

9919

Diagram No. 1222-4 & 1227-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Hydrographic
Field No. PE-20-2-80
Registry No. H-9919

LOCALITY

State Virginia
General Locality ... Chesapeake Bay Entrance
Sublocality Offshore Cape Charles
..... and Cape Henry

1980-81

CHIEF OF PARTY
CDR D.E. Nortrup

LIBRARY & ARCHIVES

DATE August 18, 1982

ETCR

Area 1 } Cartog
CHT } sign off
12208 } on fm
12221 } on back
12220 }
12200 }
12207 }
12205 }

HYDROGRAPHIC TITLE SHEET

H-9919

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.

PE-20-2-80

State VIRGINIAGeneral locality CHESAPEAKE BAY ENTRANCELocality OFF SHORE CAPE CHARLES AND CAPE HENRYScale 1:20,000Date of survey 1 November thru 17 November 1980Instructions dated February 20, 1980Project No. OPR-D103-MI/PE-80Vessel Launches 1017 and 1009, Ship PEIRCEChief of party Donald E. NortrupSurveyed by T.W. Ruzala, E.J. Fields, W.T. Dewhurst, L.T. Simoneaux, J.W. BaileySoundings taken by echo sounder, HOLOGRAPHICGraphic record scaled by WTD, JWB, LFS, EJF, DVM, WRMGraphic record checked by EJF, DVM& Verification Branch (AMC)

Protracted by _____

Automated plot by Xynerias 1201 Plotter (AMC)Verification by F. Saunders & L.G. CoatesSoundings in FOOT feet at MLW MINIMUMREMARKS: All times are GMT.- DIGITAL DATA COMPLETED AT AMC -Notes were made in this report during verification.The hydrographer's Descriptive Report is presented herein two parts, the 1980 field work and the 1981 field work, and is in consecutive order accordingly. Appendices of 1980 and 1981 were combined.Items removed from the Descriptive Report are filed with the field ~~summary~~ records.AWOIS/SURF MAM 8/21/87

PROGRESS SKETCH
OPR-D103
CHESAPEAKE BAY ENTRANCE, DELMARVANC

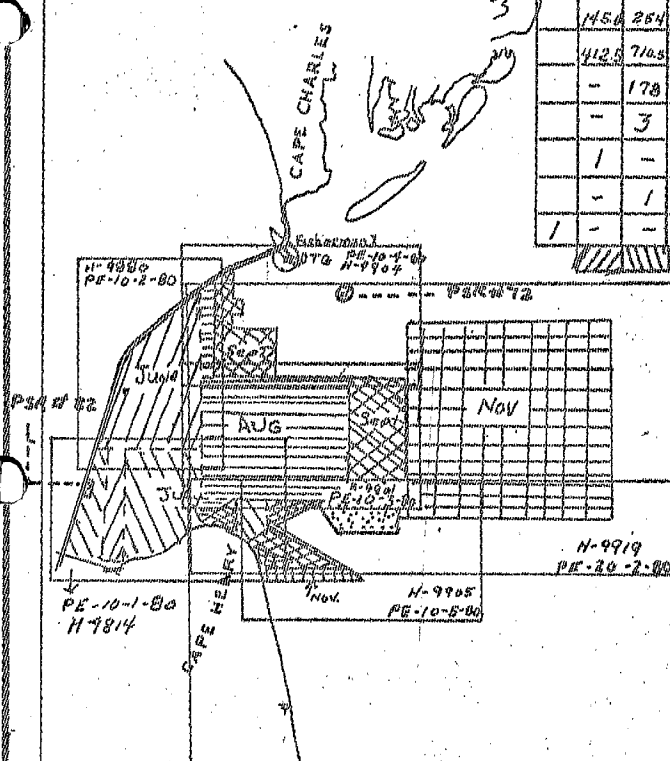
MAY - NOVEMBER
NOAA Ship PEIRCE
C. DALE NORTH, CDR NOAA
COMD'G. MAY - SEPT., 1980

From Chart 12200
DONALD E. NORTRUP, CDR. NOAA
COMD'G. SEPT - NOV.

75° 30'
37° 30'

LEGEND

	MAY	JUN	JUL	AUG	SEP	OCT	NOV
SQ. NM SOUNDING	25.0	40.0	60.0	32.0	3.0	24.0	
LN.M. MISC. DISTANCE	251.0	356	390	187	50.0	110.0	
LN.M. DIST. TO AND FROM	145.0	264	221	504	98	206	
LN.M. SOUNDING LINE	412.5	710.5	1407	431.3	109.6	260.0	
BOTTOM SAMPLES (GRAB)	-	178	70	72	12	17	
WATER SAMPLES ANALYZED (%)	-	3	4	4	-	-	
CONTROL STATIONS	1	-	-	-	-	-	
NANSEN CAST	-	1	1	1	-	1	
TIDE GAGE	1	-	-	-	-	1	1



75° 30'
37° 00'

NO. OF ITEMS DRAGED
DIVER INVESTIGATIONS

	AUG	SEPT	OCT	NOV
NO. OF ITEMS DRAGED	-	-	2	-
DIVER INVESTIGATIONS	2	1	4	-

76° 00'
36° 40'

Descriptive Report
To Accompany
Hydrographic Survey H-9880
Field Number PE-20-2-80

A. PROJECT

This survey is part of OPR-D103-MI/PE-80, Atlantic Seaboard Area Project (ASAP), DELMARVANC Phase. The survey was conducted in accordance with Project Instructions dated 20 February 1980 and the following changes:

Change No. 1 - Amendment to Instructions
dated 15 September 1980

Change No. 2 - Supplement to Instructions
dated 8 May 1980

Change No. 3 - Amendment to Instructions
dated 23 May 1980

Change No. 4 - Supplement to Instructions
dated 12 August 1980

Three Project Supplements and Amendments were issued during the project period, none of which were applicable to this survey.

B. AREA SURVEYED

This survey was conducted in the vicinity of the Chesapeake Bay Entrance from 1 November (JD 306) thru 17 November (JD 322). The survey area is covered by two hydroplot sheets.

This survey bordered $37^{\circ}03'20''$ north latitude to the north, with the southern border extending along the $36^{\circ}55'30''$ north latitude. The western limit was $75^{\circ}53'00''$ west longitude and the eastern limits extending to $75^{\circ}42'21''$ west longitude.

B. AREA SURVEYED (Cont'd)

This survey is incomplete. Survey operations progressed from west to east with progress limited to 75°45'21" west longitude by the end of the field season. The survey was squared off at the above longitude and with the exception of substandard bottom sample density is complete within the area surveyed.

C. SOUNDING VESSELS

The hydrography was performed by the ship and the ship's type I aluminum survey launches. All vessels were equipped with the hydroplot system.

Launch 1017 ----- VesNo. 2837

Launch 1009 ----- VesNo. 2839

NOAA Ship PEIRCE S-328 ---- VesNo. 2830

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

All soundings were acquired using the Ross Digital fathometer Model 5000. The individual sounding equipment and serial numbers were as follows:

<u>Vessel</u>	<u>VesNo.</u>	<u>Fathometer S/N</u>	<u>J.D.</u>
Launch 1017	2837	1078	306-309, 311
Launch 1009	2839	1055	311
Ship PEIRCE	2830	1079	318-320, 322

The corrections for velocity of sound in water were computed for the launches and ship via TDC cast #18 on J.D. 305, 31 October 1980. A Nansen cast and TDC cast were taken simultaneously on J.D. 253 for comparison; the two compared well. The Velocity Corrector Table #1, was used for all three vessels and was based upon TDC #18. The TDC casts were performed by a Martek Mark VII, Model #167-10, water quality instruments with Martek Sensor #167-20. All calibrations to the instrument were computed at the factory prior to the ship's usage.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS (Cont'd)

The TDC cast #18 was graphed and the Velocity Table was scaled at 0.2 foot intervals.

The initial of the Ross fathometer was maintained at zero with complete phase checks at the conclusion of each hydrographic line. Partial phase checks were made while running on line.

Settlement and squat corrections for the two launches, (VesNo. 2837, 2839) were determined at Little Creek Naval Base Harbor on 18 July 1980. Speed changes, during the survey, were noted in all Sounding Volumes and the Settlement and Squat Correctors were recorded in the Sounding Correction Abstract. Settlement and squat corrections for the ship were performed on 18 November 1980 (JD 323) using the alternate method outlined in the Hydrographic Manual. Settlement and Squat Test Data for the three vessels are included within Supplemental Data Records.

A vertical cast (measured the difference between the digital and leadline) was taken and ± 0.4 foot correction was applied to the TRA correction for the ship.

All Abstracts and the TC/TI Tape Listings are appended to this report.

The following is a list of stations observed for the velocity corrections:

<u>Type of Station</u>	<u>S/N</u>	<u>VesNo.</u>	<u>J.D.</u>	<u>Latitude</u>	<u>Longitude</u>
TDC	Martek Mark VII #167-10, Sensor Mark VII #167-20	2830	305	36°57'00" N	75°58'00" W
Vertical Cast	PE-100-1-78	2830	322	36°56'30" N	76°02'30" W

E. HYDROGRAPHIC SHEETS

The field sheets were constructed aboard the PEIRCE by the ship's Digital PDP 8/E computer and complot system. Program RK 201 was used for the GP and XY grid plot.

The survey was divided into two individual sheets. Both sheets had a scale of 1:20,000 with a Skew of 90, 20, 50. Sheet #1 was designated as the western sheet while sheet #2 covered the eastern section. Each of the two sheets also had an overlay sheet with the same scale and skew. The overlay contained the Crosslines, Developments, Bottom Samples, and Detached Position.

E. HYDROGRAPHIC SHEETS (Cont'd)

A third sheet was also drawn up to delineate the Dump Site Region, located at the eastern section of the survey. This sheet had a scale of 1:10,000 and a skew of 0, 20, 35. ✓

The final field sheets for the 1:20,000 scale were drawn up with a skew of 90, 20, 36. The Dump Site Development final field sheet remained the same. ✓

The final Smooth Sheet will be drawn up by the Atlantic Marine Center. All field records will be transmitted to AMC for verification. All sheet parameters are appended to this report. ✓

F. CONTROL STATIONS

Throughout this survey two Electronic Control Stations and five Visual Stations were used. The stations are as follows: *All off sheet* ✓

<u>Station</u>	<u>Name</u>	<u>Reference</u>	<u>Type</u>
001	FEN 1960, Fisherman's Island	AMC	Electronic
003	Cape Henry Lighthouse 1887	NGS	Visual
006	H-51-VA-80	AMC	Visual
007	H-52-VA-80	AMC	Visual
011	Shore Drive Standpipe	AMC	Visual
013	Cape Henry Lighthouse Old, 1869	NGS	Visual
019	2-75 Raydist	AMC	Electronic

All stations are either published geodetic stations or third order Class I station established by AMC. A complete list of all stations and signals is included in Section "F" of the Appendix.

