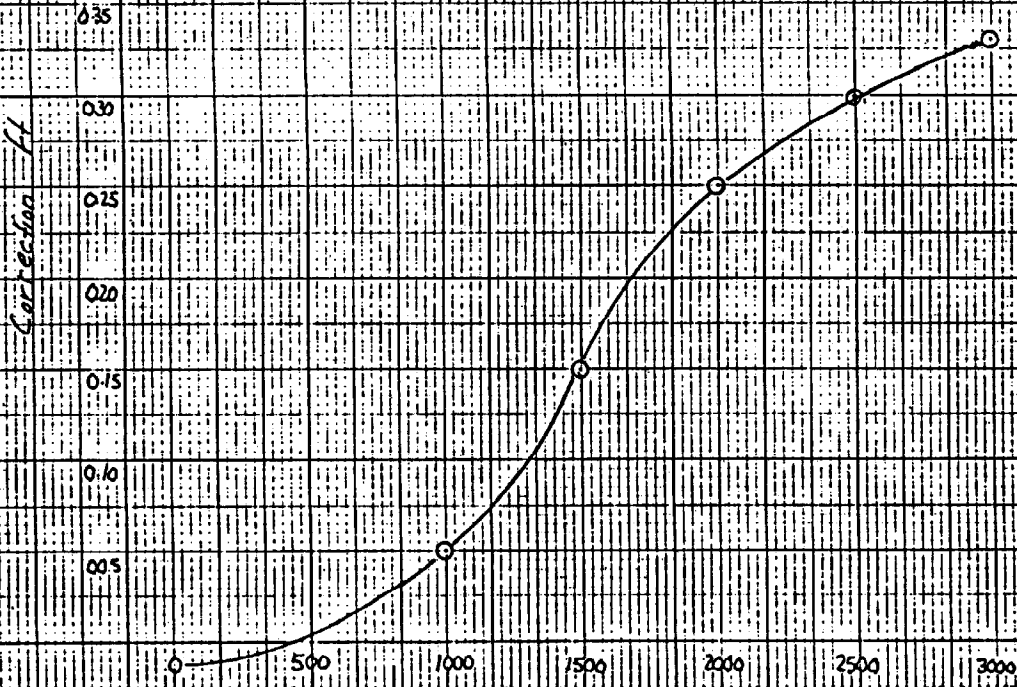
Settlement & Squat

Launch 1282

20 Oct 1976

RPM

| | | |
|------|--------|------|
| 500 | — 1300 | 00 |
| 1301 | — 2500 | +0.2 |
| 2501 | — 3000 | +0.4 |



slow hydro
standard hydro

Speed RPM

APPROVAL SHEET

Survey H-9563 (AHP-05-9-75)

The hydrographic records transmitted with this report are complete and adequate.

80 percent of the field work was done in 1975 under the supervision of LCDR J. O. Rolland.

Final field work was completed by LTJG. K. W. Perrin in 1976 under the supervision of LCDR W. R. Daniels.

This survey is complete and adequate with no additional field work recommended.



