

H09901

NOAA FORM 78-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SERVICE	
DESCRIPTIVE REPORT	
Type of Survey ..	Hydrographic
Field No.	PE-10-03-80
Registry No.	H09901
LOCALITY	
State	Virginia
General Locality ..	Chesapeake Bay Entrance
Sublocality	Chesapeake Channel
1980	
CHIEF OF PARTY	
CDR D.E. Nortrup	
LIBRARY & ARCHIVES	
DATE	July 20, 1982

HYDROGRAPHIC TITLE SHEET

H-9901

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-10-3-80

State VIRGINIA

General locality ENTRANCE CHESAPEAKE BAY ENTRANCE

Locality ENTRANCE CHESAPEAKE CHANNEL

Scale 1:10,000 Date of survey 11 August - 21 September 1980

Instructions dated February 20, 1980 Project No. OPR-D103-MI/PE-80

Vessel SHIP PEARCE Launch 1017 and 1009

Chief of party C. Dale North Jr, CDR (thru Sept. 12, 1980) Donald E. Nortrup, CDR, NOAA

Surveyed by T.W. Ruzsala, E.J. Fields, W.T. Dewhurst, L.F. Simoneaux, J.T. Rodstein, J.W. Bailey

Soundings taken by echo sounder, ~~XXXXXXXXXX~~ Ross Model 5000 Echo Sounder

Graphic record scaled by JTR, LFS, WTD, WRM, RRH, DVM

Graphic record checked by EJF, RRH, DVM

Protracted by N/A Automated plot by XYNETICS 1201 (AMC)
(SMOOTH SHEET)

Verification by See Verification Report

Soundings in ~~XXXXXXXX~~ feet at MLW = ~~XXXXXXXX~~

REMARKS: NOTES AND CHANGES IN RED INK MADE DURING VERIFICATION

All times are based on GMT.

ADD 015 M2M 10/22/84

3URT M2M 10/22/84

STANDARDS CK'D 12-6-84

C. Coy

Descriptive Report
To Accompany
Hydrographic Survey H-9901
Field Number PE-10-3-80

A. PROJECT

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

- Change No. 1 - Supplement to Instructions,
dated 27 March 1980
- Change No. 2 - Supplement to Instructions,
dated 8 May 1980
- Change No. 3 - Amendment to Instructions,
dated 23 June 1980
- Change No. 4 - Supplement to Instructions,
dated 12 August 1980
- Change No. 5 - Supplement to Instructions,
dated 15 August 1980
- Change No. 6 - Supplement to Instructions,
dated 2 September 1980

B. AREA SURVEYED

This survey was conducted in the Chesapeake Bay Entrance. The basic limits of this survey are as follows:

- North - $37^{\circ}01'30''$ N
- South - $36^{\circ}57'00''$ N
- East - $075^{\circ}52'54''$ W
- West - $076^{\circ}01'50''$ W

B. AREA SURVEYED (Cont'd)

Additional work was required, to the north, in order to adequately junction with prior survey H-9693. The inclusive dates of this survey are 11 August - 21 September 1980.

C. SOUNDING VESSELS

Hydrography was performed by the ship's Type I aluminum survey launches. They were both equipped with hydroplot systems.

Launch 1009	-	VesNo. 2839
Launch 1017	-	VesNo. 2837

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS See also sections 4.a. & 4.b. of the Verification Report

All soundings were acquired using the Ross Digital ^{echo sounder} Fathometer (Model 5000). Sounding equipment serial numbers were as follows:

<u>Vessel</u>	<u>VesNo.</u>	<u>Fathometer S/N</u>	<u>J.D.</u>
Launch 1009	2839	1079	224-265
Launch 1017	2837	1078	225-265

^{Echo sounders} Fathometers were maintained at zero initial and routine phase checks were performed. Corrections to soundings were calculated for the following factors:

Corrections for velocity of sound in water were computed for all sounding vessels using a combination of direct comparison and TDC data. Nansen casts were performed during the survey for purposes of comparison.

Two instruments were used for TDC casts during this survey. From J.D. 224-235 Martek Model 341, S/N 116, calibrated in January 1980 was used. From 235-265 Martek Mark VII, Model 167-10 and Martek Sensor Model 167-20, both S/N 177, were used. The Martek Mark VII system was calibrated prior to shipment and was received by the ship, 22 August 1980. A comparison was made on 22 August (J.D. 235) in which both units agreed. Copies of the results of the test are included in the records for Project OPR-D103.

Velocity corrections were computed in accordance with Section 4.9.5.1.3 of the Hydrographic Manual. One velocity table was prepared for this survey.

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

Direct comparison logs, Oceanographic Log Sheet-A's and TDC Data Logs are included in the survey records. Velocity correction tables and graphs are appended to this report. Each velocity graph was scaled at 0.2 foot intervals to derive the table. The following is a list of stations observed for velocity corrections:

<u>Type of Station</u>	<u>VesNo.</u>	<u>J.D.</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Nansen Cast	2830	223	36°57'	76°00'
TDC	2837	238	36°57'	75°58'
Nansen Cast	2830	253	36°57'	75°59'
TDC	2830	255	36°57'	75°59'
TDC	2837	265	36°57'	75°59'

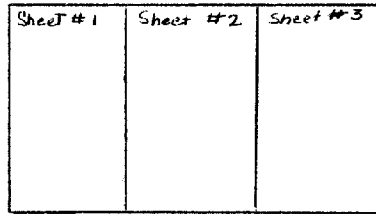
Settlement and Squat Corrections were determined for both launches at Little Creek NAB, Virginia, on 18 July 1980. Speed changes were noted in the daily sounding records and settlement and squat correctors were entered on the Sounding Correction Abstracts. These abstracts were used to generate the TC/TI tape. The TC/TI tape listing and Sounding Correction Abstracts are appended to this report (appendix J and D respectively).

Settlement and squat test data and calculations are included in the supplemental data file, "CORRECTION TO ECHO SOUNDING REPORT OPR-D103-M1, 0E-80, CHESAPEAKE BAY ENTRANCE".

E. HYDROGRAPHIC SHEETS

The field sheets were plotted aboard PEIRCE by the ship's PDP 8/E computer and complot roll-bed plotter.

The survey area was divided into three sections as shown in the figure below. Each section has data presented on two plotter sheets. One sheet contains mainscheme hydrography and the other includes crosslines, developments, detached positions and bottom samples. All six sheets are at 1:10,000 scale and are skewed as indicated below.



E. HYDROGRAPHIC SHEETS (Cont'd)

The smooth sheet (36" X 60", 1:10,000 scale) will be produced by the Atlantic Marine Center. All field records will be transmitted to the Marine Center for verification. Projection parameters and parameter tape listings are included with this report in Appendix A. SHEET is over
Size see letter at end of this report.

F. CONTROL STATIONS

In this survey three electronic and eight visual control signals were used. They are as follows:

<u>Station No.</u>	<u>Name</u>	<u>Reference</u>	<u>Type</u>
001	FEN, 1960	NGS	Electronic
003	Cape Henry Lighthouse 1887	NGS	Visual
006	H-51-VA-80	AMC	Visual
007	H-52-VA-80	AMC	Visual
010	H-55-VA-80	AMC	Visual
013	Cape Henry Lighthouse Old, 1869	NGS	Visual
016	Little Creek NAB Desert Cove Tank, 1955	NGS	Visual
017	Little Creek Naval Amphibious Base Tank, 1952	NGS	Visual
019	2-75 Raydist, 1975	AMC	Elec/Visual
025	H-56-VA, 1980	AMC	Electronic

The datum is North American 1927. Stations 006, 007, 010, 019, and 025 were established by AMC, Operations Division. These positions all meet Third Order Class I criteria and are filed with the National Geodetic Survey.

Visual control stations were used to calibrate the electronic positioning system. No visual hydrography was performed. All electronic control stations, as well as visual signals at 006 and 007, were erected by ship's personnel. A signal list, including the geographic position of each station, is appended to this report (Appendix F).

G. HYDROGRAPHIC POSITION CONTROL

Argo in the range/range mode was used to control this survey. The following positioning and related equipment was used during this survey:

<u>Component</u>	<u>Manufacturer</u>	<u>Model Number</u>
Control Display Unit (CDU)	Cubic Western Data	DM-54
Range Processing Unit (RPU)	Cubic Western Data	DM-54
Antenna Loading Unit (ALU)	Cubic Western Data	DM-54
Strip Chart Recorder	Cubic Western Data	DM-54
Thermal Printer	Hewlett-Packard	5150A
ASCII to Parallel Converter	Hewlett-Packard	59301A
Computer	Digital Equipment Corp.	PDP 8/E
Hydroplot Controller	Digital Equipment Corp.	