G. HYDROGRAPHIC POSITION CONTROL

Throughout the survey the Cubic Western Argo system was in operation. ✓

G. HYDROGRAPHIC POSITION CONTROL (Cont'd)

in the Range/Range mode. A frequency of 1677.5 Mhz with a smoothing code of 02 and time slots 02 06 0000 were maintained. There were no unusual or unique equipment malfunctions encountered during the survey.

Daily calibrations were maintained during the survey operations. Calibrations were performed at the beginning and end of the day. These correctors were averaged for daily correctors. These calibrations were performed via three point sextant fixes, with check fix. All correctors and inverse distances were monitored with respect to the Hydrographic Manual. A copy of the corrector is appended.

The station equipment and serial numbers are as follows:

<u>Fixed Stations</u>	<u>Power Supply</u>	<u>RPU</u>	<u>ALU</u>
001	V0379110	R0379117	A0379120
019	V0379119	R047844	A047847
<u>Mobile Stations</u>			
<u>VesNo.</u>	<u>Serial Numbers</u>		<u>J.D.</u>
2837	RPU - R0379115		306-309, 311
	CDU - C047823		
	ALU - A0379109		
2839	RPU - R047859		311
	CDU - C037948		
	ALU - A0379106		
2830	RPU - R047859		318-320, 322
	CDU - C047825		
	ALU - A0379106		

H. SHORELINE

There was no shoreline included within the survey limits.

I. CROSSLINES See *Verification Report, section 3. a.*

During the survey a total of 46.5 nautical miles of crosslines were run. ✓ This constitutes 7.4% of the total mainscheme hydrography. All crossline and mainscheme agreements were within one to two feet. Although a discrepancy was noted this area had been split at 90 meters during the survey with indication of sand waves and bottom irregularities causing these three and four foot differences.

J. JUNCTIONS See *Verification Report, section 5.*

This survey junctioned with the following surveys:

<u>Survey Registry</u>	<u>Scale</u>	<u>Date</u>	<u>Position Relative to H-9919</u> ✓
H-9901	1:10,000	1980	East
H-9693	1:10,000	1977	Northeast

The junctioning agreement with respect to H-9901 is within one or two feet.

Junctioning on H-9693 shows excellent agreement, 60% of the soundings are within a one foot range or better. The remaining soundings are all within two feet. The positive agreement in this area is indicative of the regular and smooth bottom.

K. COMPARISON WITH PRIOR SURVEY See *Verification Report, section 6.*

The following presurvey review item was investigated in this survey. This presurvey item was obtained from Presurvey Review Information dated 21 April 1980.

Presurvey Review Item #73 (Non-dangerous Sunken Wreck)

This item is described as being a 50 foot barge or schooner with a 20 foot beam in the position of 37°03'03" north, 75°45'54" west. The wreck was deleted in 1935 and again added, 92 meters from previous position in 1959. *Origin: 1957 Wreck List (CL-847/58)* *AWOIS #925*

The instructions for this item called for limited investigation. The ship (VesNo 2830) conducted a fathometer search at 90 meter spacing, for a 1000 meter radius distance. The subsequent search revealed no unusual

K. COMPARISON WITH PRIOR SURVEY (Cont'd)

Uncorrected
 soundings or bottom irregularities. A least depth of 37 feet was obtained. This least depth is misleading due to the fact that it is located in the northern portion of the 1000 meter circle where similar depths were recorded.

Due to the vagueness of this item and the negative results of the search it is recommended that PSR #73 be charted with an "ED" existence doubtful.

Comparisons were made with the following prior survey:

See Section 7.4.5 of the Verification Report
 Retain 45 charted

<u>Survey Registry No.</u>	<u>Scale</u>	<u>Date</u>
H-6595	1:40,000	1940

The comparisons made with H-6595 show a very good agreement. The area south of 36°59'00" north latitude indicated the least favorable comparisons. Difference of up to eight feet deeper were noted. The differences may be due to the sandy bottom characteristics and the long time difference between surveys. The area to the north of 36°59'00" north latitude shows very good agreement. Agreements are within a 4 foot margin. This consistency may be due to the even bottom characteristics within this northern area. Throughout the survey, the northern section of the survey indicated a very regular bottom.

Several mainscheme splits were conducted to delineate the sand waves and on other bottom irregularities. There were no substantial discrepancies noted. Several splits were run to fill in areas where the 200 meter spacing was not maintained.

Two developments were conducted within the survey limits. The developments and recommendations are as follows:

<u>Development</u>	<u>Lat/Long</u>	<u>Development Position No.</u>	<u>Remarks</u>
A	36°56'00" N 75°48'40" W	5279-5303	Investigation of 29 foot sounding. Least depth 31'. Recommend supercede the chart. From #26 P.E. 77 W.D. (1949) W.D. * from prior survey H-6595 (1940) See Sec 7.4.3 of Verifiers Report
Dumpsite Dev.	36°59'00" N 75°45'00" W	6088-6139	45 meter spacing at 1:1000 sheet to investigate bottom topography per Project Instruction. Do not Recommend to chart as concern before. present hydrography supersedes charted depths

L. COMPARISON WITH THE CHART See *Verification, section 7*

Comparisons are being made with Chart 12221 47th Edition, dated 15 September 1980 with a scale of 1:20,000. ✓

Comparisons indicated a very favorable agreement. Most soundings are within a one or two foot range. Scattered three foot differences are noted throughout. This is primarily due to sand waves. The 36 foot curves has shifted slightly since this chart was published. The apparent shift is not showing any type of pattern or regularity. In general, agreement is very good. ✓

M. ADEQUACY OF SURVEY See *Section 8. of the Verification Report.*

This survey is complete and adequate to supersede the presently charted soundings and prior surveys for this area. ✓

N. AIDS TO NAVIGATION

Three floating aids to navigation were located within these survey limits. The three buoys mark the north Chesapeake Bay Entrance. A comparison of light list positions and Argo detached positions is as follows: ✓

Aid	<u>Observed Position with Argo</u>		<u>L i g h t L i s t</u>	
	<u>Latitude</u>	<u>Longitude</u>	<u>Latitude</u>	<u>Longitude</u>
* "NCA" 5218	36°58'42" N	75°48'41" W	36°58'42" N	75°48'42" W
"NCB" 571	36°58'04" N	75°50'46" W	36°58'00" N	75°50'48" W
"NCC" 341	36°57'23" N	75°52'59" W	36°57'24" N	75°53'00" W

All other buoy characteristics conform with (CG-158) List List. These aids adequately delineate the channel.

* Note: Pos # 5218 (NCA buoy) was 20 meters to port on this detached position.

O. STATISTICS

<u>Category</u>	<u>VesNo.</u> <u>2837</u>	<u>VesNo.</u> <u>2839</u>	<u>VesNo.</u> <u>2830</u>	<u>Total</u>
Positions	840	1057	83	1980
Nautical Miles of Sounding Lines	277	24	327.3	628.3
Square Nautical Miles	16	.5	7.5	24
Crosslines (nautical miles)	29	-	34.9	63.9
Bottom Samples	-	-	3	3
Direct Comparisons	2	-	-	2
TDC Cast	-	-	1	1
Nansen Cast	-	-	-	0
Vertical Cast	-	-	1	1

P. MISCELLANEOUS

Supplement reports will be submitted with other data at the end of the field season.

Q. RECOMMENDATIONS

Specific recommendations regarding charted features and bottom topography are made in Section K and L of this report.

R. AUTOMATED DATA PROCESSING

The following programs were used during this survey for the processing of data:

<u>Program No.</u>	<u>Program Name</u>	<u>Version</u>
RK 112	Range/Range Hyperbolic and Real Time Hydroplot	06/15/80
RK 201	Grid, Signal and Lattice Plot	04/18/75

R. AUTOMATED DATA PROCESSING (Cont'd)

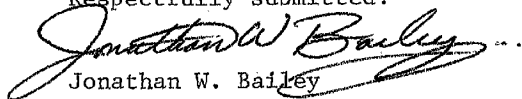
<u>Program No.</u>	<u>Program Name</u>	<u>Version</u>
RK 211	Range/Range Non Real Time Plot	01/15/76
RK 300	Utility Computations	02/05/76
RK 330	Reformat Data Check	05/04/76
RK 360	Electronic Corrector Abstract	02/02/76
AM 500	Predicted Tide Generator	11/10/76
RK 530	Layer Corrections for Velocity	05/10/76
RK 561	H/R Geodetic Calibration by 3-Point Fix	02/19/75
AM 602	ELINORE - Extended Line Oriented Editor	05/20/75

S. REFERENCE TO REPORTS

Ship's personnel installed one tide gage during this survey (see Field Tide Note). This report, levelling records and monthly tide records have been submitted to Tide and Water Levels Branch, Rockville, Maryland. In addition an Electronic Control Report and Velocity Correction Report will also be submitted at the conclusion of the field season. ✓

These reports were retained
at the AMC Processing Division ↗

Respectfully submitted:


Jonathan W. Bailey
Ensign, NOAA

Field Tide Note (1980)

Field tide reduction of soundings was based on predicted tides from Hampton Roads, Virginia and were interpolated by the PDP 8/E computer utilizing AM 500. All times of both predicted and recorded tides are GMT. Two tide gages were installed during the course of the project. A Bubblers Gage was installed on Fisherman's Island and a Fisher-Porter ADR Tide Gage was installed at the Little Island Fishing Pier in Sandbridge, Va. Locations of the gages are as follows:

<u>Site</u>	<u>Longitude</u>	<u>Latitude</u>
Fisherman's Island	76°56'36" W	37°05'06" N
Sandbridge, Virginia	75°55'24" W	36°41'36" N

1. The Fisherman's Island gage (S/N 7603-686-71 Metercraft) began operation on 12 May 1980. Due to its exposure to the elements, many orifice and tubing problems were experienced. The gage was operational until 18 September 1980. It was at this time that repairs during rough weather caused a one foot difference in staff and marigram comparisons. The staff reading was one foot higher than that of the marigram. Several days later the gage and staff were damaged by a storm. The gage was removed after the storm with the consent of the Tides and Water Levels Branch in Rockville, MD.