William R. Daniels
LCDR., NOAA
Chief, Hydrographic Surveys Branch

GEOGRAPHIC NAMES

H-9563

| Name on Survey | Source of Name | | | | | | | | | | | |
|-----------------------|----------------|---|---|---|---|---|---|---|---|--|---------------------------|----|
| | A | B | C | D | E | F | G | H | K | | | |
| CABIN BRANCH ✓ | ✓ | | | | | | | | | | | 1 |
| CURTIS BAY ✓ | ✓ | | | | | | | | | | | 2 |
| CURTIS BAY (Ppl) ✓ | ✓ | | | | | | | | | | | 3 |
| CURTIS CREEK ✓ | ✓ | | | | | | | | | | | 4 |
| DUNDALK ✓ | ✓ | | | | | | | | | | | 5 |
| EAST BROOKLYN ✓ | ✓ | | | | | | | | | | | 6 |
| FAIRFIELD ✓ | ✓ | | | | | | | | | | | 7 |
| FERRY POINT ✓ | ✓ | | | | | | | | | | | 8 |
| FISHING POINT ✓ | ✓ | | | | | | | | | | | 9 |
| FISHING POINT SHOAL ✓ | ✓ | | | | | | | | | | | 10 |
| FORT CARROLL ✓ | ✓ | | | | | | | | | | | 11 |
| HAWKINS POINT ✓ | ✓ | | | | | | | | | | | 12 |
| HAWKINS POINT SHOAL ✓ | ✓ | | | | | | | | | | | 13 |
| LEADING POINT ✓ | ✓ | | | | | | | | | | | 14 |
| MARLEY NECK ✓ | ✓ | | | | | | | | | | | 15 |
| PATAPSCO RIVER ✓ | ✓ | | | | | | | | | | | 16 |
| SLEDDS POINT ✓ | ✓ | | | | | | | | | | | 17 |
| SOLLERS POINT ✓ | ✓ | | | | | | | | | | | 18 |
| STONEHOUSE COVE ✓ | ✓ | | | | | | | | | | | 19 |
| THOMS COVE ✓ | ✓ | | | | | | | | | | Approved: | 20 |
| WAGNERS POINT ✓ | ✓ | | | | | | | | | | | 21 |
| | | | | | | | | | | | <i>Chas. E. Harvillat</i> | 22 |
| | | | | | | | | | | | Chief Geographer - C345 | 23 |
| | | | | | | | | | | | 2 May 1979 | 24 |
| | | | | | | | | | | | | 25 |

HYDROGRAPHIC SURVEY STATISTICS

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

| RECORD DESCRIPTION | | AMOUNT | RECORD DESCRIPTION | | AMOUNT | |
|--------------------|--------------------|----------------------|------------------------------------|------------|---------------|----------------------------|
| SMOOTH SHEET | | 1 | BOAT SHEETS & PRELIMINARY OVERLAYS | | H-9563 | |
| DESCRIPTIVE REPORT | | 1 | SMOOTH OVERLAYS: POS. ARC, EXCESS | | 2 | |
| DESCRIP-TION | DEPTH RECORDS | HORIZ. CONT. RECORDS | PRINTOUTS | TAPE ROLLS | PUNCHED CARDS | ABSTRACTS/SOURCE DOCUMENTS |
| ENVELOPES | | | | | | |
| CAHIERS | 2 - with printouts | | | | | |
| VOLUMES | 6 | | | | | |
| BOXES | | | 1 - Smooth | | | |

T-SHEET PRINTS (List) TP-00841 TP-00842, TO-00843

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

| PROCESSING ACTIVITY | AMOUNTS | | |
|---|------------------|--------------|--------|
| | PRE-VERIFICATION | VERIFICATION | TOTALS |
| POSITIONS ON SHEET | | | 4072 |
| POSITIONS CHECKED | | 100 | |
| POSITIONS REVISED | | 25 | |
| SOUNDINGS REVISED | | 40 | |
| SOUNDINGS ERRONEOUSLY SPACED | | | |
| SIGNALS (CONTROL) ERRONEOUSLY PLOTTED | | | |
| | TIME - HOURS | | |
| CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION) | 2 | | |
| VERIFICATION OF CONTROL | | 20 | |
| VERIFICATION OF POSITIONS | | 56 | |
| VERIFICATION OF SOUNDINGS | | 297 | |
| COMPILATION OF SMOOTH SHEET | | 65 | |
| APPLICATION OF TOPOGRAPHY | | 32 | |
| APPLICATION OF PHOTOBATHYMETRY | | | |
| JUNCTIONS | | 8 | |
| COMPARISON WITH PRIOR SURVEYS & CHARTS | | 20 | |
| VERIFIER'S REPORT | | 20 | |
| OTHER | | | |
| TOTALS | 2 | 518 | |

| | | |
|--|-----------------------------------|--------------------------------|
| Pre-Verification by Frank Lamison | Beginning Date 08/05/77 | Ending Date 08/05/77 |
| Verification by M. Hickson, L. Cram | Beginning Date 09/15/77 | Ending Date 01/17/79 |
| Verification by F. Saunders, J. Bradford, Ainsley, | Time (Hours) 8 | Date 01/18/79 |
| Verification by Harry Smith | Time (Hours) 20 | Date 03/05/79 |
| Marine Center Inspection by Hydrographic Inspection Team AMC | Time (Hours) 103 | Date 5-1-77 |
| Quality Control Inspection by A. W. Wellman | Time (Hours) 3 | Date 7-12-79 |
| Requirements Evaluation by W. Carstens | | |