Mobile Systems

<u>Component</u>	<u>VesNo. 2839</u>		<u>VesNo. 2837</u>	
	<u>S/N</u>	<u>J.D.</u>	<u>S/N</u>	<u>J.D.</u>
CDU	CO47821	225-240	C037948	224-259
	CO47825	246		CO47825
	CO47823	253-265		
RPU	RO379115	225-265	RO379120	224-261
			RO47859	262-265
ALU	A0379109	225-265	A047854	224-263
			A0379106	265
Strip Chart Recorder	S097944	225-265	S097959	224-265
Thermal Printer	A02842	225-265	A02825	224-265

G. HYDROGRAPHIC POSITION CONTROL (Cont'd)

<u>Component</u>	<u>VesNo. 2839</u>		<u>VesNo. 2837</u>	
	<u>S/N 1009</u>	<u>J.D.</u>	<u>S/N 1017</u>	<u>J.D.</u>
ASCII to Parallel Converter	1632A01192 1632A01217	225-265 225-265	1632A01197 1632A01211	224-265 224-265
Hydroplot Controller	700023	225-265	700005	224-265
Computer	09219	225-265	07872	224-265

Fixed Systems

The equipment used on the fixed systems was rotated and will be listed by component and not according to station.

<u>Power Supplies</u>	<u>RPU</u>	<u>ALU</u>
V0478101	R047855	A047859
V0379119	R047844	A047847
V0379110	R0379117	A0379120

Daily calibrations of the positioning equipment were performed by using three point sextant fixes and check fix comparisons. These calibrations comply with the procedures and requirements outlined in Sec. 4.4.3.3 of the Hydrographic Manual Fourth Edition. Calibration abstracts have been submitted with the survey records. In situations where a closing calibration was not obtainable, such as heavy fog or equipment failure, the opening correctors were applied as daily correctors. In situations where lane jumps were detected on line, whole lane checks were acquired at previously located navigational aids. This enabled the OIC to determine the quantity of lanes jumped. The existing lane count was then adjusted through the Navcal function of RK 112.

Several effects were observed which may be of interest to future Argos users:

1. On J.D. 224 a power surge in the 24V system, caused by turning the power to the echo sounder off and then on, was observed to cause lane jumps.

G. HYDROGRAPHIC POSITION CONTROL (Cont'd)

2. On J.D. 225 a local thunderstorm caused lane jumps on one mobile system while the other system experienced no problems. ✓

3. On J.D. 234, 235 the upper section of the mobile unit's antenna's detached from the lower section while on line. The cause was found to be stripped threads in both the male and female fittings. This was apparently due to vibration despite the use of lock washers. ✓

All positions were checked for the possibility of lane jumps and time and course validity. Any suspect position control was rejected. A list of signals (Appendix F) and an Abstract of Electronic Correctors (Appendix E) are appended. ✓

H. SHORELINE

There was no shoreline within the limits of this survey. ✓

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

Crosslines constituted 8.0% of the mainscheme hydrography. In all cases the soundings on the crosslines agreed within 2 feet of the mainscheme hydrography. ✓

J. JUNCTIONS See Verification Report, section 5.

This survey junctions with five other surveys as follows:

<u>Survey Registry No.</u>	<u>Scale</u>	<u>Date</u>	<u>Position</u>
H-9098	1:10,000	1969	South
H-9693	1:10,000	1977	North
H-9814	1:10,000	1980	South
H-9880	1:10,000	1980	West
H-9904	1:10,000	1980	North

J. JUNCTIONS (Cont'd)

H-9814, H-9880, and H-9904 were performed as part of D103-PE-80 and junction agreement was within a foot. ✓

Comparison with H-9098 showed ~~some~~ ^{some} deepening in the traffic lanes near buoy "2" (approximately 2.5 nm NE of Cape Henry Lighthouse). This survey's soundings are 1-3 feet deeper in the junction area. ✓

Extensive work was required in order to junction with H-9693. Mainscheme was run one half mile beyond the sheet's northern limit, with one half line spacing and developments where necessary. Three developments were run to investigate shoal soundings and delineate bottom features. Descriptions of these developments follow:

<u>Development</u>	<u>Position No.</u>	<u>Lat/Long.</u>	<u>Remarks</u>
E	2862-2999 9354-9362 <i>Scal'd from smooth sheet { 37 01 28 75 59 02</i>	37/01/05 N 75/59/10 W	Investigation of 12' sounding in 19' depths. Least depth of 12' found at pos. 1647 4 $\frac{1}{2}$ (M/S). Search for 14' sounding in 19' depths. Several 14' soundings were found. <i>ALWAYS 10/12/84 mem</i>
F	2831-2861 3202-3250 <i>Scal'd from smooth sheet { 37 01 39 75 59 46</i>	37/01/30 N 75/58/45 W <i>12+13' Sdgs plotted next to 14' on smooth sheet</i>	Search for 14' sounding in 19' surrounding depths. Found 14' at 3238 + 1 $\frac{1}{2}$. CONCUR <i>ALWAYS 10/12/84 mem</i>
H	2708-2743 9405-9429 <i>Scal'd from smooth sheet { 37 01 22 75 56 09</i>	37/01/25 N 75/56/10 W	Search for 14' sounding in 21' surrounding depths. Found 17' least depth at pos. #9427. It is recommended to delete the 14' sounding and to include the 17' depth. CONCUR <i>ALWAYS 10/12/84 mem</i>

While some shifting of the bottom was noted, most soundings (85%) agree to within 3 feet of those from H-9693. It should be noted that the sandy bottom in the survey area, particularly north of the 37° parallel, is subject to change. **CONCUR** ✓

The work performed on this survey is adequate to super^sede that portion of work on H-9098 and H-9693 that this survey overlaps. **CONCUR**

K. COMPARISONS WITH PRIOR SURVEYS see also Verification Report, section G.

The following presurvey review items were investigated during the course of this survey. All items were obtained from presurvey review instructions dated 21 April 1980.

PSR #94 (Non-Dangerous Sunken Wreck)

PSR #94 is a submerged obstruction reported in 1952 with positional accuracy of 1-3 miles. The origin of this item is the 1957 Wreck list, N.M. dated 7/25/52.

A 1000 meter radius search at 45 meter line spacing, one half that of main scheme, was performed about the listed position (Lat. $36^{\circ}57'18''$ N, Long. $75^{\circ}59'18''$ W). No indication of the item was found. It is recommended that this item be deleted from the chart. *Concur, See QC.*

PSR #95 (Submerged Obstruction)

PSR #95 is a submerged steel hydrographic experimental structure extending five feet off the bottom established by the U.S. Navy. In 1966 no evidence could be furnished concerning the structures removal.

A 1000 meter radius search at 45 meter line spacing, one half that of main scheme, was performed about the indicated position of the obstruction (Lat. $36^{\circ}57'21''$ N, Long. $75^{\circ}58'12''$ W). A development (Development K) of the area was performed on J.D. 262 (VesNo. 2839; Position No. 3062-3103) with no indication of an obstruction or shoaling observed.

A wire drag of the area was not accomplished for two reasons; (1) strong current and (2) the launches are not able to control a drag at approximately 90 feet. The area of this item is also very irregular. Recommend this item be assigned to RUDE & HECK.

PSR #78 (Submerged Pile)

PSR #78 is the remains of former Middle Ground South End Obstruction. ^{Light} The light was reported destroyed. Position was surveyed by the U.S. Navy. This item is incomplete. It was not wire dragged. The area around this item is irregular and there is a strong current. Recommend this item be assigned to RUDE & HECK. *See QC*

Comparisons were made with the following prior surveys:

K. COMPARISONS WITH PRIOR SURVEYS (Cont'd)

<u>Survey Registry No.</u>	<u>Scale</u>	<u>Date</u>
H-6595	1:40,000	1940
H-6962	1:20,000	1944
H-7028 W.D.	1:40,000	1945
H-7028 A & D	1:40,000	1945 - 1947
H-6976 W.D.	1:40,000	1947
H-7750	1:40,000	1948-1950
H-8218	1:25,000	1954

H-6595 covers the eastern 70% of the survey. H-6962 covers a small portion in the southwest and center of the western limits of this survey. H-7028 W.D. covers several items dragged for in the southwest area of this survey. H-6976 A & D and H-6976 W.D. cover several items dragged for in the center of the southern limits of this survey. H-7750 covers the western half of this survey. H-8218 covers 75% of this survey from the northeast through the southeast to the southwest.