2. The Sandbridge, Va. tide gage (S/N 6612A1694M16) was installed, levelled, and began operation on 31 October 1980. The gage continued operation until 6 November 1980 when a broken tension spring caused a break in the records. The gage was repaired on 7 November 1980 and continued in operation until 20 November 1980, when the spring failed again. The gage was removed on 21 November 1980 and closing levels were run on 24 November 1980. The gage was set at the staff reading plus (+) 10 feet.

Levels:

1. Levels were impossible on the Fisherman's Island gage due to the destruction of bench marks and tide staff disturbances.

2. In a comparison of level records, the observed difference was a shift of 0.004' in the Sandbridge, Va. tide staff.

Zoning:

Correctors should be applied to PE-20-2-80 from these gages and the standard gage on the Chesapeake Bay Bridge.

HYDROGRAPHIC TITLE SHEET

H-9919

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.

PE-20-2-80

State Virginia

General locality Chesapeake Bay Entrance

Locality Offshore Cape Charles and Cape Henry

Scale 1:20,000 Date of survey 14 July 1981 - 25 July 1981

Instructions dated 31 March 1981 Project No. D-103-MI/PE81

Vessel NOAA Ship PEIRCE (VesNo 2830)

Chief of party CDR Donald E. Nortrup, Commanding

Surveyed by T.W. Ruszala, L.F. Simoneaux, M. Mozgala, J.W. Bailey, R.B. Harris, M. Poeschl

Soundings taken by echo sounder, hand lead, ~~pole~~ Ross #5000

Graphic record scaled by L.F.S., M.M., J.W.B., R.B.H., M.P.

Graphic record checked by L.F.S., M.M., J.W.B.

Protracted by _____ Automated plot by Synetics 1201 Plotter (AMC)

Verification by F.S. Saunders, L.G. Cramer

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS: All times recorded in this survey are GMT.

This survey is a continuation of work begun in October 1980 and serves to complete that work.

Notes in the Descriptive Report were made in red during verification.



PROGRESS SKETCH

OPR-D103, DEIMARVANC

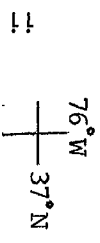
OFFSHORE CHESAPEAKE BAY ENTRANCE

NOAA Ship PETRICE

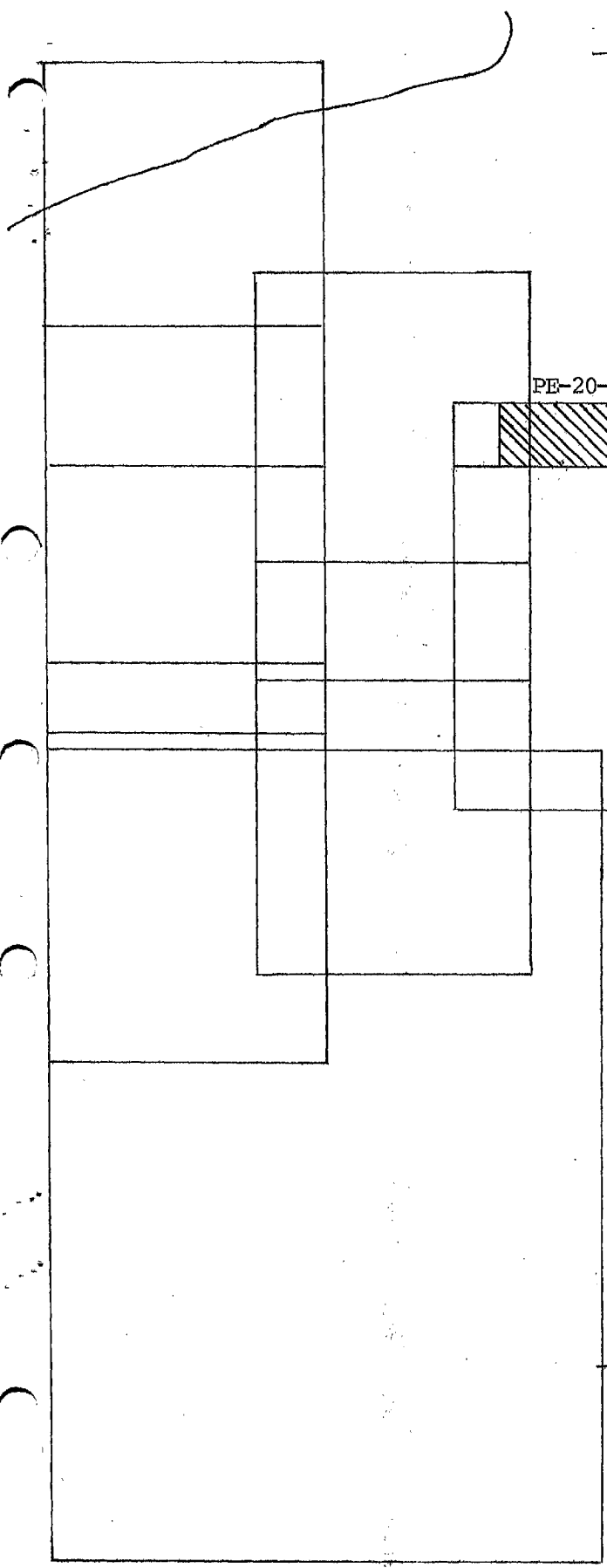
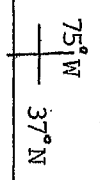
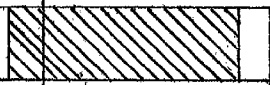
DONALD E. NORTRUP, CDR, NOAA

COMMANDING

From Chart 12200



PE-20-2-80



Supplemental
Descriptive Report
To Accompany
Hydrographic Survey H-9919
Field Number PE-20-2-80

A. PROJECT

This survey is part of OPR-D103-MI/PE81, Atlantic Seaboard Project (ASAP), DELMARVANC Phase. It was conducted in accordance with project instructions dated 31 March 1981, from Associate Director, Marine Surveys and Maps, forwarded via the Director, Atlantic Marine Center.

This survey is a continuation of work begun in October 1980 and serves to complete that work.

The one change to the project instructions affecting this survey is Change Number 2, Amendment to Instructions dated 6 May 1981.

B. AREA SURVEYED

This survey was conducted in the vicinity of the Chesapeake Bay entrance. The actual survey limits are as follows:

37-03-20 North	Northern Limit
36-55-30 North	Southern Limit
075-42-21 West	Eastern Limit
075-45-30 West	Western Limit

Included within this survey is the investigation of PSR item #103 which is partially included within the above survey limits. The PSR investigation extends for a 1000 meter radius from reported 40 foot sounding in the area of 36-55-30N, 075-44-12W. The above survey limits were expanded to encompass the investigation area.

This survey was conducted between the dates of 14 July 1981 (J.D. 195), and 25 July 1981, (J.D. 206).

C. SOUNDING VESSELS

The hydrography was conducted by the NOAA Ship PEIRCE, VesNo 2830, which was equipped with the hydroplot system.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

This survey was conducted utilizing the Ross digital fathometer model #5000. The individual sounding equipment and serial numbers are as follows:

	<u>Fathometer S/N</u>	<u>J.D.</u>
NOAA Ship PEIRCE, VesNo 2830	1079	195, 196
	1083	197, 201-206

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS (Cont'd)

Complete phase checks were performed on all units at the conclusion of each hydrographic line. Partial phase checks, at the thirty foot mark, were made while on line. All discrepancies and recalibrations were noted in the sounding volume. During this survey the ship encountered actual depths of 38-65 feet.

On 27 June 1981, simultaneous Nansen and T.D.C. casts were performed and the results were compared for T.D.C. accuracy. Salinities agreed within 1.2 parts per thousand and the temperature within .18° centigrade. The corrections for the velocity of sound in water were computed for the ship via T.D.C. cast #3 taken on 22 July 1981. The T.D.C. cast was graphed and the velocity table scaled at 0.2 of a foot intervals. The T.D.C. cast was performed by a Martek Mark VII, Model #167-10, water quality instrument with a Martek Sensor Model #167-20. All calibrations to the instrument were computed at the factory prior to ship's usage.

A vertical cast was taken on 22 July 1981, to a depth of 67 feet, indicating a static draft of 10.35 feet. (Corrector to assumed draft of 11 feet is -0.65). The vertical cast data is included in the supplemental data files.

The following is a list of the stations observed:

<u>Type of Station</u>	<u>S/N</u>	<u>VesNo</u>	<u>J.D.</u>	<u>Latitude</u>	<u>Longitude</u>
Nansen/TDC Cast	Martek Mark VII (#167-10) Sensor Mark VII (#167-20)	2830	178	36-48-43N	075-33-55W
TDC Cast	"	2830	203	36-54-40N	075-43-37W
Vertical Cast	PE-100-1-78 (Leadline)	2830	203	36-54-40N	075-43-37W

Settlement and squat corrections for the ship were determined during the 1980 field season and reported previously in the 1980 descriptive report for H-9919. Corrector values for speeds used during the survey were calculated and applied via the sounding corrector abstract. Speed changes, during the survey, were noted daily in the sounding volumes and the settlement and squat correctors were recorded in the sounding correction abstract.

The velocity table listing and TC/TI tape listing are appended to this report.

E. HYDROGRAPHIC SHEETS

The field sheets were constructed and drawn up aboard PEIRCE by the ship's PDP8/E computer and complot roll bed plotter. The data is presented on three plotter sheets. Two of the sheets are at a scale of 1:20,000 with a skew of 90,18,40. One plotter sheet contains the mainscheme and mainscheme splits while the overlay sheet contains crosslines, bottom samples, and developments. The third plotter sheet is at the scale of 1:10,000 with a skew of 0,20,24. This sheet contains the development of the dumpsite contained within the hydrographic survey limits.

The final smooth sheet will be plotted by the Atlantic Marine Center. All field records and appropriate data will be forwarded to A.M.C. for final verification. All sheet parameters are appended to this report.