Insp. Carstens 26 hr 5/25/79

REGISTRY NO. _____

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. H-9563

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

ATLANTIC MARINE CENTER
VERIFIER'S REPORT

REGISTRY NO. H-9563

FIELD NO. AHP-05-9-75

Maryland, Baltimore Harbor, Curtis Creek to Sollers Point

SURVEYED: 22 September 1975 through 10 November 1976

SCALE: 1:5,000

PROJECT NO.: OPR-514

SOUNDINGS: DE-723 Fathometer,
Pole, Handlead

CONTROL: Visual,
Range/Azimuth
(Del-Norte/
Theodolite)

Chief of Party J.O. Rolland, W.R. Daniels
Surveyed by D. Drake
..... K. Perrin
Automated Plot by CALCOMP Plotter #618 (AMC)
Verified and Inked by L. G. Cram
December 15, 1978

1. Introduction

a. There were two unusual problems on this survey:

(1) The lack of information the boatsheet (as per Hydrographic Manual, Section 4.2), which made verification of hydrographic data difficult.

(2) A relatively large number of positions had to be revised during verification. Most of these positions were established by Visual Hydrography and were corrected by force plotting. (See QC Report-item 1)

b. Numerous notes and amendments were made in red ink in the Descriptive Report by the verifier.

2. Control and Shoreline

a. The source of control is adequately described in Sections F. and G. of the Descriptive Report with two exceptions listed as follows:

(1) The stations scaled by Marine Chart Division, Rockville, as allowed by change No. 1 to Project Instructions dated July 30, 1975, included no data that could be verified at this time.

(2) There are seven signals, 200 series that are grid intersections only, that is they are not on any features. They were used to convert pseudo fix data into the automated data processing system:

These signals are listed on page 15 of the Descriptive Report.
(See Q.C. Report-item 2)

b. The shoreline for this survey was transferred from final reviewed photogrammetric manuscripts TP-00842 and TP-00843 of 1974-75.

3. Hydrography

a. The agreement at crossings on this survey is adequate and conforms to the requirements as set per Sections 6.3.4.3 of the Hydrographic Manual.

b. The standard depth curves are drawn in their entirety with the following exception: In areas of deep water alongside bulkheads and piers, and the lack of inshore hydrography precluded the drawing of ~~the~~ some standard curves and the low water line.

c. The field unit adequately developed the bottom configuration and least depths with the following exceptions:

(1) The line spacing as per Sections 3.5 of the Project Instructions was not adhered to precluding the determination of the bottom configuration in some areas.

(2) Several areas of shoaling were not investigated making the determination of least depths impossible.

4. Condition of Survey

The smooth sheet and accompanying overlays, hydrographic records, and reports comply with the requirements of the Hydrographic Manual, with the exceptions listed in Sections 1a. and 3c and the following:

a. The sounding volumes were incomplete in regards to, notes on what items were being investigated.

b. ~~There were at least three times that the field~~ ^{in instances,} ~~made notes~~ ^{referenced} "numerous submerged pilings" or "foul submerged pilings" with no delineation of the area involved. One case is at latitude 39°14'09", longitude 76°33'50". (See Q.C. Report-item 4)

c. A lot of man hours was spent fixing positional information that was not correct as it came from the field, this problem may have been taken care by the field had more accurate plots of field data and records been kept. (See Q.C. Report-item 5)

d. The investigations done on some Presurvey Review items were inadequate and confusing as no plots of these investigations ~~was~~ provided.

e. The field sheets ~~were~~ ^{are} incomplete in regards to control station plotting, contouring and ~~others~~ as per Sections 1.a of this report.

f. Some position renumbering ^{was necessary} ~~had to be done~~ due to blocks of duplicated positions.

g (See Q.C. Report-item 6)

5. Junctions

Adequate junctions were effected with the following surveys:

| | | |
|--------|------------|-----------|
| H-9564 | (1975)-76) | north |
| H-9581 | (1975)-76) | southwest |
| H-9582 | (1975) | south |
| H-9643 | (1976) | southeast |