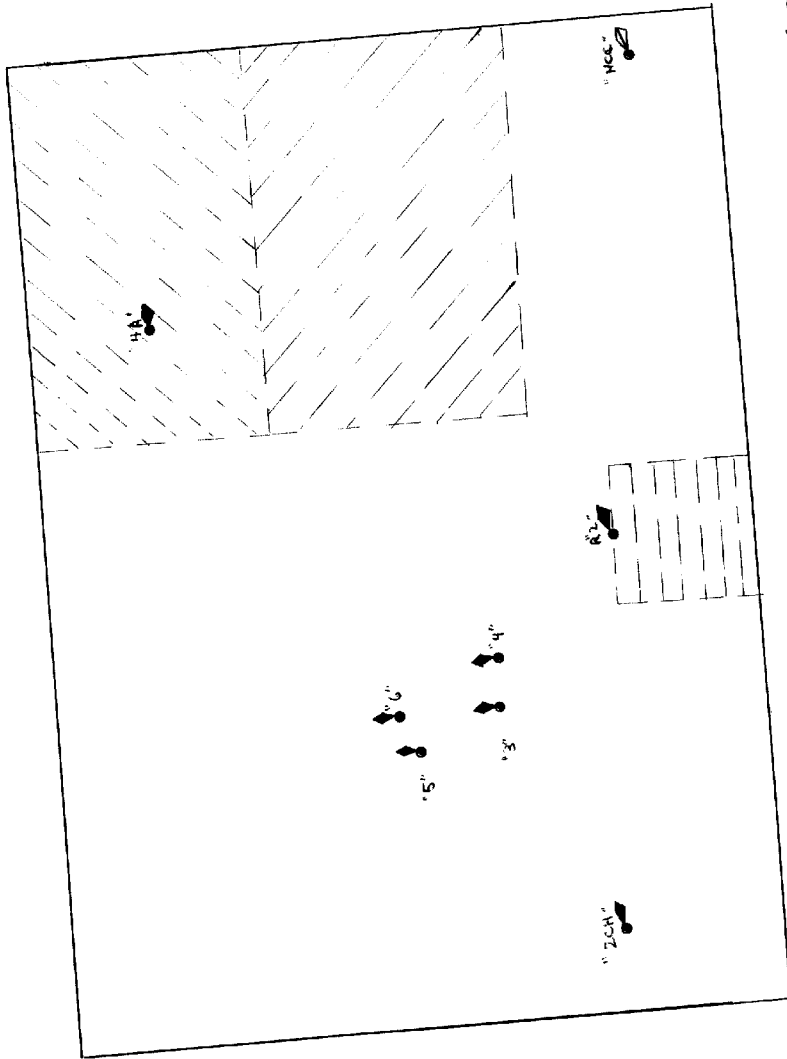
The older surveys do not agree as well as the more recent ones. In addition, the surveys covering the western and southeastern portions of the sheet showed better agreement than those overlapping in the northeastern area.





The northeast has apparently shoaled as much as 10 feet since H-6595 was performed in 1940 while the central eastern portion has deepened three feet, and the channel area south of buoy ^{Lights 102} ~~102~~ has deepened ^{by 10 to 15 feet} ~~3~~ feet. The rest of the survey area appears unchanged (1-2' differences). A chart depicting these changes is included in this report. The later surveys, H-7750 and H-8218, show that the above mentioned changes are consistent and gradual.

The wire drag surveys were all in agreement with the findings of this survey. See ^{Verification Report, section 6.6.} ~~Verification Report, section 6.6.~~

In all cases the results of this survey should supersede those of prior hydrographic surveys and the wire drag depths should be retained.

Comparison With Prior Surveys



-  presently up to 10ft sheales
-  presently 3ft. deeper
-  presently 6ft. deeper
-  presently 1-2ft difference

L. COMPARISON WITH THE CHART

Comparisons were made with Chart 12222, 23rd Edition, 28 July 1979, and Chart 12221, 47th Edition, 15 September 1979.

Agreement throughout the survey area varied. Depths in the various channels and traffic lanes differed by as much as 9 feet with those charted. In each case surveyed depths were deeper. Maximum deviation was found near buoy "2" (2.5 nm NE of Cape Henry Lighthouse), better agreement was found in Chesapeake Channel (2 feet deeper) and the entrance to Thimble Shoals Channel (3 feet deeper). The best agreement was found in the NE traffic lane leading into Chesapeake Bay (1' deeper).

After a field reduction to MLW (predicted tides and velocities applied) 65% of this survey's soundings agreed to within 3 feet of those charted. A definite shifting, with no apparent pattern, can be seen in the northern portion of the sheet. Using the 37° parallel as a rough limit for comparison it was found that while 85% of the soundings below the parallel agreed to within 3 feet, only 45% of those above agreed to within the same limits.

The 30, 36, and 60 foot depth curves showed excellent agreement with the charted curves. The 18 foot curve showed fair agreement, mainly due to the previously described shifting in the northern section. However, the shifting in the area is not as dramatic as the 18' curve change would indicate, as much of the area has deepened only one foot. Several soundings which were far out of agreement with the surrounding depths were investigated separately. A list of the seven developments conducted on peaks and deeps follows:

<u>Development</u>	<u>Position No.</u>	<u>Lat/Long.</u>	<u>Remarks</u>
A	3036-3061	36/57/00 N 76/01/20 W <i>See pg 5-6 of Encl. Rep.</i>	Investigation of a 72' deep sounding in 60' surrounding depths. No deeper soundings were found. 72' sounding at 326 +1. <i>AN 015 10/11/84 MSB</i>
B	3024-3035 Marker "CHLORE"	36/57/35 N 76/00/40 W	Investigation of 51' peak in 60' surrounding depths. A 42' sounding was observed at pos. #3025. <i>AN 015 10/11/84</i>
C	3012-3023	36/57/25 N 75/59/35 W <i>(36 57 25 N 75 59 35 W See Pgs of Encl. Rep.)</i>	Investigation of 74' peak in 82' surrounding depths. No shoaler depths were found. The 74' sounding occurred at pos. #1424. This could be an indication of a Presurvey Review Item #94. "Non-Dangerous Sounding Work" <i>AN 015 10/11/84</i> <i>If so, additional work is recommended. See GC.</i>

A 29 foot sdg at Pos #3004+1 1/2
 and a 25 foot sdg at Pos. #3004+5 1/2
 fall in vicinity of lat. 36°59.4'W
 long 75°59.35'W should have been
 specifically investigated

L. COMPARISON WITH THE CHART (Cont'd)

<u>Development</u>	<u>Position No.</u>	<u>Lat/Long.</u>	<u>Remarks</u>
D	3000-3011 <i>sealer 36 29 26.5 float 35 59 21.6</i>	36/59/25 N 75/59/20 W	Investigation of 30' peak in 35' surrounding depths. A 30' sounding was located at pos. #3001 as well as pos. #1567 + 1/2.
G	3104-3199 <i>sealer 36 59 30.8 float 75 57 24.7</i>	36/59/30 N 75/57/10 W	Investigation of 30' peak in 35' surrounding depths. A 27' sounding was found at pos. #3117 + 2 1/2.
I & J	2605-2707 <i>sealer 37 00 17.1 float 75 55 35 chart</i>	37/00/25 N 75/55/40 W	Dev. I - investigated an 18' peak in 25' surround- ing depths. Several 17' soundings were located along a ridge. Dev. J - investigated a 15' sounding in surround- ing 23-25' depths. Several 15' soundings were found in the area. In addition to these sounding investigations, these developments con- tinued to develop the ridge.

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

This survey is complete and adequate to supersede the presently charted soundings and prior hydrographic surveys, for charting purposes.