F. CONTROL STATIONS

All hydrography was controlled by electronic positioning with reference stations located at horizontal control stations Corolla and Raydist (Signals 002 and 022 respectively). All positioning system calibrations were relative to station Chesapeake Light, 1966 (Signal 023).

Station Corolla was established in May 1981 by Atlantic Marine Center Operations Division personnel by Third Order, Class 1 traverse methods.

Station Raydist is an unmonumented site occupied by a privately owned antenna. The position of the antenna was verified by A.M.C. Operations Division personnel by traverse methods.

Station Chesapeake Light, 1966 is a published third order intersection station, Quad 360754, station 1047.

No horizontal control stations are located within the limits of this survey. A complete list of signals is included in section "F" of the appendix.

G. HYDROGRAPHIC POSITION CONTROL

Positioning of the ship was by the range/range method using ARGO, (Automated Range Grid Overlay), a medium range, phase comparison system.

The electronic equipment and serial numbers used for this survey are as follow:

<u>Equipment</u>	<u>-VesNo 2830- S/N</u>	<u>J.D.</u>
RPU	R0379119	195-197, 201-206
CDU	C037948	195-197, 201-206
ALU	A047847	195-197, 201-206
Strip Chart Recorder	S118086	195-197, 201-206
Thermal Printer	A04127	195-197, 201-206
Fathometer	1083	197, 201-206
	1079	195, 196
<u>Shore Stations</u>		
<u>Corolla (002)</u>		
RPU	R0379121	195-206
ALU	A047853	195-206
Power Supply	V0478108	195-206
<u>Raydist (022)</u>		
RPU	R047854	195-206
ALU	A0980310	195-206
Power Supply	V0379132	195-206

Throughout the survey ARGO was maintained at a smoothing code of 02 with time slots 01-05-00-00, and at a frequency of 1646.7 KHZ. Fixed shore station AGC values and antennae range tune values were monitored every hour on a daily basis. Individual values can be found in the supplemental data file.

G. HYDROGRAPHIC POSITION CONTROL (Cont'd)

The ARGO positioning system was calibrated via fixed point circle calibration at Chesapeake Light; Latitude 36-54-16.158N, Longitude 075-42-47.123W. (See Hydrographic Manual Fourth Edition, Section 4.4.3.3 for description of method). Line of position azimuths were determined by adding 90 and 270 degrees to the computed azimuth from Chesapeake Light to each shore station. Two complete circles were observed at the beginning and end of each day of sounding. On line partial electronic rate correctors were based on each days beginning calibration and entered via the nav-cal feature of program RK 112. Final rate correctors are based on the mean of each days beginning and ending calibrations and applied via the off line corrector tape.

H. SHORELINE

There was no shoreline contained within the survey limits. ✓

I. CROSSLINES See Verification Report, section 3.4. ✓

During this survey a total of 17.4 nautical miles of crosslines were run. This constitutes 9% of the total mainscheme hydrography.

The crossline/mainscheme agreement is very good. The largest difference is two feet. ✓

J. JUNCTIONS See Verification Report, section 5.

This survey junctions with survey H-9919; (PE-20-2-80), to the west and sheet "U", MI-20-1-81 to the east. Survey H-9919, PE-20-2-80, consists of the 1980 field work while sheet "U", MI-20-1-81 was accomplished concurrently by the NOAA Ship MT. MITCHELL. Contemporary surveys to the north and south of this survey were not completed at the time of this writing. ✓

Comparison with unverified 1980 H-9919 data to the west indicates general agreement within ± 2 feet with occasional differences of as much as 3 feet. No pattern is apparent in the differences and depth curves are continuous, with no systematic curve displacement, through the junction zone. ✓

Comparison with unverified MI-20-1-81 data to the east indicates general agreement within ± 2 feet with occasional differences of as much as 3 feet. No pattern is apparent in the differences and depth curves are continuous, with no systematic curve displacement, through the junction zone. ✓

K. COMPARISONS WITH PRIOR SURVEYS See Verification Report, section 6

The DELMARVANC Presurvey Review was issued 21 April 1980, extended 08 August 1980, and updated 10 September 1980 and again 21 April 1981. Only one item, number 103, lies within the survey area. Item 103 is a reported 40 foot depth at Latitude 36-55-30N, Longitude 075-44-12W requiring a limited investigation. One hundred meter line spacing over an area extending to a radius of 1000 meters from the sounding in question revealed a least depth of 43⁴ feet at Latitude 36-55-17N, Longitude 075-44-45W. It is recommended that the 43⁴ foot sounding supersede the reported 40 foot depth. *concur* ✓

K. COMPARISONS WITH PRIOR SURVEYS (Cont'd)

Comparisons were made with prior survey H-4193, scale 1:40,000, surveyed in 1921. This prior survey covers the northern portion of hydrography and constitutes approximately one half the area surveyed. Comparisons indicate a very good agreement. Differences of 1 to 3 feet are evident with no large discrepancies or changes in the bottom contours.

Comparisons made with prior survey H-6595, scale 1:40,000, dated October 1941, indicates very good agreement with occasional differences of ± 2 feet. No pattern is evident in the differences. This prior survey covers approximately one square mile in the southwestern area of the survey.

There were no prior surveys available for comparisons with the southern portion of this survey.

Ten developments were conducted during this survey. The dumpsite development is included within these ten developments. The individual developments and subsequent recommendations are as follows:

<u>Development</u>	<u>Lat/Long.</u>	<u>Development Pos.</u>	<u>Remarks</u>
Dumpsite Development	36-59-20N, N Limit 36-58-10N, S Limit 075-42-21W, E Limit 075-45-30W, W Limit	1941- ² 1209 1381-1394 ² ²	45 meter spacing at 1:10,000 scale to investigate bottom topography as per project instructions. Least depth found: 43 feet. Recommend this data supersede prior charts.
Development "A"	36-56-25N 075-42-30W	² 1372-1380	Investigation of mainscheme sounding of 49 feet at 50 meter spacing. Least depth found: 49 feet. Recommend supersede the chart.
Development "B"	36-56-30N 075-42-35W	² 1363-1371	Investigation of mainscheme sounding of 45 feet at 50 meter spacing. Least depth found: 45 feet. Recommend supersede the chart.
Development "C"	36-57-10N 075-43-18W	² 1347-1362	Investigation of mainscheme sounding of 43 feet at 50 meter spacing. Least depth found: 43 feet. Recommend supersede the chart.
Development "D"	36-57-40N 075-44-50W	² 1259-1278	Investigation of mainscheme sounding of 38 feet at 50 meter spacing. Least depth found: 38 feet. Recommend supersede the chart.

K. COMPARISON WITH PRIOR SURVEYS (Cont'd)

<u>Development</u>	<u>Lat/Long.</u>	<u>Development Pos.</u>	<u>Remarks</u>
Development "E"	36-57-50N 075-44-20W	2 246- 2 258	Investigation of mainscheme sounding of 40 feet at 50 meter spacing. Least depth found: 40 feet. Recommend supersede the chart.
Development "F"	37-00-30N 075-43-15W	2 216- 2 226	Investigation of mainscheme sounding of 41 feet at 50 meter spacing. Least depth found: 41 feet. Recommend supersede the chart.
Development "G"	37-00-55N 075-43-25W	2 227- 2 241	Investigation of mainscheme sounding of 38 feet at 50 meter spacing. Least depth found: 38 feet. Recommend supersede the chart.
Development "H"	36-57-47N 075-42-53W	2 338- 2 346	Investigation of mainscheme sounding of 50 feet at 50 meter spacing. Least depth found: 50 feet. Recommend supersede the chart.
Development "I"	36-56-58N 075-45-21W	2 321- 2 333	Investigation of mainscheme sounding of 42 feet at 50 meter spacing. Least depth found: 42 feet. Recommend supersede the chart.

L. COMPARISON WITH THE CHART *See Verification Report, section 7*

Comparisons were made with Chart number 12221, 50th edition, July 18, 1981 with a scale of 1:80,000. ✓

Comparisons with the chart reveal very favorable agreement with differences generally less than ±3 feet. Larger differences of as much as 8 feet exist in the area of known sand waves. ✓

Shoaler than charted soundings of significance were measured at:

<u>Latitude</u>	<u>Longitude</u>	<u>Charted Sounding</u>	<u>Survey Sounding</u>
36-59-10	75-45-00	58'	54'
36-56-18	75-42-28	60'	51'
36-58-40	75-42-48	64'	56'

The 60 foot depth curve, in the vicinity of the disposal area has shifted slightly to the southeast. There is no significant change in the configuration of the curve. ✓

L. COMPARISON WITH THE CHART (Cont'd)

Note: Of the two chart blowups received for comparison, one was not of the edition specified per the project instructions. The second, which was as per the project instructions, covered only part of the work area. Therefore, a sounding by sounding comparison was done with the latest edition of the chart (July 18, 1981) which is provided as supplemental data. ✓

M. ADEQUACY OF SURVEY *See Verification Report, section B*

This survey is complete and adequate to supersede the presently charted soundings and prior survey for this area. ✓

N. AIDS TO NAVIGATION

There are no aids to navigation located within this survey area. ✓

O. STATISTICS

<u>Category</u>	<u>VesNo 2830</u>
Nautical Miles of Sounding Lines	504.9
Square Miles of Hydrography	20.0
Nansen Casts	1
T.D.C. Casts	2
Bottom Samples	27
Tide Stations	2
Vertical Casts	1

P. MISCELLANEOUS

Twenty-seven bottom samples were taken during this survey, a copy of Oceanographic Log Sheet "M" is included within the appendix. ✓

Supplemental reports will be submitted with other data at the end of the field season. ✓

Q. RECOMMENDATIONS

It is recommended that data compiled for this survey supersede all existing charts and information. Specific recommendations regarding charted features and general bottom topography were made in sections K and L of this report. ✓

R. AUTOMATED DATA PROCESSING

The following programs were used in acquiring and processing data for this survey:

<u>Program</u>	<u>Program Name</u>	<u>Version</u>
RK 112	Hyperbolic R/R Hydroplot	9/11/80
RK 201	Grid, Signal, Lattice Plot	4/18/75
RK 211	Range/Range Non-Real Time Plot	2/02/81
RK 300	Utility Computations	10/21/80
RK 330	Reformat and Data Check	5/04/76
PM 360	Electronic Corrector Abstract	2/02/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	5/10/76
AM 602	Elinore-Extended Line Oriented Editor	5/20/75
AM 606	Tape Duplicator	8/22/74
RK 612	Line Printer List	3/22/78

S. REFERENCE TO REPORTS

The ship's personnel installed two tide gages during this survey. See field tide note appended. This report, leveling records, and monthly tide records have been submitted to the Tides and Water Levels Branch, Rockville, Maryland.