The following work will be necessary to complete the junctions on the surveys listed. The penciled curves will need to be revised and inked on H-9564 (1975-76) to agree with curves on H-9563 (1975).^{*} Some minor revisions to the curves on H-9581 (1975)-76) will be necessary. Some sounding will need to be revised in the area of the 18 ft. curve on H-9582 (1975) also the curves will need to be revised. The junction with H-9643 (1976) is complete with no additional work necessary.^(See Q.C. Report-item 14)

6. Comparison with Prior Surveys

| | | | |
|----|----------|--------|-----------------------------------|
| a. | H-4371 | (1924) | 1:10,000 |
| | H-5531 | (1934) | 1:10,000 |
| | H-6210 | (1937) | 1:10,000 |
| | FE No. 5 | (1943) | 1: 5,000 (See Q.C. Report-item 8) |

These are the most recent prior surveys that provide complete coverage of the survey area. The shoreline has changed somewhat throughout the survey area particularly in the areas north of latitude 39°14'20", to the east, and north of latitude 39°13'50" on the western side of the sheet. The soundings outside the influence of dredged channel areas are from +1 to 6³ ft. different with the exception of the Curtis Bay area. In this area the present survey is from 8 to 10 feet shallower than the prior surveys. One other area outside the channels shows considerable change, at latitude 39°13'01", longitude 76°30'59" the prior survey H-4371 (1924) has a charted 6 ft. sounding.^{*1} The present survey has 15³ to 17⁹ ft. here. There seems to be a localized difference of 8 to 11 feet for a distance of 50 to 100 meters. The dredged channel areas appear to be ^{generally} as much as 20 ft. deeper than the same areas on the prior surveys.^{*2} The greatest amount of change ~~is~~ ~~could be~~ attributed to cultural changes such as dredging and to a lesser degree, some natural causes have contributed to these changes. ^{*1} The prior survey depth of 6 ft. is considered no longer valid and should be disregarded.

^{*2} Present depths as much as 47 ft deeper than prior depths were noted in the vicinity of Lat. 39°13.12', Long. 76°31.67'

The present survey is adequate to supersede the prior surveys within the common area, with the possible exception of the charted prior survey sounding of 6 ft. in latitude 39°13'01", longitude 76°30'59". (See Q.C. Report-item 9)

7. Comparison With Chart 12281 (30th Edition, August 16, 1975)a. Hydrography

Most of the charted hydrography (90%) originates with the previously discussed prior surveys. The remaining 10% comes from sources other than NOS, designated as "Blueprints" for charting purposes and are too numerous to mention. These soundings have been identified on the chart whenever possible. There were a few soundings whose source was not readily ascertainable at the time of verification. There are numerous piers, wrecks, pilings, and other items not charted that should be charted from the topographic information in the survey area.

The present survey is adequate to supersede the charted information when attention is given to the following items that come from sources not readily ascertainable at the time of verification, and do not appear on any topographic or hydrographic information. (See Q.C. Report-items 10 and 11)

| <u>Charted Item</u> | <u>Location</u> | <u>Recommendation</u> |
|---|--|--|
| ✓ pier ruins | 39°13'14" 76°34'45" | Retention of this item as ^{submerged pier ruins since there is} no information available to disprove its existence. ^{Originates as a solid pier with H-6210 (1937). Carried forward as subm. pier ruins.} |
| ✓ subm. wreck | 39°13'40" 76°34'50" | Revise to agree with shoreline manuscript information. |
| ✓ pier ruins-piles | 39°13'36" 76°34'46" | Revise to subm. ruins ^{and piles} as no information available at time of verification to disprove their existence. |
| ✓ pier | 39°14'20" 76°33'58" | Revise to riprap per shoreline manuscript information. |
| ✓ piles Piles originate with H-5531 (1934) | 39°14' ³¹ 29" 76°31' ²⁰ 05" | One of the piles was located by the field. ^{two other piles} three appear to be part of ^{the} revised shoreline. The one whose location is given should be revised to pipe. The remaining pile is considered non-existent. |
| 4 piers & pier ruins | vicinity of: 39°14'31" 76°31'05" ₄ | None of the piers in this area appear on any hydrographic or topographic information available.* Revise to subm. ruins.* One of the piers has been carried forward as subm. ruins from 7-5321 (1933) |
| ✓ pier | 39°14' ² 28" 76°31'02" ₅ | Revise to subm. ruins. Originates with H-5531 (1934) - Carried forward to the present survey as submerged ruins |
| ✓ pier | 39°14'24" 76°31'02" | Revise to ruins as shown on present survey. |