N. AIDS TO NAVIGATION

During the course of the survey detached positions were obtained for several floating aids to navigation. All of the aids surveyed are

N. AIDS TO NAVIGATION (Cont'd)

adequately positioned to serve their purpose.* The surveyed descriptions and characteristics agree well with those on the charts and in the Light List. However, the Light List depths showed poor agreement, in most cases, with those obtained during the survey. The Office of Aids to Navigation, Fifth Coast Guard District was notified on 30 September 1980. A copy of the correspondence is appended to this report.
 * See letter appended to this report concerning buoy N"2" (North Channel Entrance)

O. STATISTICS

<u>Category</u>	<u>VesNo.</u> <u>2830</u>	<u>VesNo.</u> <u>2837</u>	<u>VesNo.</u> <u>2839</u>	<u>Total</u>
Position Numbers	-			
Nautical Miles of Sounding Line	-	588.1	338.1	926.2
Square Nautical Miles of Hydrography	-	21.7	10.6	32.3
Nautical Miles of Crosslines	-	53.8	20.7	74.5
Direct Comparisons	-	19	10	29
Nansen Casts	2	-	-	2
TDC	-	1	-	1
Bottom Samples	-	42	18	60

P. MISCELLANEOUS

Positions 4809-4969 were run out of the normal sequence. The data for these positions can be found in the survey records on J.D. 238 for VesNo. 2837 between positions 8048 and 8210.

Q. RECOMMENDATIONS

Specific recommendations regarding junctions, prior surveys, and the charts are made in Sections J, K, and L, of this report. ^{see also the} Verification Report.

R. AUTOMATED DATA PROCESSING

<u>Program No.</u>	<u>Program Name</u>	<u>Version Date</u>
RK 112	Range-Range Real Time Hydroplot	4/11/80
RK 201	Grid, Signal, and Lattice Plot	4/18/75
RK 211	Range-Range Non-Real Time Plot	1/15/76
RK 300	Utility Computations	2/10/76
RK 330	Reformat and Data Check	5/04/76
PM 360	Electronic Corrector Abstract	2/02/76
RK 530	Layer Corrections for Velocity	5/10/76
RK 561	H/R Geodetic Calibration	2/19/75
AM 602	Extended Line Oriented Editor	5/21/75
RK 612	Line Printer List	3/22/78

S. REFERENCE TO REPORTS

Ship's personnel installed the tide gage used during this survey (see Field Tide Note, Appendix B). The report has been submitted to the Tides and Water Levels Branch, Rockville, MD.

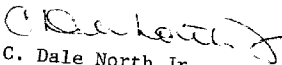
A Coast Pilot Report has been prepared and submitted to the Coast Pilot Branch, Rockville, MD. In addition a correction to Echo Soundings and Electronic Control Report will be submitted for this project.

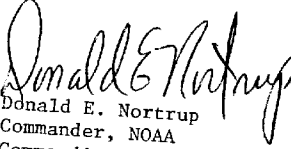
Respectfully Submitted,

William J. Diller
for Jay T. Rodstein, LTJG, NOAA

APPROVAL SHEET

The field work on this Basic Survey, Registry No. H-9901, Field No. PE-10-3-80, 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.


C. Dale North Jr.
Commander, NOAA
Commanding Officer
NOAA Ship PEIRCE S-328


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



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA Ship PEIRCE S-328
439 West York Street
Norfolk, Virginia 23510

October 10, 1980

TO: Commander, Fifth Coast Guard District
Office of Aids to Navigation

THRU: Director, Atlantic Marine Center

FROM: *Donald E. Hartung*
Commanding Officer
NOAA Ship PEIRCE S-328

SUBJECT: Changes to Light List

This message is a followup to a phone conversation on 30 September 1980 with Mr. Stevenson of the Office of Aids to Navigation. During our survey of the Chesapeake Bay Entrance several discrepancies between Light List depths and surveyed depths have been found. The following is a list of those differences:

<u>Light List No.</u>	<u>Name</u>	<u>D e p t h</u>	
		<u>Light List</u>	<u>Surveyed</u>
2676	Lighted buoy 3	58'	48'
2677	Lighted whistle buoy 4	51'	44'
2678	Lighted bell buoy 5	51'	43'
2679	Lighted buoy 6	51'	45'
154.20	North Chesapeake Entrance Lighted bell buoy NCC	46'	36'
154.30	Chesapeake Entrance Lighted gong buoy NCD	51'	40'
	North Channel Entrance buoy 2	23'	19'



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Atlantic Marine Center
439 West York Street
Norfolk, Virginia 23510

April 20, 1982

OA/CAM31:LGC

TO: Mr. Salvatore Bente
Chief, Coast Pilot Branch, OA/C324

FROM: L. G. Cram
Cartographer
Verification Branch, OA/CAM31

SUBJECT: Coast Pilot #3, July 1981, Chapter 9, Chesapeake Bay
Entrance, Subchapter 10, Nautilus Shoal

The above Coast Pilot states, "The buoyed channel along the southwest side of Nautilus Shoal, thence northward between Fishermans Island and Inner Middle Ground, has a controlling depth of about 18 feet; it is used by local vessels drawing up to 12 feet, but is not recommended for strangers."

Two fairly recent hydrographic surveys have been conducted in this area. Hydrographic Surveys H-9693 (1977) and H-9901 (1980) are the two surveys that provide the most recent hydrographic coverage of this area. These two surveys tend to show that this area is one which is undergoing a substantial amount of change. In fact, the buoy system as now charted no longer marks a channel with controlling depths of about 18 feet (± 1 to 2 feet). As the buoys are presently charted, the right side of the channel (inbound) shows depths to 13 feet and the controlling depth is about 15 feet for the center line of this channel.

The shoals in this area have migrated southward by varying amounts up to 220 meters in the three-year span between Hydrographic Surveys H-9693 and H-9901.

The 5th U.S. Coast Guard District Office, Aids to Navigation Section was notified that the buoys marking this channel no longer mark the safest water. They have agreed to change the buoys with the aid of our surveys (H-9693 and H-9901). The time frame for this change taking place is not certain.

We recommend that, regardless of buoy changes, the Coast Pilot be changed to show the controlling depth of water in the entrance to this channel (vicinity of buoy N"2") is about 16 feet, stated as follows: "The buoyed channel along the southwest side of Nautilus Shoal, thence northward between Fishermans Island and Inner Middle Ground, has a controlling depth of about 16 feet; it is used by local vessels drawing up to 12 feet, but it is not recommended for strangers as this area is one for constantly shifting shoals."



LIST OF STATIONS

OPR D103-JE-80 CHESAPEAKE BAY ENTRANCE
 H-9901 FE 10-3-80 30 SEPTEMBER 1980

001	7	37	25	36243	075	58	17556	250	0050	167750	FEN, 1960
003	3	36	55	34335	076	00	27216	250	0050	000000	CAPE HENRY LIGHTHOUSE, 1887
006	6	36	55	49332	076	01	43347	250	0001	000000	H-51-VA, 1980
007	6	36	55	49573	076	01	54070	250	0000	000000	H-52-VA, 1980
010	6	36	54	30153	076	05	51095	250	0000	000000	H-55-VA, 1980
013	6	36	55	32330	076	00	30516	139	0000	000000	CAPE HENRY LIGHTHOUSE OLD, 1869
016	3	36	55	14382	076	09	42063	139	0000	000000	LITTLE CREEK DESERT COVE, TANL, 1955
017	3	36	54	31740	076	08	53000	139	0000	000000	LITTLE CREEK NAV AMB BASE TK, 1952
019	3	36	55	49585	076	01	01393	250	0000	167750	2-75, 1975
025	3	37	01	26366	076	17	49680	250	0000	167750	H-56-VA, 1980

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
 HYDROGRAPHIC PARTY
 GEODETIC PARTY
 PHOTO FIELD PARTY
 COMPILATION ACTIVITY
 FINAL REVIEWER
 QUALITY CONTROL & REVIEW GR
 COAST PILOT BRANCH
 (See reverse for responsible personnel)

REPORTING UNIT
(If field Party, Ship or Office)
 NOAA Ship PEIRCE S-328
 STATE
 Virginia
 LOCALITY
 Chesapeake Bay Entrance
 DATE
 11/28/80

REPLACES C&GS Form 567.
 TO BE CHARTED
 TO BE REVISED
 TO BE DELETED
 The following objects HAVE BEEN INSPECTED FROM SCOWARD TO DETERMINE THEIR VALUE AS LANDMARKS.
 OPR PROJECT NO. D-103
 SURVEY NUMBER
 OPR-D103-80
 DATUM

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		LATITUDE ° / ' / ''	LONGITUDE ° / ' / ''	OFFICE	FIELD	
Lookout Tower	125 foot Lookout Tower (Verified)	36°55'	76°01'	79BP2717-2721 8 Dec. 1979		12222 12254
Tank	170 foot Tank (Verified)	36°55'	76°01'	"		"
Light-house	170 foot Lighthouse (Verified) Cape Henry Lighthouse 1887	36°55'	76°00'	"		"
F 24 foot Priv. Maint'd.	Lynnhaven Roads Fishing Pier Light (Verified)	36°54'	76°04'	"		"
None	150 foot Tank (New Landmark)	36°53'	76°03'	"		"
None	160 foot Building (New Landmark)	36°54'	76°04'	"		"
BLDGS	190 foot Building (Verified)	36°54'	76°05'	"		"
BLDGS	180 foot Building (Verified)	36°54'	76°05'	"		"
BLDG	140 foot Building (Verified)	36°54'	76°05'	"		"
Tank	160 foot Tank (Verified) (Virginia Beach Standpipe)	36°54'	76°07'	"		"