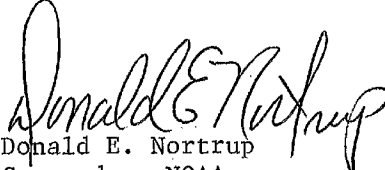
Respectfully Submitted,



Jonathan W. Bailey, ENS., NOAA

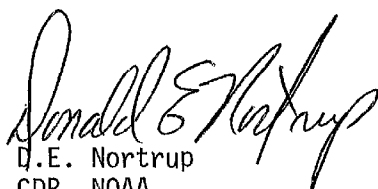
APPROVAL SHEET

The field work on this Basic Survey, Registry No. H-9919, Field No. PE-20-2-80 was accomplished under my daily supervision. This report and field records have been reviewed by me on a routine basis. The survey is complete and adequate for the area investigated.


Donald E. Nortrup
Commander, NOAA
Commanding Officer
NOAA Ship PEIRCE S-328

APPROVAL SHEET
H-9919

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and the final field sheet have been closely reviewed and found to represent a complete survey adequate to supersede the common coverage portions of prior surveys H-4193 and H-6595 for charting purposes.



D.E. Nortrup
CDR, NOAA
Commanding Officer
NOAA Ship PEIRCE S-328

DESCRIPTIONS OF STATIONS

001 FEN, 1960 *ELECTRONIC CONTROL*

002 ~~Little Creek, 1929 NOT USED~~

003 Cape Henry Lighthouse, 1887

004 ~~Lynnhaven Day Beacon #2 NOT USED~~

005 ~~Cape Henry Lighthouse ECG SW NOT USED~~

006 H-51-VA-80, 1980 *CALIBRATION*

007 H-52-VA-80, 1980 *CALIBRATION*

008 ~~H-53-VA-80 NOT USED~~

009 ~~H-54-VA-80 NOT USED~~

010 ~~H-55-VA-80 NOT USED~~

011 Shore Drive Standpipe, 1980 *CALIBRATION*

012 ~~H-50-VA-80 NOT USED~~

013 Cape Henry Lighthouse (Old), 1869 *CALIBRATION*

014 ~~Cavalier Hotel Cupola NOT USED~~

015 ~~Little Creek Amph Base Tank NOT USED~~

016 ~~Little Creek NAB Dessert Cove Tank NOT USED~~

017 ~~Little Creek NAV Amph Base Tank NOT USED~~

018 ~~H-6-VA-77 (Island #4) NOT USED~~

019 2-75, Raydist (Argo) 1980 *ELECTRONIC CONTROL*

020 ~~Cape Charles Light NOT USED~~

021 ~~Oceanview Tank NOT USED~~

022 ~~Bridge-Tunnel Calibration Point NOT USED~~

023 ~~Cape Charles 771ST AN/FPS N NOT USED~~

024 ~~Cape Charles 771ST AN/FPS S NOT USED~~

025 ~~H-56-VA (Argo) NOT USED~~

DESCRIPTION OF STATIONS (CONT.)

- 026 ~~RAMADA INN~~ NOT USED
- 027 ~~PARCEL C TOWER A~~ NOT USED
- 028 ~~PARCEL C TOWER B~~ NOT USED
- 029 ~~CAPE HENRY NEW LIGHTHOUSE ECC~~ NOT USED

SIGNALS AND NAMES
 PE-20-2-80
 H-9919
 (1980)

<u>Signal #</u>	<u>Name</u>
001	*Currituck Light <i>NOT USED</i>
002	Corolla <i>ELECTRONIC CONTROL</i>
003	*Ann
004	*Back Bay
005	*Pumping Pier
006	*Sandfiddler
007	*Gun Az. Mark
008	*Gun
009	*Dam Neck BOQ.
010	*N.E. Corner BOQ.
011	*Tecumseh
012	*Sandbridge Water Tank
013	*Dam Neck Navy Mills Water Tank
014	*Chesapeake Lighthouse 1887
015	*Chesapeake Lighthouse Old
016	*Cavalier Fotel Cupola
017	*Ramada Inn
018	*Battery Cramer
019	*VA. Beach Municipal Water Tank
020	*Parcel c Tower A
021	*Parcel c Tower B
022	<i>FT STORY HASTINGS RAYDIST ANT., 1981</i> *Raydist (Locally named) <i>ELECTRONIC CONTROL</i>
023	Chesapeake Light <i>CALORATION (Circle Light)</i>

NOT USED

SIGNAL TAPE LISTING

FE-20-2-80

H-9919 (1980)

001	3	36	22	35424	075	49	51632	139	0048	000000
002	3	36	22	35633	075	49	49342	250	0000	164670
003	3	36	40	18361	075	54	58141	139	0000	000000
004	3	36	40	29199	075	54	54775	250	0000	000000
005	5	36	41	39184	075	55	20165	250	0000	000000
006	3	36	44	24757	075	56	30695	139	0000	000000
007	3	36	44	48104	075	56	40576	139	0000	000000
008	3	36	44	48396	075	56	48851	139	0000	000000
009	3	36	47	17531	075	57	34964	250	0015	000000
010	3	36	47	18963	075	57	35128	139	0015	000000
011	3	36	45	39796	075	57	00915	139	0000	000000
012	3	36	44	44482	075	56	51530	139	0000	000000
013	3	36	46	13694	075	57	51981	139	0000	000000
⁰⁰³ 014	3	36	55	34335	076	00	27216	139	0050	000000
¹³ 015	3	36	55	32330	076	00	30516	139	0000	000000
¹⁴ 016	3	36	52	08381	075	59	02012	139	0000	000000
²⁰ 017	3	36	52	58401	075	59	05290	139	0019	000000
018	3	36	55	04199	075	59	44489	250	0026	164670
019	3	36	50	31980	075	59	23523	139	0031	000000
²¹ 020	6	36	53	35785	075	59	18153	139	0000	000000
²² 021	6	36	53	33941	075	59	18266	139	0000	000000
022	3	36	55	21706	075	59	56344	250	0000	164670
023	3	36	54	16158	075	42	47123	139	0000	000000

SIGNAL TAPE LISTING (1981)

001	7	37	05	36243	075	58	17556	250	0050	167750
002	7	36	55	57125	076	10	35961	250	0070	000000
003	3	36	55	34335	076	00	27216	250	0050	000000
004	3	36	54	58985	076	05	23774	139	0000	000000
005	4	36	55	34302	076	00	27323	250	0050	000000
006	6	36	55	49332	076	01	03347	250	0001	000000
007	6	36	55	49573	076	01	54070	250	0000	000000
008	6	36	55	31272	076	02	39211	250	0000	000000
009	6	36	54	59010	076	03	32751	250	0000	000000
010	6	36	54	30153	076	05	51095	250	0000	000000
011	6	36	54	17009	076	07	14013	139	0000	000000
012	6	36	55	14934	075	59	46481	250	0001	000000
013	6	36	55	32330	076	00	30516	139	0000	000000
014	6	36	52	08381	075	59	02012	139	0000	000000
015	3	36	55	06190	076	11	22544	139	0000	000000
016	3	36	55	14382	076	09	42063	139	0000	000000
017	3	36	54	31740	076	08	53000	139	0000	000000
018	3	37	02	44530	076	03	46565	250	0000	000000
019	3	36	55	49585	076	01	01393	250	0000	167750
020	3	37	07	22007	075	54	24576	250	0000	000000
021	3	36	56	51663	076	15	33886	250	0000	000000
022	3	36	59	51427	076	05	59605	250	0000	000000
023	3	37	08	03976	075	57	04192	250	0000	000000
024	3	37	08	02246	075	57	04291	250	0000	000000
025	3	37	01	26366	076	17	49680	250	0000	167750
026	6	36	52	58401	075	59	05290	250	0019	000000
027	6	36	53	35785	075	59	18153	139	0000	000000
028	6	36	53	33941	075	59	18266	139	0000	000000

N/CG242:LQ

October 29, 1984

TO: Roy K. Matsushige
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section

FROM: Lisa Quinlan
Quality Evaluator

SUBJECT: Quality Control Report for Survey H-9919 (1980), Virginia, Chesapeake Bay Entrance, Offshore Cape Charles and Cape Henry

A quality control inspection of H-9919 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, shoreline transfer, decisions made and actions taken by the verifier, and the cartographic presentation of data. In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Verifier's Report.

cc:
N/CG241 v

October 29, 1984

TO: Roy K. Matsushige
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section

FROM: Lisa Quinlan
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SUBJECT: Quality Control Report for Survey H-9919 (1980), Virginia, Chesapeake Bay Entrance, Offshore Cape Charles and Cape Henry

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CC:
N/CG241

OPR D103

SOUNDING CORRECTION ABSTRACT (1980)

FIELD NO. PE-20-2-80

REGISTRY NO. H-9919

VESSEL 2830

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(NOTE: TRA Corr. is the algebraic sum of these columns)				Remarks	
				Draft Corr.	Instrument Error Corr.	Initial Corr.	S & S Corr.		TRA Corr. ft/fms
318	163714	193726	1	11.0		-0.4*	+0.8	+0.4	Standard
319	134644	235416	1	11.0		-0.4*	+0.8	+0.4	Standard
320	001053	201806	1	11.0		+0.4*	+0.8	+0.4	Standard
322	131032	210022	1	11.0		+0.4*	+0.8	+0.4	Standard

*Vertical Cast Draft corrections applied on corrector tape.

OPR D103

SOUNDING CORRECTION ABSTRACT (1980)

FIELD NO. PE-20-2-80

VESSEL 2837

REGISTRY NO. H-9919

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(NOTE: TRA Corr. is the algebraic sum of these columns)				S & S Corr.	TRA Corr. ft/fms	Remarks
				Draft Corr.	Instrument Error Corr.	Initial Corr.				
306	165509	204212	1	1.6				-0.40	-0.40	2300 RPM
307	132125	140213	1	1.6				-0.40	-0.40	2300 RPM
307	140626	145156	1	1.6				-0.40	-0.40	2100 RPM
307	145327	214747	1	1.6				-0.40	-0.40	2200 RPM
308	131841	205917	1	1.6				-0.40	-0.40	2300 RPM
309	135414	145501	1	1.6				-0.40	-0.40	2300 RPM
309	145905	192830	1	1.6				-0.40	-0.40	2000 RPM
309	192946	205740	1	1.6				-0.40	-0.40	2200 RPM
311	134118	162145	1	1.6				-0.40	-0.40	2100 RPM

*Note: Draft correction applied on corrector tape.