| <u>Charted Item</u> | <u>Location</u> | <u>Recommendation</u> |
|---|--|---|
| (3) subm. wrecks and | 39°12'37" ^{5"} 76°32'42" 39°12'37" 76°32'09" | None of these wrecks appear ✓ on any topographic or hydro- graphic information. Retain as charted. (See comments pertaining to PSR item 23 included in section K of the D.R.) |
| ✓ piles (2) | 39°12'37" 76°32'58" | Revise to subm. Hydrographer ✓ did not verify while in area. |
| ✓ sewer outfall and ruins piles lat. 39°13'07", long. 76°34'26" | 39°13'01" 76°33'12" | Retain as charted. Items are not verified or ✓ disproved by the present survey. Referred to the compiler for evaluation and appropriate action. |
| piles | 39°13'01" 76°34'21" | Revise to submerged ruins per ✓ present survey information. |
| piles | 39°13'07" 76°34'23" | Revise to ^{submerged piles} ruins The charted piles are not ✓ verified or disproved by the present survey |
| ✓ piles (notation) | 39°12' ^{3 06"} 55" 76°33' ^{4 18"} 52" | Not verified or disproved by the present survey, retain as charted Delete charted note. Chart detached grains from the present survey. |
| ✓ dangerous sunken wreck | 39°12'55" 76°33'52" | was not verified or disproved ✓ by the present survey, retain as charted |
| pier lat. 39°13'07", long. 76°34'47" | | Referred to the compiler for evaluation and appropriate action. ✓ |
| ✓ wreck | 39°12'45" 76°32'32" | was not verified or disproved by present survey, revise to submerged. This item is discussed in section K of the D.R. secure with hydrographer |
| ✓ sunken wreck | 39°14'23" 76°31'02" | was not verified or disproved by this survey and should be retained. This item is discussed in section K of the D.R. secure with hydrographer |
| discontinued spoil areas | | charted in the area of the present survey should be deleted and present survey depths charted. |

The Presurvey Review items for this survey are adequately discussed under Section ^K of the Descriptive Report, with accompanying verifiers notes.

These recommendations are made on the basis of material available during verification and are only valid if no subsequent information indicates otherwise.

b. Controlling Depths

There are three controlling depth notes in channels, three anchorage area depth notes and 12 depth notes alongside or leading to piers on this survey. The controlling depth notes appear to be from + 1 to 2 feet, with the exception listed below:

Curtis Bay Channel charted depth list 41.7, 42.2, 41.4, 42.0 respectively; the present survey depths are 35.0; 38.0; 38⁰.0, 37ft. Recommend the revision of this note unless subsequent information indicates otherwise.

Fort McHenry Channel charted depth note list, 41.8, 42.0, 42.0, 41.0 feet respectively; the present survey depths are, 36.0, 41.0; 42.0, 37.0 feet. Recommend revision of the left outside and right outside quarters to agree with present survey, unless superseded by subsequent information.

The least depth in anchorage area "5" from the present survey is 18 ft. The charted depth note states "nineteen foot draft or less".

Revise note to read "eighteen ..."

The least depth in anchorage area "6" from the present survey is 18 ft. The charted depth note states "20 ft. draft or less". Recommended revising these notes to something less than 18ft.

Charted depth note, " 27 ft. reported" at latitude 39°13'17", longitude 76°34'54" is now controlled by 21 foot on the present survey.

Charted depth note " 39 ft. reported 1971" at latitude 39°13'22", longitude 76°34'45" is now controlled by 38⁷ft. on the present survey. (Controlling depth of 32 ft. at the western limits of the indicated area.)

Charted depth note " 32 ft. reported" at latitude 39°13'33", longitude 76°34'06" is now controlled by 23 ft. on the present survey.

c. Aids to Navigation

The aids to navigation in the survey area have been adequately discussed under Section N. of the Descriptive Report. (See Q.C. Report-item 12)

8. Compliance with Instructions

This survey did not comply with the Project Instructions in the line spacing in some areas, Sections 3.5 of instructions dated 9 July 1975.

9. Additional Field Work

This is a adequate basic survey; no additional field work is recommended.