All items listed fall outside limits of H-9901

N/C L-1016(84)

VELOCITY CORRECTOR TAPE LISTING

PE-10-3-80

H-9901

000037 0 0000 0001 001 283700 009901
000082 0 0002
000124 0 0004
000166 0 0006
000207 0 0008
000247 0 0010
000290 0 0012
000333 0 0014
000377 0 0016
000418 0 0018
000457 0 0020
000499 0 0022
000542 0 0024
000588 0 0026
000629 0 0028
000666 0 0030
000702 0 0032
000740 0 0034
000779 0 0036
000818 0 0038
000861 0 0040
000905 0 0042
000949 0 0044
000997 0 0046
001042 0 0048
999999 0 0048

THIS TABLE IS APPLICABLE FOR BOTH LAUNCHES

FIELD TIDE NOTE

Field tide reduction of sounding 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. A Bubbler Gage was installed in the project area. Location and period of operation is as follows:

<u>Site</u>	<u>Location</u>	<u>Period of Operation</u>
Fisherman's Island (863-2065)	37°05.1 N	JD 224 - JD 225 (0500)
	76°57.6 W	JD 226(1400) - JD 249(0210)
		JD 249(1520) - JD 261(0920)
		JD 262(1500) - JD 265

The Fisherman's Island (S/N 7603-686-71, Metercraft) gage was installed and began operation on 12 May 1980. However, due to the exposure to storms, the tide staff, tubing and orifice underwent replacement and releveling several times. The installation that is applicable to this survey is dated 3 August 1980. Damages to hoses and fittings caused outages during the course of this survey and explain the gaps in the period of operation above. The marigram and staff read the same until 18 September. At this point a repair during rough weather caused a one foot difference, staff higher than marigram, in readings. The gage and staff installation were destroyed during a storm. This gage was removed after this storm with the consent of Tides and Water Levels Branch in Rockville, Maryland OA/C23.

Zoning - A scheme similar to the one prescribed in the Project Instructions should be used in applying smooth tides to this survey.

U.S. DEPARTMENT OF COMMERCE
April 29, 1981 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,
Virginia

Period: August 11 - September 21, 1980

HYDROGRAPHIC SHEET: H-9901

OPR: D103

Locality: Chesapeake Bay Entrance

Plane of reference (mean ~~low~~ low water): 24.75 ft.

Height of Mean High Water above Plane of Reference is 2.62 ft.

REMARKS: Recommended Zoning:


Using latitude $37^{\circ}02.5'$ as the northern limit and $36^{\circ}56.9'$ as the southern limit of the H-sheet.

From longitude $76^{\circ}02.0'$ east to $75^{\circ}58.0'$

1. North of $37^{\circ}00.5'$ apply x1.12 range ratio

2. South of $37^{\circ}00.5'$ apply -15 minute time correction and x1.15 range ratio

From $75^{\circ}58.0'$ east to $75^{\circ}51.0'$ apply -30 minute time correction and x1.27 range ratio.


Chief, Datums and Information Branch

GEOGRAPHIC NAMES

Name on Survey	SURVEY NUMBER											
	A	B	C	D	E	F	G	H	I	J	K	
Chesapeake Bay	ON START NO. 12221 & 12221	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND MANALLY ATLAS	U.S. LIGHT LIST				
Nautilus Shoal												1
Fisherman Island												2
Chesapeake Bay Bridge and Tunnel												3
Chesapeake Channel												4
Tail of the Horseshoe												5
Thimble Shoal Channel												6
Lynnhaven Roads												7
Lynnhaven Inlet												8
Cape Henry												9
Cape Henry Channel												10
MIDDLE GROUND												11
CHESAPEAKE BAY												12
VIRGINIA (title block)												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
												25

Approved:

Charles E. Hammett
Chief Geographer - N/C4245

20 July 1983

APPROVAL SHEET
FOR
SURVEY H-9901

- 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/~~XXXXXX~~ 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: June 3, 1982


Chief, Verification Branch

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	6			
DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	2					
CAHIERS			2 Raw			
VOLUMES	2					
BOXES			2 - Smooth Plot misc		2 - Soundings Volumes	

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			8813
POSITIONS CHECKED		25	
POSITIONS REVISED		5	
SOUNDINGS REVISED		35	
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	37		
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS		127	
VERIFICATION OF SOUNDINGS		336	
COMPILATION OF SMOOTH SHEET		143	
APPLICATION OF TOPOGRAPHY			
APPLICATION OF PHOTOBATHYMETRY			
JUNCTIONS		6	
COMPARISON WITH PRIOR SURVEYS & CHARTS		90	
VERIFIER'S REPORT		23	
OTHER			
TOTALS	37	725	762
Pre-Verification by	J.S.B. & F.L.S.	Beginning Date 1/29/81	Ending Date 2/7/81
Verification by	J.L., R.L.K., F.L.S. & L.G.C.	Beginning Date 3/14/81	Ending Date 5/6/82
Verification Check by	H.R. Smith	Time (Hours) 26	Date 3/31/82
Marine Center Inspection by	HYDROGRAPHIC INSPECTION TEAM	Time (Hours) 12	Date 5/12/82
Quality Control Inspection by		Time (Hours) 105	Date 4/5/83
Requirements Evaluation by		Time (Hours)	Date

Adm. Insp. 17 hrs. 5/19/83

ATLANTIC MARINE CENTER
VERIFICATION REPORT

REGISTRY NO.: H-9901

FIELD NO.: PE-10-3-80

Virginia, Chesapeake Bay Entrance, Chesapeake Channel

SURVEYED: August 11 through September 21, 1980

SCALE: 1:10,000

PROJECT NO.: OPR-D103

SOUNDINGS: Ross Digital Echo Sounder

CONTROL: ARGO (Range-Range)

Chief of Party D. E. Nortrup

Surveyed By T. W. Ruzala
. E. J. Fields
. W. T. Dewhurst
. L. F. Simoneaux
. J. T. Rodstein
. J. W. Bailey

Automated Plot by Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

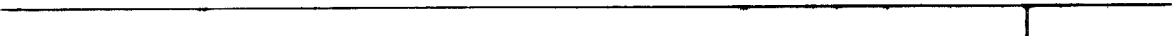
- a. One unusual problem ~~that was~~ encountered on this survey was that the sheet size exceeds the maximum size allowed under Hydrographic Survey Guideline No. 6 dated May 23, 1980. A letter of approval for an oversize sheet from OA/C35 (G. R. Schaefer) is included in the Descriptive Report.
- b. Notes and changes 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.
- 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 charted 36-ft. supplemental curve and brown curves were used to better delineate some features.

c. This survey is considered adequate to delineate the basic bottom configuration and to determine least depths with the exceptions listed in sections 6 and 7 of this report and the following:

1) The shoal indications in the vicinity of LAT. $36^{\circ}59'25''$, LONG. $75^{\circ}59'20''$, should have had two or three lines run to better delineate the extent of these shoal indications and to ensure least depths were obtained.

2) The 25-ft. probable obstruction in LAT. $36^{\circ}59'30.09''$, LONG. $75^{\circ}59'26.36''$, is a spike at the end of one development line of hydrography. A Notice to Mariners was issued on this item as it rises 10 feet from the bottom in depths of 35 feet the shoalest depth charted in the vicinity is 29 feet. This item was not investigated to determine its extent or to assure the least depth was obtained.

3) The spike of 22 feet in depths of 28 to 30 feet in LAT. $36^{\circ}00'53''$, LONG. $75^{\circ}54'25''$, should have been further investigated to insure that its extent and least depth was determined.