OPR D103

SOUNDING CORRECTION ABSTRACT (1980)

FIELD NO. PE-20-2-80

REGISTRY NO. H-9919

VESSEL 2839

(NOTE: TRA Corr. is the algebraic sum of these columns)

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	Draft Corr.	Instrument Error Corr.	Initial Corr.	S & S Corr.	TRA Corr. ft/fms	Remarks
				1.6			-0.20	-0.20	
311	143305	173736	1						

*Note: Draft correction applied on corrector tape.

OPR D-103

SOUNDING CORRECTION ABSTRACT (1981)

VESSEL 2830

FIELD NO. PE-20-2-80

REGISTRY NO.H-9919

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(NOTE: TRA Corr. is the algebraic sum of these columns)				Remarks	
				Assumed Draft	Instrument Error Corr.	Draft Corr.	S & S Corr.		TRA Corr. ft/fms
195	170937	231359	12	*11.0		- 0.65	+ 0.8	+0.15	6's
196	133645	152816	12	"		"	"	"	6's
196	152816	153246	12	"		"	0	-0.65	2.5's
196	153246	160931	"	"		"	+ 0.8	+0.15	6's
196	160931	231043	"	"		"	"	"	Standard
197	130456	160404	"	"		"	"	"	Standard
201	171044	210704	"	"		"	"	"	Standard
201	210704	215520	"	"		"	"	"	7's
201	215520	225100	"	"		"	"	"	Standard
201	225100	225811	"	"		"	"	"	7's
201	225811	234636	"	"		"	"	"	6's
202	124222	132551	"	"		"	"	"	Standard
202	132551	141308	"	"		"	"	"	7's
202	141308	145653	"	"		"	"	"	Standard
202	145653	161718	"	"		"	"	"	7's

* Draft entered on corrector tape.

OPR D-103

SOUNDING CORRECTION ABSTRACT (1980)

FIELD NO. PE-20-2-80

REGISTRY NO. H-9919

VESSEL 2830

Julian Date	From Time (GMT)	To Time (GMT)	Velocity Corr. Table No.	(NOTE: TRA Corr. is the algebraic sum of these columns)				Remarks	
				Assumed Draft	Instrument Error Corr.	Draft-Corr.	S & S Corr.		TRA Corr. ft/fms
202	161718	201818	1	* 11.0		- 0.65	+ 0.8	+ 0.15	Standard
203	124953	230701	"	"		"	"	"	Standard
204	124125	200625	"	"		"	"	"	7's
204	200625	201113	"	"		"	"	"	Standard
204	201133	230908	"	"		"	"	"	7's
205	130605	224927	"	"		"	"	"	Standard
206	144338	181853	"	"		"	"	"	7's
206	181853	225930	"	"		"	0.0	- 0.65	Ø

* Draft entered on corrector tape.

FIELD TIDE NOTE (1981)

Field tide reduction of soundings was based on predicted tides from Hampton Roads, Virginia, corrected in accordance to pre-zoning scheme and interpolated by PDP8/E computer utilizing AM 500. All times of both predicted and recorded tides are GMT.

In order to ensure continuous tidal records the ADR gage installed at station number 863-9428 was supplemented by a gas purged pressure gage at the same site. The location and period of operation are as follows:

<u>Site</u>	<u>Location</u>	<u>Period</u>
Sandbridge Pumping Pier	36-41.5 North 75-55.2 West	11 June - Still in operation

Sandbridge Pumping Pier - Metercraft Model 7601, S/N 7536-22 gage was installed on 11 June 1981 and began operations of 12 June 1981. The staff was installed during the 1980 field season and was leveled on 12 June 1981. Fisher-Porter, ADR, Model 1551, S/N R6511A4632M2, gage was installed on 11 June 1981 and began operation 12 June 1981. The same staff was used for both gages, and leveled 12 June 1981.

On 25 June 1981, the recording paper jammed in the punch block assembly and bent the punch pen on the ADR gage. On 28 June 1981, the Fisher-Porter gage was removed and returned to AMC for repairs. On 29 June 1981, the same gage was reinstalled and commenced operations. During the down time of the ADR gage, the Metercraft bobber gage was operational as a back up unit.

Levels - Levels were run on this station on 12 June 1981, prior to the beginning of the hydrographic operations. The gage was not leveled out as it is still in operation at this time.

Zoning - Zoning is based on pre-zoning scheme noted in the project instructions with correctors of -1 hour 50 minutes and tide value multiplier 1.38.

Duck, North Carolina - Station Number 865-1370, was operational and under the jurisdiction of A.M.C., Tides and Water Levels Branch, throughout the survey. Check level was performed on 5 June 1981 with all information and data being forwarded to Tides and Water Levels Branch, Rockville, Maryland.

REGISTRY NO. H-9919(1983)

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:

APPROVAL SHEET
FOR
SURVEY H-9919

- 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/~~XXXXXXXX~~ been made. A new final sounding printout has/~~XXXXXXXX~~ 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 Verification Report.

Date:

July 1982

R. W. Smecher
Chief, Verification Branch

June 18, 1982

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 863-8863 Chesapeake Bay Bridge Tunnel, VA.

Period: November 1-17, 1980
July 14-25, 1981
HYDROGRAPHIC SHEET: H-9919

PR: D103

Locality: Chesapeake Bay Entrance

Plane of reference (mean lower low water): 24.83 ft.

Height of Mean High Water above Plane of Reference is 2.74 ft.

REMARKS: Recommended zoning:

- 1) From latitude $76^{\circ}02.2'$ East to $75^{\circ}59.5'$
 - a) North of $37^{\circ}00.0'$ apply x1.08 range ratio.
 - b) South of $37^{\circ}00.0'$ apply -15 minute time correction and x1.12 range ratio.
- 2) From $75^{\circ}59.5'$ East to $75^{\circ}55.5'$
 - a) North of $37^{\circ}00.0'$ apply -15 minute time correction and x1.19 range ratio.
 - b) South of $37^{\circ}00.0'$ apply -25 minute time correction and x1.19 range ratio.
- 3) East of $75^{\circ}55.5'$
 - a) North of $37^{\circ}00.0'$ apply -25 minute time correction and x1.30 range ratio.
 - b) South of $37^{\circ}00.0'$ apply -35 minute time correction and x1.30 range ratio.


Chief, Datums and Information Branch

GEOGRAPHIC NAMES

4-9919

Name on Survey	A ON CHART NO.		B ON PREVIOUS SURVEY NO.		C ON U.S. QUADRANGLE MAPS		D FROM LOCAL INFORMATION		E ON LOCAL MAPS		F P.O. GUIDE OR MAP		G GRAND McNALLY ATLAS		H U.S. LIGHT LIST		K	

CAPE CHARLES (title block)																			1
CAPE HENRY (title block)																			2
CHESAPEAKE BAY (title block)																			3
																			4
																			5
																			6
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																			25

Approved:

Charles E. Harrington

Chief Geographer - N/CG 2x5

26 July 1983

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		6	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		3	
DESCRIP- TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	2					
CAHIERS			2 Raw Plo & Fathograms			
VOLUMES	2					
BOXES			2-Smooth Plo Sound Vols(3)			

T-SHEET PRINTS (List)

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			3401
POSITIONS CHECKED		13	
POSITIONS REVISED		5	
SOUNDINGS REVISED		35	
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	32		
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS		40	
VERIFICATION OF SOUNDINGS		212	
COMPILATION OF SMOOTH SHEET		69	
APPLICATION OF TOPOGRAPHY			
APPLICATION OF PHOTOBATHYMETRY			
JUNCTIONS		4	
COMPARISON WITH PRIOR SURVEYS & CHARTS		40	
VERIFIER'S REPORT		25	
OTHER			
	32	390	422
TOTALS			

Pre-Verification by

RGR, RLK

Beginning Date

1/9/81

Ending Date

11/15/81

Verification by

RLK, JSB, FLS, LGC

Beginning Date

5/21/81

Ending Date

7/13/82

Verification Check by

H.R. Smith

Time (Hours)

26

Date

4/15/82

Marine Center Inspection by

HYDROGRAPHIC INSPECTION TEAM

Time (Hours)

4

Date

7/14/82

Quality Control Inspection by

Quintan

Time (Hours)

43

Date

15 Apr 84

Requirements Evaluation by

Time (Hours)

Date

B. Myer 5/18/83 2 hrs

ATLANTIC MARINE CENTER
VERIFICATION REPORT

REGISTRY NO.: H-9919

FIELD NO.: PE-20-2-80

Virginia, Chesapeake Bay Entrance, Offshore Cape Charles and Cape Henry

SURVEYED: November 1 through November 1~~3~~⁷, 1980 and
July 14 through July 25, 1981

SCALE: 1:20,000

PROJECT NO.: OPR-D103

SOUNDINGS: Ross Digital Echo Sounder

CONTROL: ARGO (Range-Range)

Chief of Party	D. E. Nortrup
.	T. W. Ruzala
.	E. J. Fields
.	W. T. Dewhurst
.	L. F. Simoneaux
.	J. W. Bailey
.	M. Mozgala
.	R. B. Harris
.	M. Poeschl

Automated Plot by Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

a. One unusual problem that was encountered on the survey was that the 1981 work on this sheet had 800-plus duplicate position numbers with the 1980 work. The problem was corrected during verification by adding 1000 to all position numbers on the 1981 work. ✓

b. Notes in the Descriptive Report were made in red during verification. ✓

2. CONTROL AND SHORELINE

a. The source of control is adequately described in sections F and G of the Descriptive Report with the exception of the electronic control station "Raydist" used in 1981. It was not clearly stated what the name of this station is for the geodetic station name. ✓

b. No shoreline was required for this survey. This is an offshore survey. ✓

3. HYDROGRAPHY

a. The agreement at crossings on this survey is adequate; depths agree within the limits prescribed by the Hydrographic Manual. ✓

b. The standard depth curves could be drawn in their entirety. Dashed curves, the 24-ft. supplemental curve, the charted 36-ft. supplemental curve and brown curves were used to better delineate some bottom features.

c. This survey is considered adequate to delineate the basic bottom configuration and to determine least depths with the exceptions listed in section 6 of this report and the following:

1) A six-foot deep scour was located in Latitude $36^{\circ}58'29.14''$, Longitude $75^{\circ}50'29.67''$, in an area of generally flat bottom. It also falls in the inbound traffic lane for the North Chesapeake Bay Entrance Traffic Lane. The echo sounding system used is not very conducive to finding objects on the bottom, and the area should have had additional lines run. Recommend this item be included for any future investigations in the area.