APPROVAL SHEET
FOR
SURVEY H-9563

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verifier's Report.

Date: 3/6/79

Signed:




Title: Chief, Verification Branch

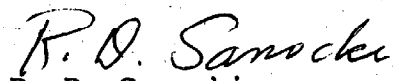
Inspection Report
H-9563


Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.


Examined and Approved:
Hydrographic Inspection Team
Date: March 5~~8~~, 1979


Robert A. Trauschke, CDR, NOAA
Chief, Processing Division

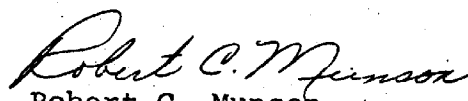
Absent
Carl W. Fisher, CDR, NOAA
Chief, Operations Division


R. D. Sanocki
Technical Assistant
Processing Division


C. Douglas Mason, LT, NOAA
Chief, Electronic Data
Processing Branch


Robert G. Roberson
Team Leader
Verification Branch

Approved/Forwarded


Robert C. Munson
RADM, NOAA
Director, Atlantic Marine Center

6/30/77

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center: CAM521

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): Baltimore, Maryland

Period: September 22, 1975 - November 10, 1976

HYDROGRAPHIC SHEET: H-9563


OPR: 514

Locality: Baltimore Harbor, Maryland

Plane of reference (mean ~~lower~~ low water): 3.96 ft.

Height of Mean High Water above Plane of Reference is 1.1 ft.

Remarks: Zone direct.



Chief, Tides Branch



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

OA/C352:KWW

May 1, 1979

TO: *for E.H. Carstens*
A. J. Patrick
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch

FROM: K. W. Wellman *Kenneth W. Wellman*
Quality Evaluator

SUBJECT: Quality Control Report for H-9563 (1975-76), Maryland, Baltimore Harbor, Curtis Creek to Sollers Point

A quality control inspection of H-9563 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths and navigation hazards, junctions, shoreline transfer, decisions and actions by the verifier, and cartographic presentation of data.

In general, the present survey was found to conform to National Ocean Survey standards and requirements except as discussed in the Verifier's Report, the HIT Report, and as follows:

1. Reference section 1-a(2) of the Verifier's Report:

The expression ". . . force plotting" is insufficiently definitive and should not be used. Any departure from the position fixing system established for the given survey should be discussed in the Verifier's Report. Such comments should clearly state the procedures used and reasons for employing such procedures. The establishment of positions by means of plotting a line on time and course; i.e., dead reckoning; or vectoring according to recorded data should be specifically referenced rather than cloaked under the term "force plotting." Such specific descriptions of procedures provide a better basis for determining if the resultant positions were established in accordance with acceptable plotting practices.

2. Section 2-a of the Verifier's Report is supplemented by the following:

Several control stations are symbolized as triangulation stations, and identified as having been established in 1975. Formal documentation of acceptance of such stations as official triangulation stations by the



National Geodetic Survey is not presently available. It is assumed, however, that specifications for triangulation stations have been complied with and that the necessary records and computations will eventually be submitted to the National Geodetic Survey. Ultimately, therefore, it is expected that the triangulation status of the referenced stations will be validated.

3. Two pipes located during field work should have been shown with an elevation of 0 on the basis of tide corrected field observations. During verification the pipes were annotated as awash without accompanying reference to any given datum contrary to customary practice. Appropriate revisions were effected during quality control inspection.

4. Reference section 4-b of the Verifier's Report:

The referenced notes resulted from detached positions observed on pilings. Accordingly, the pile symbol and appropriate tide-corrected elevations should have been shown on the smooth sheet during verification. Appropriate revisions were effected during quality control inspection.

5. Section 4-c of the Verifier's Report is rephrased and superseded by the following:

Numerous man-hours were expended in revising and/or reconciling erroneous field positions. More comprehensive field records and field plotting would have obviated the necessity of much of this additional data manipulation during verification. Further, field wire-drag investigation of some wrecks, piles, and obstructions sometimes did not provide adequate recorded coverage for a positive disposition. In addition, some charted piers, pier ruins, and piles were not specifically investigated or disposed of by the hydrographer.

6. Section 4 of the Verifier's Report is supplemented by the following:

g. The four privately maintained buoys charted in the vicinity of latitude $39^{\circ}13.00'$, longitude $76^{\circ}32.10'$ were not located during field work and are not referenced in section N of the Descriptive Report.