Handwritten notes:
 NC 10/15/84
 AUG 15 10/15/84
 MSO

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. The data needed to substantiate the corrections to echo soundings, velocity, settlement and squat, etc. were not included with the survey data as outlined in section 5.3.5.D. of the Hydrographic Manual. There was a season's report submitted that did include all the necessary data.

b. Bar checks were not taken in accordance with sections 1.5.2 and 4.9.5.1.1 of the Hydrographic Manual. Although the velocity corrections were derived from TDC data it is necessary to compare bar check data with TDC data to determine the existence and/or magnitude of any instrument error.

c. The field ran a number of developments on shoal indications from the fathograms. Apparently these shoal soundings were never compared to the charted data as a number of these were found to be in the area of charted wrecks and obstructions. An example of this is under section L. development B listed in the Descriptive Report. The field ran this development on a 51-ft. peak and found a 42-ft. depth by echo sounder. As it turned out, this is the charted wreck of the CHILORE.

All charted wrecks should have been investigated if an indication was found in accordance with sections 1.4.3. and 4.5.9.1. of the Hydrographic Manual.

Handwritten note:
 ← Not if already investigated and cleared by W.D.
 DW 6/17/84

5. JUNCTIONS

H-9814	(1980)	to the southwest	<i>Not available for QC check</i>
H-9880	(1980)	to the west	
H-9904	(1980)	to the northwest	<i>Junction made by QC</i>
H-9905	(1980)	to the southeast	
H-9919	(1980-81)	to the east	<i>Both Junction made by QC</i>
H-9643	(1977)	to the north	
H-9098	(1969)	to the south	



The junctions with H-9814 (1980), H-9905 (1980), H-9919 (1980) are complete and require no further work. A penciled junction with H-9880 (1980) was made; however, with the junctional curves on H-9880. They will have to be inked in agreement with the present survey as survey H-9880 is in Rockville. Also, the 18-ft. curve in LAT. $37^{\circ}01'10''$, LONG. $75^{\circ}59'30''$ on H-9904 (1980) should be inked to agree with the curve on H-9901 (1980).

Survey H-9693 (1977) was not considered as a junctional survey (contemporary) and is discussed under the prior survey section of this report; therefore, there are no contemporary junctional surveys to the north of the present survey (H-9901). Charted depths in this area are not in harmony with the present survey as considerable change has taken place. *Junction*

6. COMPARISON WITH PRIOR SURVEYS

a.	FE-34, 1942	(1:10,000)	1942	<i>FE 4 (1942) WD see para. b.</i>
	H-6595	(1:40,000)	1940	
	H-6962	(1:20,000)	1944	
	H-7721	(1:10,000)	1949	
	H-7750	(1:40,000)	1948-50	
	H-8218	(1:25,000)	1954	
	H-9693	(1:10,000)	1977	<i>Junction</i>

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

The Descriptive Report (section k) has an excellent discussion pertaining to the comparison with these prior surveys. In summary, the shoals to the north of the survey area, as revealed by comparison with H-9693 (1977), appear to be shifting to the south and east. There also appears to be some deepening trends in the central and southern areas as revealed by the present survey.

It is reasonable to attribute most of the changes to natural causes and to improved survey methods. Some cultural changes (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_xE_x 77	WD	(1949) <i>WD</i>	1:40,000
H-6976	WD	(1945-47) <i>WD</i>	1:40,000
H-7028	WD	(1945) and Ad. Wk. (1950) <i>WD</i>	1:40,000
H-9871	WD	(1976) <i>WD</i>	1:20,000

1) The comparison with survey ~~F_xE_x 77~~ *WD* (1949) *WD* was only on a cleared to 30 feet area in the vicinity of LAT. $36^{\circ}56'30''$, LONG. $75^{\circ}54'00''$, and there are no conflicts between this wire drag survey and the present survey depths.

2) A comparison with survey H-6976 ~~WD~~ (1945-47) *WD* and the present survey revealed six (6) charted items and one (1) uncharted item that fall within the survey area and are discussed below:

The Descriptive Report for this survey (H-6976 W_yD_y) contains the following statement. "This area is close to a wartime mine field and it is suspected that obstructions are anchors of mines and listening devices that were not removed and are embedded in the bottom." The report lists seven items that were hung and cleared by this survey and these items are discussed as follows:

- a) A charted obstruction, cleared by 20 feet (chart number 12222), in Latitude $36^{\circ}57'32''$, Longitude $75^{\circ}58'05''$, was hung at 21 feet. This item was reported in the 1957 Wreck List, Item Number 622. The present survey depths in this area are from 26 to 28 feet. The obstruction was carried forward to the present survey, and it is recommended that this item remain as charted. *36 57 30 75 58 05 H-6976 W D* *AWOL 10/15/84 MEM CONCUR*
- b) A charted obstruction, cleared by 20 feet (chart number 12222), in Latitude $36^{\circ}57'52''$, Longitude $75^{\circ}58'08''$, was hung at 21 feet. The present survey depths in this area are from 25 to 26 feet. This obstruction was carried forward to the present survey and it is recommended that this item remain as charted. *AWOL 10/15/84 MEM CONCUR*
- c) A charted obstruction, cleared by 21 feet (chart number 12222), in Latitude $36^{\circ}58'41''$, Longitude $75^{\circ}58'06''$, was hung at 24 feet. This item was reported in the 1957 Wreck List, Item Number 630. The present survey depths in this area are from 30 to 31 feet. This obstruction was carried forward to the present survey and it is recommended that this item remain as charted. *AWOL 03/88 MEM CONCUR*
- d) A charted obstruction, cleared by 20 feet (chart number 12222) in Latitude $36^{\circ}57'42''$, Longitude $75^{\circ}57'45''$, was hung at 20 feet. An item was reported in the 1957 Wreck List (Item Number 1317) that falls approximately 160 meters east of the hang depth. It's not apparent from the research material available for this charting and list discrepancy. The present survey depths in this area are from 25 to 26 feet. This obstruction was carried forward to the present survey and it is recommended that this item remain as charted. *AWOL 10/15/84 MEM CONCUR*
- e) A charted obstruction, cleared by 20 feet (chart number 12222), in Latitude $36^{\circ}57'51''$, Longitude $75^{\circ}57'35''$, was hung at 20 feet. This item was reported in the 1957 Wreck List, Item Number 629. The present survey's depths in this area are from 26 to 27 feet. This obstruction was carried forward to the present survey and it is recommended that this item remain as charted. *36 57 52 75 57 36 H-6976 W D* *AWOL 10/16/84 MEM CONCUR*
- f) An obstruction, cleared by 20 feet in Latitude $36^{\circ}57'54''$, Longitude $75^{\circ}57'32''$, was hung at 22 feet. This item was not charted, quite possibly because of space limitations at the scale of the chart. The present survey depths in this area are from 26 to 27 feet. This obstruction was carried forward to the present survey and it is recommended that this item be charted if the scale of the chart permits. *AWOL 10/16/84 MEM CONCUR*
- g) A charted obstruction, cleared by 20 feet (chart number 12222) in Latitude $36^{\circ}57'53''$, Longitude $75^{\circ}57'27''$, was hung at 20 feet. The present survey depths in this area are from 25 to 28 feet. This obstruction was carried forward to the present survey and it is recommended that this item remain as charted. *36 57 54 75 57 27 H-6976 W D* *AWOL 10/15/84 MEM CONCUR*

It should be noted that the field developments of these items were run on a day when there were high seas in this area. This was noted on the fathograms

for the development. A further problem is that the echo sounding system used is not very conducive to finding small objects. Also, this area appears to be of somewhat irregular bottom (2 to 3 feet) configuration.