2) The two 30-ft. depths located in the vicinity of Latitude $36^{\circ}58'44.69''$, Longitude $75^{\circ}51'20.86''$, which fall in charted depths of 34 feet. It would have been desirable to run one or two short lines to better delineate this area as these depths fall less than 1000 yards from the inbound channel.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports comply with the requirements of the Hydrographic Manual with the following exceptions:

a. It appears the field unit prepared one set of Nonfloating Aids or Landmarks for Charts forms (76-40) for the whole project D103. The chart compiler should be provided information for selecting landmarks to be shown on the smaller scale charts from offshore surveys based on an evaluation of what landmarks are useful in the survey area as they are limited by the scale of the chart as to what can be shown. While this is not clearly spelled out in the Hydrographic Manual, it is not considered a good practice to use one set of forms 76-40 for an entire project such as D103. *Form (76-40) field insert removed as copy submitted with contemporary appropriate surveys.*

b. The duplicate position numbers discussed in section I.a. of this report should have been resolved in the field. It is felt this was an oversight on the field's part due mainly to the approximately 8 months between the two parts of this survey.

c. The Geographic Names List was not submitted in accordance with section 5.3.5.c. of the Hydrographic Manual, "A list of Geographic Names that occur on the field sheet . . ." It appears that the list submitted is for the entire project D103 as nine names submitted do not fall in the area of H-9919. *NOAA Form 76-155 field insert replaced by correct Name List*

d. The field's statement in section K of the Descriptive Report (1981), "There were no prior surveys available for comparisons with the southern portion of this survey," is in conflict with section 6.10. of the Project Instructions dated February 20, 1980 and March 31, 1981, which states ". . . these surveys were all forwarded by NOS Headquarters in 1979."

e. The sheet lacks the number of bottom samples required by section 1.6.3. of the Hydrographic Manual. In the western section of the sheet (1980 work) only three (3) bottom samples were taken. *Two (freq. S) bottom characteristics carried forward from H-6595 (1940)*

5. JUNCTIONS

H-9693 (1977) to the northwest
H-9901 (1980) to the west
H-9905 (1980) to the southwest
H-9922 (1981) to the south
H-9955 (1981) to the east
H-9961 (1981) to the north

The junctions with these surveys are complete and require no further work with the exception of H-9693 (1977). This survey is not considered contemporary; however, the soundings in the common area of this survey and H-9919 (1980) are in good agreement (+1-ft.). The only problem encountered in junctioning with H-9693 (1977) was that the 24-ft. supplemental curve shown on H-9919 (1980) could not be joined with the 24-ft. curve on H-9693. Recommend the depths shown on H-9919 (1980) be charted in the common area.

No requirement for delineation of 24-foot depth curve.

6. COMPARISON WITH PRIOR SURVEYS

a.	H-4089 and Additional Work	(1919-1940)	1:40,000
	H-4193	(1921)	1:40,000
	H-6595	(1940)	1:40,000
	H-8218	(1954)	1:25,000

These are the most recent prior surveys in this area that provide complete coverage.

In general, the depths from the prior surveys are in fair agreement (+1 to 3 feet) with H-9919 (1980-81). There are some differences of up to 7 feet with the present survey generally being shoaler, these differences mostly occurred on the earlier prior surveys (1919-1921). The 30-ft. curves on the northwestern part of the present survey appears to be shifting to the south and east.

It is reasonable to attribute most of the changes to natural causes and to improved survey methods. Some cultural change (dredging and the Chesapeake Bay Bridge Tunnel) may have contributed to a lesser degree to the changes that have taken place.

The present survey is considered adequate to supersede these prior surveys in the common area.

b. Wire Drag Surveys

F X E X 77 W.D.	(1949) <i>WD</i>	1:40,000
H-5987 W.D.	(1935) <i>WD</i>	1:10,000
H-6438 W.D.	(1939) <i>WD</i>	1:40,000
H-6976 W.D.	(1945-47) <i>WD</i>	1:40,000
H-9871 W.D.	(1976) <i>WD</i>	1:20,000

1) The comparison with F~~X~~E~~X~~ 77 W.D. (1949) revealed no conflicts between the present survey depths and the wire drag effective depths in the common area.

2) The comparison with H-5987 W.D. (1935) revealed no conflicts between the present survey depths and the wire drag effective depths in the common area.

3) A comparison with H-6438 ~~W.D.~~^{WD} (1939) and the present survey revealed two (2) charted items that fall within the survey area and are discussed below: ✓

X a) A charted 30-ft. shoal (chart number 12221), in Latitude $36^{\circ}59'17''$, Longitude $75^{\circ}50'54''$, is a lead line least depth. The wire drag survey was searching for an obstruction (source unknown) struck by a Japanese Motor Vessel in Latitude $36^{\circ}59'00''$, Longitude $75^{\circ}49'18''$ and extended the investigation to the area of the 30-ft. shoal. This item is discussed under item number 1.a. of the Descriptive Report for H-6438 ~~W.D.~~^{WD}. The depths on the present survey in this area are from $32'$ to $34'$ feet. The 30-ft. depth with the notation rocky was carried forward to the present survey. It is recommended this item be retained as charted. *concur*

X b) A charted 34-ft. shoal (chart number 12221) in Latitude $36^{\circ}58'45''$, Longitude $75^{\circ}49'57''$, is a leadline least depth. This item is discussed under item number 1.b. of the Descriptive Report for H-6438 ~~W.D.~~^{WD}. This was an investigation of a charted 33-ft. sounding on the chart at the time of the wire drag survey. The depths on the present survey in this area are from $33'$ to $40'$ feet. The 34-ft. depth with the notation rocky was carried forward to the present survey. It is recommended this item be retained as charted. *57*

There are no conflicts between the present survey depths and the wire drag effective depths in the common area.

4) The comparison with H-6976 ~~W.D.~~^{WD} (1945-47) was on some cleared areas from 31 to 33 feet, in the southwestern portion of H-9919 (1980). There are no conflicts between the present survey depths and the wire drag effective depths in the common area. ✓

5) A comparison with H-9871 ~~W.D.~~^{WD} (1976) revealed four (4) items (obstructions) that are not charted that fall within the area on the present survey and are discussed below: ✓

X a) An obstruction, hung at an effective depth of 42 feet (estimated) in Latitude $37^{\circ}02'05''$, Longitude $75^{\circ}47'33''$, and not cleared is described as an old style anchor fluke. The present survey depths are from 40 to 42 feet in this area on the present survey (H-9919). ✓

X b) An obstruction, hung at an effective depth of 37 feet (estimated) in Latitude $37^{\circ}02'45''$, Longitude $75^{\circ}47'26''$, and not cleared is described as an old style anchor fluke. The present survey depths are from $40'$ to $42'$ feet in this area. *37 38* ✓

X c) An obstruction, hung at an effective depth of 35 feet (estimated) in Latitude $37^{\circ}03'07''$, Longitude $75^{\circ}47'12''$, and not cleared is described as an old style anchor fluke. The present survey depths are from 36 to 37 feet in this area. ✓

X d) An obstruction, hung at an effective depth of 39 feet in Latitude $37^{\circ}02'32''$, Longitude $75^{\circ}46'12''$, and not cleared is described as an old style anchor fluke. The present survey depths are from 43 to 44 feet in this area. ✓

For additional information and recommendations on these four items see Verification Report for survey H-9871 ~~W.D.~~^{WD} (1976). These items were all brought forward to the present survey (H-9919). There are no conflicts between the present survey depths and the wire drag effective depths in the common areas. ✓

7. COMPARISON WITH CHART #12221 (50th Edition, July 18, 1981)

a. Hydrography

The charted hydrography (99%) originates with the previously discussed prior surveys which need no further discussion. The remaining soundings are from miscellaneous sources ^{and} appear to agree with the present survey by from ±1 to 3 feet generally. Attention is directed to the following items:

1) The charted 23-ft. wire drag clearance in Latitude $37^{\circ}03'15''$, Longitude $75^{\circ}51'06''$, originates with a clearance depth by ~~F_XE_X-77 W_XD_X~~ (1949) ^{WD} at the reported position of a wreck. This wreck originates with a Hydrographic Office Notice to Mariners Number 16, 1924, report of a wreck. A report, "Archaeological Survey, an Evaluation of the Proposed Offshore Disposal Site for the Norfolk Harbor and Channels," prepared for the U. S. Army Corps of Engineers, identifies this wreck as the FRANCIS O. BOYLE sunk in 1924 with 24 feet of water over the wreck. This wreck was cleared to a depth of 23 feet (Item Number 16) in 1949 by ~~F_XE_X-77 W_XD_X~~ ^{concur}. It is recommended the clearance depth remain as charted.

2) The charted 24-ft. wire drag clearance in Latitude $37^{\circ}03'15''$, Longitude $75^{\circ}51'18''$, is listed in the 1957 Wreck List (Item Number 637) as the wreck of the BRAZIL, reported from Hydrographic Office Chart records as being sunk April 9, 1942. This vessel is listed as being of 2388 gross tons. It was unclear at this time as to why this item was never discussed under the report of ~~F_XE_X-77 W_XD_X~~. It is supposed that this wreck could have been classified at that time. It is recommended this clearance ^{concur} depth remain as charted.

The fathograms were closely examined for a two mile circle around the location of the above items with no significant feature found. It is further noted that this circle extends into junctional survey H-99¹ (1981) and this area was examined also. The present survey depths in this area are from 26 to 28 feet.