7. Reference comments pertaining to Presurvey Review Item 22 included in section K of the Descriptive Report:

The wire-drag development was not plotted although a plot should have been included in the survey material. Further, the hydrographer noted a snag during the investigation of this Presurvey Review item. In light of the noted snag, the charted note "Subm piles" cannot be considered disproved as implied by the hydrographer. In accordance with recorded data, a submerged obstruction (Position 8180) was added to the smooth

sheet in the general vicinity of the charted Presurvey Review Item 22. The charted note "Subm piles" should be replaced by the submerged obstruction notation.

8. Reference section 6 of the Verifier's Report:

Prior survey F.E. No. 5 (1943) was not considered during verification. A comparison between the F.E. and the present survey was accomplished during the quality control inspection. The referenced section of the Verifier's Report has been appropriately annotated.

9. Reference the last paragraph of section 6 of the Verifier's Report:

The referenced statement implies that only a qualified supersession of the prior surveys may obtain due to the "... possible exception ..." of the referenced 6-foot sounding. Such a statement is considered inconclusive and inappropriate. If the referenced 6-foot depth is considered valid, then it should have been carried forward to supplement the present survey. (See sections 6.3.7.2 and 6.3.7.3 of the Hydrographic Manual--Fourth Edition.) The area in proximity to the referenced sounding has generally deepened to present depths ranging from 13 to 19 feet. The questioned 6-foot prior survey depth is, therefore, considered no longer valid and should be disregarded.

10. Reference section 7-a of the Verifier's Report:

Some charted items purported to originate with unascertainable sources actually originate with prior surveys. Since such items were recommended to be appropriately revised on the chart, they should have been carried forward during verification to supplement the present survey. Appropriate additions/revisions were effected during quality control inspection. In addition, a pier charted in the vicinity of latitude $39^{\circ}12.93'$, longitude $76^{\circ}34.40'$, originating with T-5342 (1934), is not verified or disproved by the present survey. It has, therefore, been carried forward as submerged pier ruins to supplement the present survey.

11. Section 7-a of the Verifier's Report is supplemented by the following:

Attention is directed to the depths of 15 feet and 17 feet charted respectively in the vicinities of latitude $39^{\circ}14.00'$, longitude $76^{\circ}32.22'$ and latitude $39^{\circ}13.92'$, longitude $76^{\circ}32.31'$. These charted depths originate with Maryland Port Authority Bp-87824 (1974) and are not supported by present survey depths in the area. The referenced soundings are referred to the compiler for evaluation and appropriate action.

Additional charted features at variance with the present survey originate with miscellaneous sources. During quality control inspection, such

features were identified in the referenced section of the Verifier's Report and are referred to the compiler for evaluation and appropriate action.

12. Section 7-c of the Verifier's Report is supplemented by the following:

It is noted, however, that the four privately maintained buoys charted in the vicinity of latitude $39^{\circ}13.00'$, longitude $76^{\circ}32.10'$ are not shown on the present survey. Except as noted above and in section N of the Descriptive Report, the aids to navigation on the present survey are in substantial agreement with the charted positions and adequately mark the intended features.

13. Geographic names should have been lettered "lightly in pencil" on the smooth sheet during verification. They were added to the smooth sheet during quality control inspection. (See section 7.3.12.3 of the Hydrographic Manual and the memorandum dated October 12, 1978, from the Office of Marine Surveys and Maps entitled "Survey Processing Deficiencies.")

14. Reference the comments pertaining to the junction with H-9564 included in section 5 of the Verifier's Report:

Two anomalous 17-foot soundings in the vicinity of latitude $39^{\circ}14.31'$, longitude $76^{\circ}33.65'$ in the overlap area between the present survey and H-9564 effectively restricted access to the pier in the area. The chart shows a controlling depth of 32 feet in the area. Such anomalous soundings should be individually examined during verification. An examination of the fathograms during quality control inspection revealed that the referenced soundings were originally scanned in error. Actual depths in the area are 37 and 38 feet. Appropriate revisions were effected during quality control inspection.

cc:
OA/C35
OA/C351

DEPARTMENT OF COMMERCE
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Rockville, Maryland

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