There is only one conflict between the present survey and the wire drag survey effective depths. This is in the vicinity of Latitude 36°57'20", Longitude 075°54'21", where the present survey has depths of 31 feet and the wire drag survey effective depth is 33 feet. This may be attributable to natural bottom changes. *CONCUR*

3) A comparison with survey H-7028 W.D. and Ad. Wk. (1945-50) and the present survey revealed three (3) charted items that fall within the survey area and are discussed below:

a) A charted wreck cleared by 40 feet (chart number 12222) in Latitude 36°57'36", Longitude 76°01'20", was hung at 42 feet. This item is the wreck of the "CARMINE" a pilot boat sunk in December, 1938, with demolition conducted in March of 1945. This item was reported in the 1957 Wreck List, Item Number 435. It is noted that the hang and clearance was after the demolition. The present survey depths in this area are from 55 to 57 feet. This wreck was carried forward to the present survey and it is recommended that the wreck remain as charted. *CONCUR*

*36-57-36 76-01-20
ADW 11/17/54
meff*

b) A charted obstruction cleared by 40 feet (chart number 12222) in Latitude 36°57'40", Longitude 76°00'47", was hung at 42 feet. ~~This item was reported in the 1957 Wreck List, Item Number 1185.~~ The present survey depths in this area are from 60 to 62 feet and it is recommended that the obstruction remain as charted. *CONCUR*

*Not the same item as 1957 Wreck List # 1185
MAY 10/23/54
CONCUR*

c) A charted wreck cleared by 37 feet (chart number 12222) in Latitude 36°57'39", Longitude 76°00'39", was hung at 38 feet. This is the wreck of the "CHILORE" reported sunk July 15, 1942. This item was reported in the 1957 Wreck List, Item Number 398. The present survey also found this wreck, the least depth obtained by echo sounder was 43 feet. The wreck was carried forward to the present survey and it is recommended that the wreck remain as charted. *CONCUR*

*ADW 11/17/54
meff*

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

7. COMPARISON WITH CHARTS #12222 (24th Edition, March 8, 1980)
#12221 (47th Edition, September 15, 1979)

a. The charted hydrography originates with the previously discussed prior surveys and requires no further consideration; however, attention is directed to the following:

1) The charted 49-ft. wire drag clearance (chart number 12221) in Latitude 36°57'00", Longitude 76°01'21", originates with the clearance depth by H-7028 W.D. and Ad. Wk. (1945-50) at the reported position of a wreck. This wreck originates with Notice to Mariners, dated August 5, 1944. This item is also identified in the 1957 Wreck List as item number 1308, positional accuracy within one (1) mile. This item is described in the Descriptive Report of survey H-7028 W.D. (1945-48) as a "examination vessel" reported demolished. Also found in handwriting was the notation that this wreck is disproved and no longer charted. There are three small scour areas on the fathograms (positions 326, 262 and 847) which may or may not

*ADW 11/17/54
meff*

Source: Nm 31/44

8477

32 57 00 76 01 21

be the remains of this item as the indications are not definitive enough to safely say for sure. The general depths in this area are from 62 to 65 feet. Recommend this item remain as charted. *CONCUR*

2) The charted 53-ft. wire drag clearance (chart number 12221) in Latitude 36°57'00", Longitude 76°00'42", originates with the clearance depth by survey H-7028 W.D. and Ad. Wk. (1945-50) and appears to be something sunk in 1938. This item originates with a Notice to Mariners, dated May 2, 1939. This item is also identified in the 1957 Wreck List as item number 1331, positional accuracy within one (1) mile and states that the wreck was removed, N.M. 19 of 1939. The Descriptive Report for survey H-7028 W.D. does not address this item. The present survey depths are from 71 to 74 feet in this area. This item is recommended for retention as charted.

*Also 72' ...
... PA 12 of ...
...
delete three
USM 9/31
nm 49/38
AWOIS
10/15/54-30442
msm
CONCUR*

3) Presurvey Review Item Number 94, a non-dangerous sunken wreck charted (chart number 12221) in Latitude 36°57'18", Longitude 75°59'18", originates with a Notice to Mariners, dated July 25, 1952. This item is also identified in the 1957 Wreck List as item number 1297, positional accuracy within one mile. The general depths on the present survey in this area are from 83 to 87 feet. The field unit did not run a development in this area, however, they did run a star pattern development approximately 440 meters to the north-east of this charted wreck. There is a 73-ft. depth in an area of depths from 81 to 84 at Latitude 36°57'24.80", Longitude 75°59'33.87". While this is not definitive enough to say positively that it is the wreck, it should be noted for any future investigations (wire-drag, etc.) for locating this item. Recommend this item remain as charted. *Do not concur See QC Item 1*

*AWOIS
10/15/54-30442
msm
CONCUR*

4) Presurvey Review Item Number 95, obstruction charted (chart number 12222) in Latitude 36°57'21", Longitude 75°58'12", originates with Notice to Mariners Number 29 of 1957. This item is described as a submerged steel hydrographic experimental structure extending five feet above the bottom. The field developed this area but did not locate any significant bottom feature, see section K of the Descriptive Report for additional information. Recommend retaining this item as charted. *CONCUR*

*AWOIS
10/15/54-30442
msm
CONCUR*

5) The charted 20-ft. wire drag clearance (chart number 12221) in Latitude 36°57'33", Longitude 75°57'21", originates with the clearance depth by survey H-6976 W.D. (1945-47). This item originates with a U.S. Coast Guard Notice to Mariners, number 18 of 1942. The field examination survey (FE-34 of 1942) which located and identified this as the wreck of the SS E. H. BLUM which at that time was not completely submerged. The Descriptive Report for survey H-6976 W.D. (1945-47) addresses this wreck under item number 6 and states the wreck was dispersed prior to sweeping on this survey. This item is also identified in the 1945 Wreck Information List (item number 273) and the 1957 Wreck List (item number 1297) with the latter having a positional accuracy of one (1) mile. The general depths in this area on the present survey are from 25 to 27 feet. Recommend this item be retained as charted.

*AWOIS
10/15/54-30442
msm
CONCUR*

6) Presurvey Review Item Number 78, a submerged pile charted (chart number 12222) in Latitude 37°00'28", Longitude 75°55'57", originates with U.S. Coast Guard Notice to Mariners Number 4 of January 28, 1956. This item is described under section K of the Descriptive Report for this survey. The general depths in this area are from 16 to 20 feet on the present survey. Recommend this item remain as charted. *CONCUR See QC Item 2.*

*AWOIS
10/15/54-30442
msm
CONCUR*

7) The charted 42-ft. wire drag clearance (chart number 12221) in Latitude 36°57'36", Longitude 76°00'30", originates with the clearance depth by survey H-7028 W.D. and Ad. Wk. (1945-50). The origin of this item is ~~unascertainable~~ ^{unavailable}, it is described in a pencil notation on the A&D sheet of H-7028 W.D. as the wreck of the W.D. SCANNER. The only other information available was the 1957 Wreck List, item number 8374. Under this report's description is the note "01 dated 1941" and the description of this as a wreck of a trawler of 260 gross tons sunk December 1, 1938, with a positional accuracy of one (1) mile. This area was wire swept on survey H-9871 W.D. (1976) ^{W.D.} in one direction to 38 feet. The present survey depths in this area are from 61 to 64 feet. Recommend this item remain as charted. *concur*

12221 is a
wreck chart
12222 is not

It should be noted that items 1, 2, 3, 5, 7, above are charted only on the smaller scale chart (12221, 1:80,000) of this area, and not on the larger scale chart (12222, 1:40,000) of this area. It is recommended that all items such as those discussed above should be on the largest scale chart of the area (12222).

12221 is a
wreck chart
12222 is not

The present survey is adequate to supersede the charted hydrography in the common area except as noted above in this report and the hydrographer's Descriptive Report.

b. Controlling Depths

There is no conflict with the controlling depths in Cape Henry Channel and the present survey depths. The controlling depth in this channel does now appear to be ~~42~~ ⁴⁰ feet, which is deeper, however, by ~~8~~ ¹ feet than the charted ~~38~~ ³⁹-foot depth.

c. Aids to Navigation

The floating aids to navigation located within the survey area appear to be adequate for their intended purpose with one exception:

The North Channel Entrance Buoy (2) no longer marks the controlling depth as stated in Coast Pilot #3, July 1981. A letter (appended to this report) was sent to the Coast Pilot Branch and the 5th U.S. Coast Guard District has been notified.

8. COMPLIANCE WITH INSTRUCTIONS


This survey adequately complies with the Project Instructions except as noted in Section 4 of this report and two other exceptions.


a. Two Presurvey Review Items (95, 78) were not investigated ~~as~~ in accordance with the Presurvey Review instructions. It is noted that due to the nature of the area the hydrographer's conclusions are justified.

b. The field did not comply with section 6.12 of the Project Instructions, "Dangers to Navigation". They are required to indicate in the Descriptive Report if there were no reports on dangers to navigation. It is believed there were no reports issued but it remains unclear.

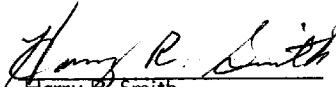
9. ADDITIONAL FIELD WORK

This is a good basic survey. Additional work is recommended on the items discussed in sections 3.c.1), 2), and 3) and sections 7.b. (1 through 7) of this report. It is felt that these items could best be investigated by wire drag or possibly side scan sonar.