3) The charted 29-ft. shoal, reported obstruction in Latitude $36^{\circ}56'06''$, Longitude $75^{\circ}48'40''$, was discussed in the Descriptive Report for ~~F_XE_X-77 W_XD_X~~ (1949) ^{WD} as Item #26. This item appears to be a shoal depth from prior survey H-6595 (1940). There is no source data available from where the reported obstruction originates. There is no drag strip in the Descriptive Report (~~F_XE_X-77 W_XD_X~~) for the drag on this item but there is an Obstruction Data Sheet that summarizes the drag data. The present survey depths in this area are 32 feet. Given the 40 year plus span between the prior survey and the present and that this was a shoal, the recommendation by the hydrographer to supersede this item and chart the 32-ft. shoal depth is concurred with. concur

4) The charted 31-ft. wire drag clearance in Latitude $36^{\circ}59'02''$, Longitude $75^{\circ}49'48''$, originates with a clearance depth of H-6438 ~~W_XD_X~~ (1939) ^{WD} on a reported obstruction, source unknown. This reported obstruction was on an item, "struck by the Japanese Motor Vessel KOTA, having a draft of 14 feet forward and 24 feet ^{WD} aft, in 37 feet of water." This item was searched for on survey H-6438 ~~W_XD_X~~ (1939); item 1.a. and resulted in finding a 30-ft. shoal, see section 6.b.3)a) of this report. This item is also identified in the 1957 Wreck List as item number 1318, positional accuracy 1-3 miles. It is recommended this item remain as charted. ^{Do Not concur} 31 foot cleared depth erroneously charted. Item (obsta) was disproved by H. 6438 (1939) W.D. 29

5) *main*
Presurvey Review Item Number 73, a non-dangerous sunken wreck, charted (chart number 12221) in Latitude 37°03'03", Longitude 75°45'54", originates with Notice to Mariners Number 52 of 1917. This item was reported as a schooner or barge about 50 feet long with a 20-ft. beam and was reported as being 3 feet above water at the time of the notice. This wreck was investigated on three surveys: H-4193 (1921), H-5987 ~~W.D.~~ (1935) ^{WD} as item number 7, and H-9871 ~~W.D.~~ (1976) ^{WD} and was not found on any of these surveys. This wreck is listed in the 1957 Wreck List, item number 1319. This area was swept to 40 feet on H-9871 ~~W.D.~~ (1976) ^{WD} but insufficient overlap precluded claiming a 40-ft. clearance over this item, see Verification Report H-9871, section 4.b.5. with recommendations to be retained as charted. The present survey depths are from 40 to 41 feet in this area. *cleared by 33 feet effective drag depth on H-5987(1935)WD*

*AUSIS
#925
CONCUR*

6) Presurvey Review Item Number 103, a 40-ft. reported in Latitude 36°55'30", Longitude 75°44'12", originates with Local Notice to Mariners, Number 8 of 1972. No other data was available for this item as of this report. The present survey depths in this area are from 44 to 47 feet. The hydrographer's recommendations, section K of the Descriptive Report (1981), to supersede this item is concurred with. *CONCUR*

Except as indicated above and discussed elsewhere in this report the present survey is adequate to supersede the charted hydrography in the common area.

b. Aids to Navigation

The aids to navigation adequately mark the intended features on this survey. ✓

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions except as noted elsewhere in this report. ✓

9. ADDITIONAL FIELD WORK

This is a good basic survey. Additional work is recommended when convenient on the items discussed in sections 3.c.1) and 7.a. (1 through 6) of this report. It is felt that these items could best be investigated by wire drag or possibly side scan sonar. ✓

F. L. Saunders
F. L. Saunders
Cartographic Technician
Verification of Data

L. G. Cram
L. G. Cram
Cartographer
Evaluation & Analysis

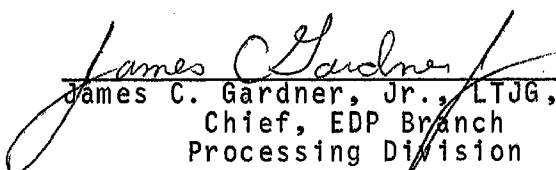
Harry R. Smith
Harry R. Smith
Senior Cartographic Technician
Verification Check

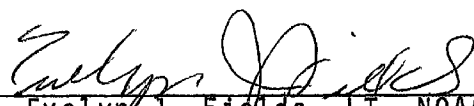
INSPECTION REPORT
H-9919

The completed survey has been inspected by the Hydrographic Inspection Team with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The Verification Report has presented the facts accurately and properly, the procedures used were appropriate, and the recommendations are logical and justifiable. The survey complies with National Ocean Survey requirements except as noted in the Verification Report. The survey records comply with NOS requirements except where noted in the Verification Report. The Hydrographic Inspection Team concurs with the verifier's findings, actions, and recommendations.

Examined and Approved
Hydrographic Inspection Team


Karl Wm. Kieninger, CDR, NOAA
Chief, Processing Division


James C. Gardner, Jr., LTJG, NOAA
Chief, EDP Branch
Processing Division


Evelyn J. Fields, LT, NOAA
Field Procedures Officer
Operations Division


Robert G. Roberson
Acting Chief, Verification Branch
Processing Division

Approved/Forwarded


Richard H. Houlder, RADM, NOAA
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

N/CG242:LQ

October 29, 1984

TO: Roy K. Matsushige
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section *am*

FROM: Lisa Quinlan *Lisa Quinlan*
Quality Evaluator

SUBJECT: Quality Control Report for Survey H-9919 (1980), Virginia, Chesapeake Bay Entrance, Offshore Cape Charles and Cape Henry

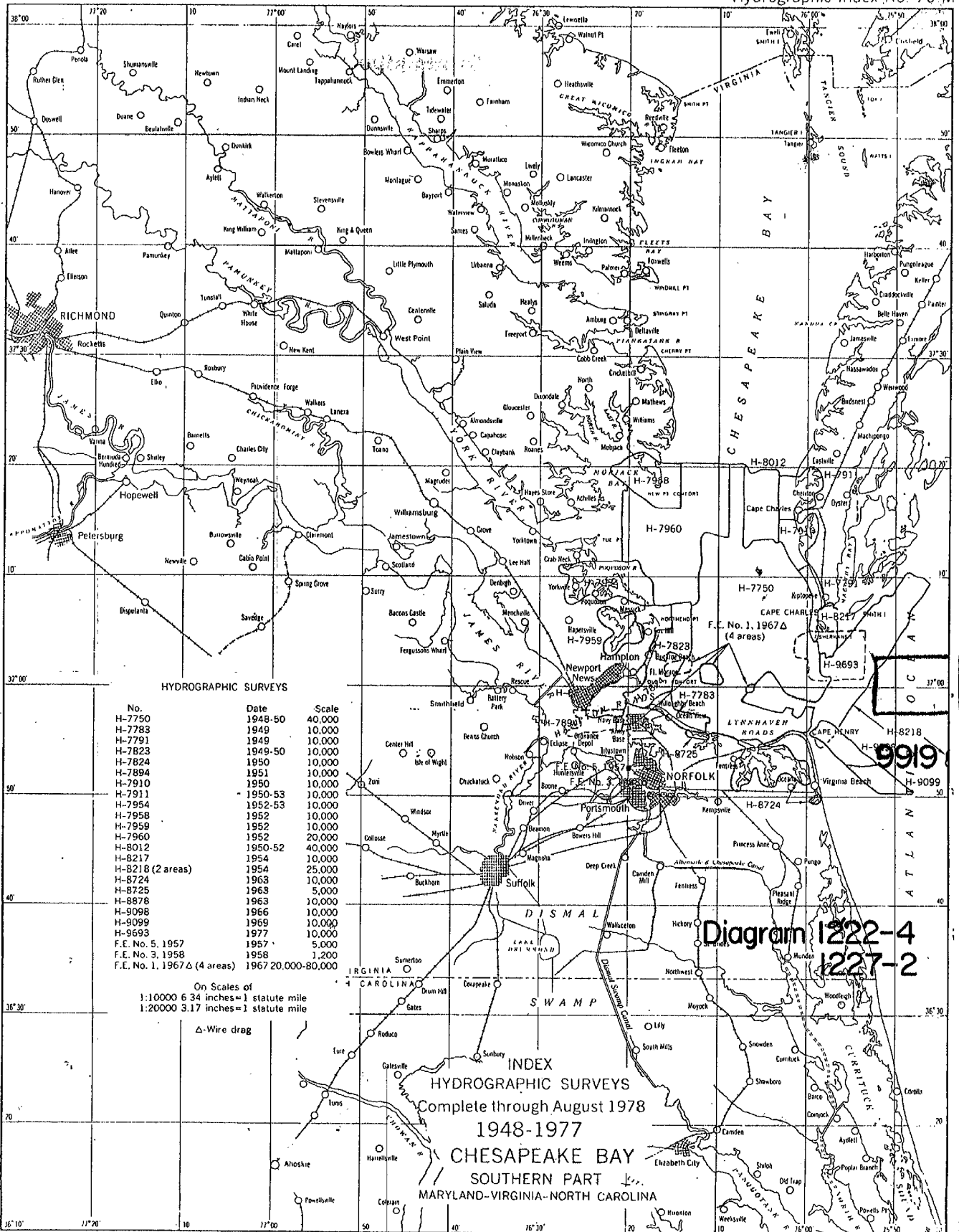
A quality control inspection of H-9919 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, shoreline transfer, decisions made and actions taken by the verifier, and the cartographic presentation of data. In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Verifier's Report.

cc:
N/CG241



DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 70 M



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9919

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.

CHART	DATE	CARTOGRAPHER	REMARKS
12221	10-1-85	D. Graham	Full Part Before After Verification Review Inspection Signed Via Drawing No. Proto cht -
12221	1-25-88	G. STANLEY	Full Part Before After Verification Review Inspection Signed Via Drawing No. #84 Adequate Application before reconstruction, sides cut within 1-3 Ft. depths
12205	3-17-88	J. Bailey	Full Part Before After Verification Review Inspection Signed Via Drawing No. #84 Revised hydro thru 12221 #84.
12207	1-10-90	L. ARKWAY	Full Part Before After Verification Review Inspection Signed Via Drawing No. 85 ADEQUATE APPLICATION of HYDRO SOUNDINGS THROUGH 12221 #85
12208	11/15/91	J. ROBINSON	Full Part Before After Verification Review Inspection Signed Via Drawing No. #11 Reconstruction
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.

Good To Std 10-2-87 JAV