F. L. Saunders
Cartographic Technician
Verification of Data


Leroy G. Cram
Cartographer
Evaluation and Analysis

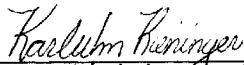
May 6, 1982


Harry R. Smith
Senior Cartographic Technician
Verification Check

INSPECTION REPORT
H-9901

The completed survey has been inspected by the Hydrographic Inspection Team with regard to survey coverage, delineation of depth contours, 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. Kleininger, CDR, NOAA
Chief, Processing Division



R. D. Sanocki
Chief, Verification Branch
Processing Division



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

Approved/Forwarded
May 12, 1982



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

June 20, 1984

TO: Roy K. Matsushige *RRM*
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section *gjm*

FROM: Lisa Quinlan *Lisa Quinlan*
Quality Evaluator

SUBJECT: Quality Control Report for Survey H-9901 (1980), Virginia, Chesapeake Bay Entrance, Chesapeake Channel

A quality control inspection of H-9901 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, 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.

The following supplements the Verifier's Report:

1. The nondangerous submerged wreck (presurvey review item 94) charted at latitude 36°57'18"N, longitude 75°59'18"W from the U.S. Navy Wreck List of 1957 originates as a reported submerged obstruction from Notice to Mariners 42 of 1950. However, the obstruction was reported to be removed in Notice to Mariners 30 of 1952. The charted wreck symbol is considered to be in error. It is recommended to be expunged from the chart.
2. The submerged pile (presurvey review item 78) charted at latitude 37°00'27.56"N, longitude 75°55'51.17"W was originally reported to be an obstruction light in Notice to Mariners 18 of 1955. However, the light was reported destroyed in Notice to Mariners 37 of 1955. It is recommended that this item be investigated by divers in order to determine its condition at an opportune time.
3. The dangerous sunken wreck (presurvey review item 77) charted at latitude 37°01'20"N, longitude 75°53'35"W from Notice to Mariners 31 of 1950 and Notice to Mariners 33 of 1950 was not mentioned by the hydrographer and should be retained on the chart.



H-9901

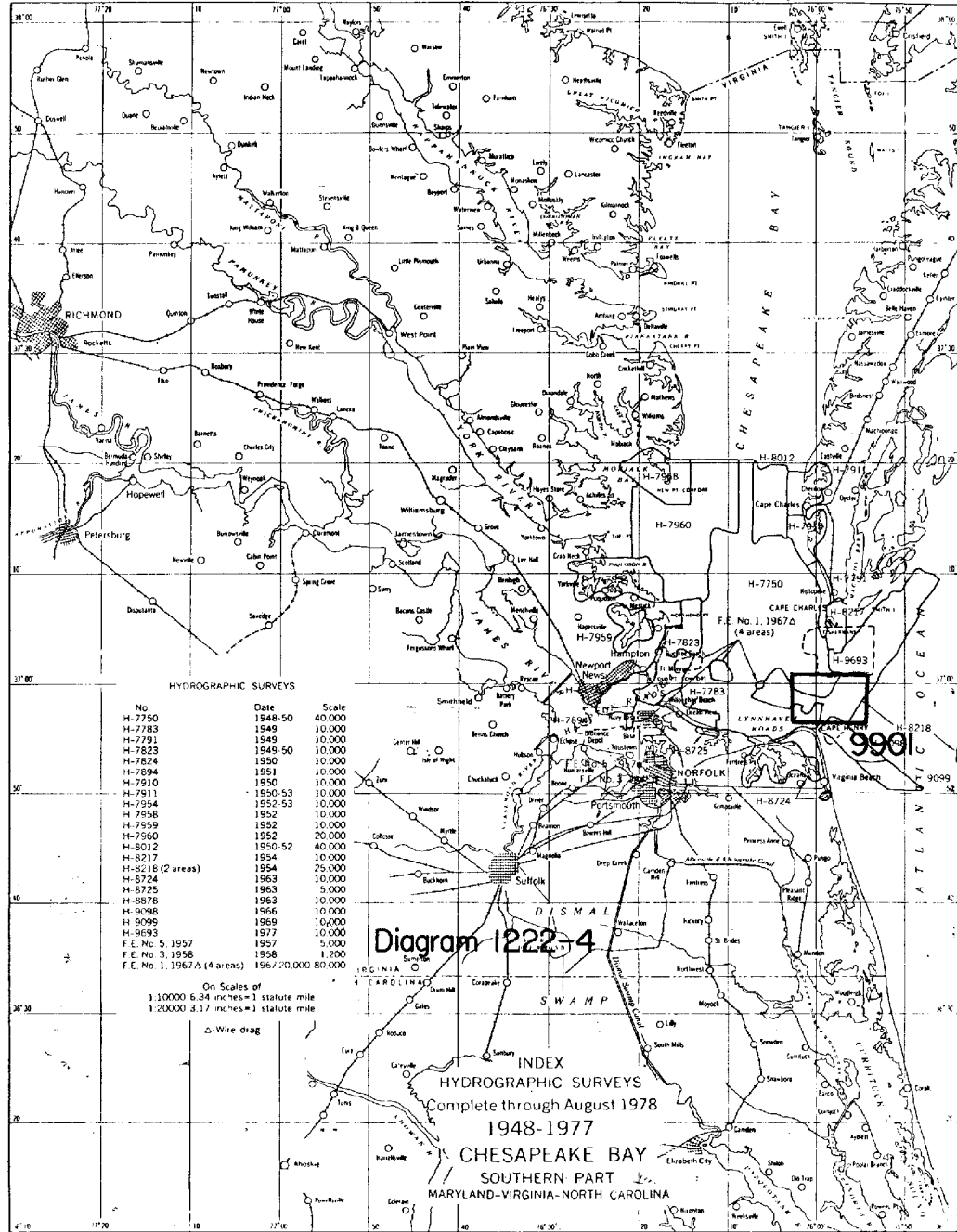
2

4. A butt junction was effected with H-9693 (1977) because of sounding conflicts attributed to shifting and migration of bottom features. The present survey supersedes H-9693 within the common area.

cc:
N/CG241

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

Hydrographic Index No. 70 M





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

NOV 1 1984

N/CG241:MSM

TO: N/MOA - Wesley V. Hull

FROM: N/CG2 - C. William Hayes *C. William Hayes*

SUBJECT: Report of Compliance for Survey H-9901

The smooth sheet and Descriptive Report for survey H-9901 (1980), Virginia, Chesapeake Bay Entrance, Chesapeake Channel, have been reviewed. In addition to the Quality Control Report, dated June 20, 1984 (copy attached), and the Hydrographic Survey Inspection Team Report, dated May 12, 1982, the following is submitted:

A 25-foot probable obstruction was located in latitude 36°59'30.09"N, longitude 75°59'26.36"W. In paragraph 3.c.2 of the verification report it is stated that a Notice to Mariners was issued for this danger to navigation as specified in section 6.12 of the project instructions. However, after extensive investigation, there is no evidence that any information concerning this probable obstruction was submitted, by either the hydrographer or the verifier, for publication by the U.S. Coast Guard.

Except as noted, this survey is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-D103-MI/PE-80, dated February 20, 1980; Change No. 1, dated March 27, 1980; Change No. 2, dated May 8, 1980; Change No. 3, dated June 23, 1980; Change No. 4, dated August 12, 1980; Change No. 5, dated August 15, 1980; Change No. 6, dated September 2, 1980; and Change No. 7, dated September 17, 1980.

Attachment

cc:
N/CG242 w/o att.

*N/CG 2222 has made this into
CL 1407/84 for examination for possible
N/M item 10/30/84 M.S. N/CG 241*



RECORD OF APPLICATION TO CHARTS

H-9901

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. _____

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 Prototype	10/1/85	J. Graham	Full Part Before After Verification Review Inspection Signed Via Drawing No.
12254	10/31/89	John Pierce	Full Part Before After Verification Review Inspection Signed Via Drawing No. 57
12222	11/1/89	John Pierce	Full Part Before After Verification Review Inspection Signed Via Drawing No. 32
12221	11/1/89	John Pierce	Full Part Before After Verification Review Inspection Signed Via Drawing No. 85
12205	2-28-90	ELLEN SPENCE	Full Part Before After Verification Review Inspection Signed Via Drawing No. 21 (Applied as per XDRWG OF 12222)
EN 12200	10-17-90	Tracy Sanford	Full Part Before After Verification Review Inspection Signed Via Drawing No. 52 APPLIED THROUGH CHART 12220 33rd Ed.
EN 12220	10-17-90	Tracy Sanford	Full Part Before After Verification Review Inspection Signed Via Drawing No. 53 APPLIED THROUGH CHART 12221 58 Ed.
12208	11/18/91	J. ROBINSON	Full Part Before After Verification Review Inspection Signed Via Drawing No. 11 Reconstruction - Applied Through 12222
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.