FE275
SIDE SCAN

Diagram No. 78-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Side Scan Sonar

Field No. ... R/H-20-1-85

Registery No. ... FE-275SS

LOCALITY

State ... Virginia--Maryland

General Locality ... Chesapeake Bay

Sublocality ... Smith Point to Cedar Point

19 85

CHIEF OF PARTY
LCDR R.K. Norris

LIBRARY & ARCHIVES

DATE ... September 30, 1986

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

FE275
SIDE SCAN

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. FE-275 S9

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. R/H 20-1-85; ~~R/H 20-2-85~~ ~~R/H 20-3-85~~; ~~R/H 20-4-85~~; ~~R/H 20-6-85~~

State Virginia / Maryland

General locality Chesapeake Bay

Locality ~~AWOIS #3188,#3189,#3424,#3425,#3673,#3677~~ Smith Point to CEDAR POINT

Scale 1:20,000 Date of survey Oct. 17,1985 (DOY 290) - Dec. 11,1985 (DOY 345)

Instructions dated Sept. 30,1985 Project No. OPR-E609 Ru/He-85

Vessel NOAA Ships Rude (S590) vesno:9040 and Heck (S591) vesno:9140

Chief of party LCDR. Robert K. Norris

Surveyed by LCDR. R.K. Norris,Lt. J.C. Talbott,Lt.(jg) J.E. Lowell

Soundings taken by echo sounder, ~~hand lead, pole~~ ~~pneumofathometer~~ Pneumatic Depth Gauge

Graphic record scaled by J.E.L.,K.F.S.

Graphic record checked by J.E.L.,K.F.S.,P.D.

Protracted by _____ Automated plot by XYNETICS 1201 PLOTTER (AMC)

Verification by N.A.WIKE

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW corrected for tides

REMARKS: All times recorded in UTC. Individual AWOIS descriptions are located in Appendix XII.

NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

Notes in Descriptive Report in blue made during examination.

STANDARDS CK'D 10-2-86

Clay

Surf / News check 2/18/87 SS

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. G.P.O. 1972-769-565/519 REG.#6

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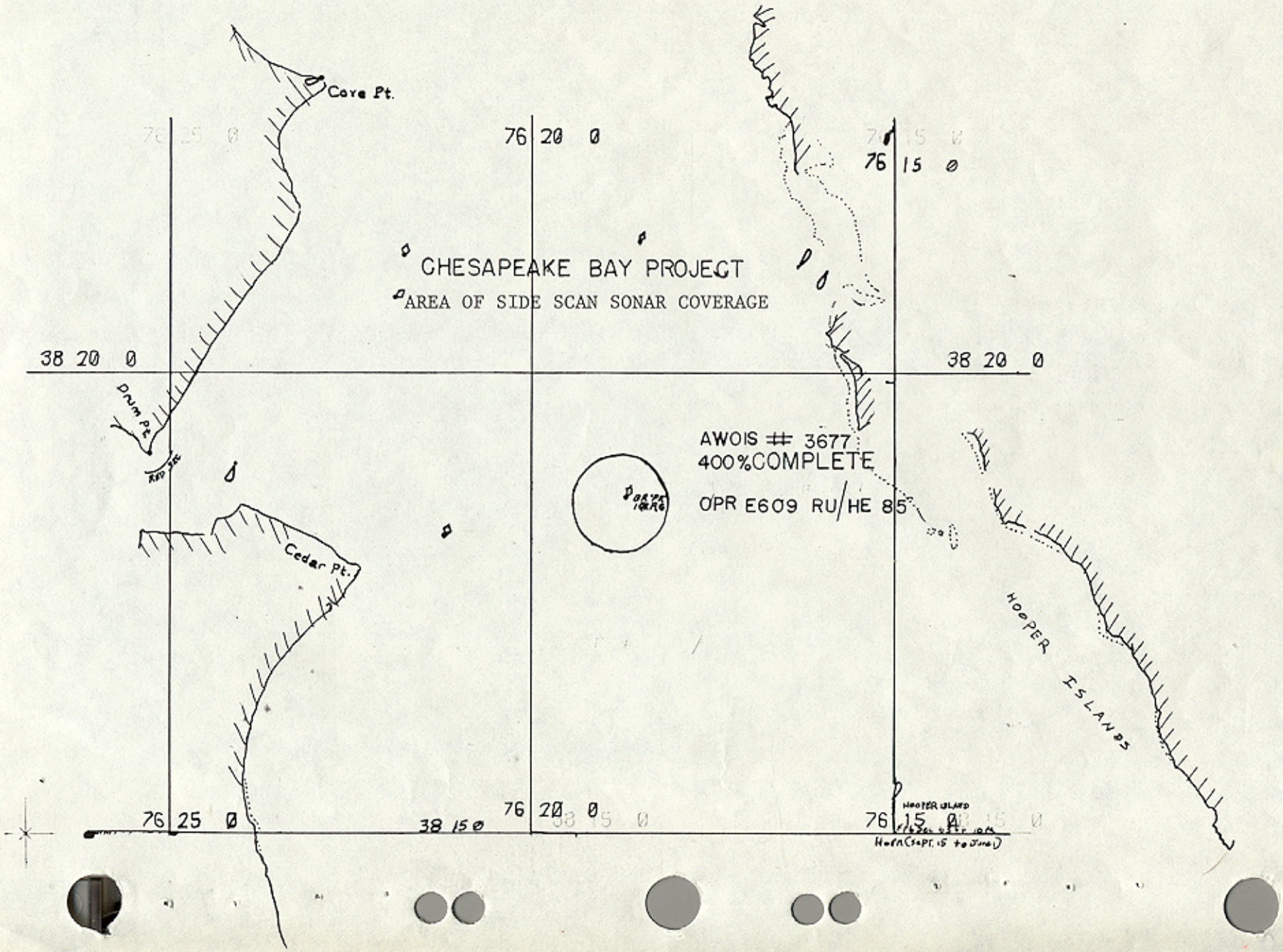
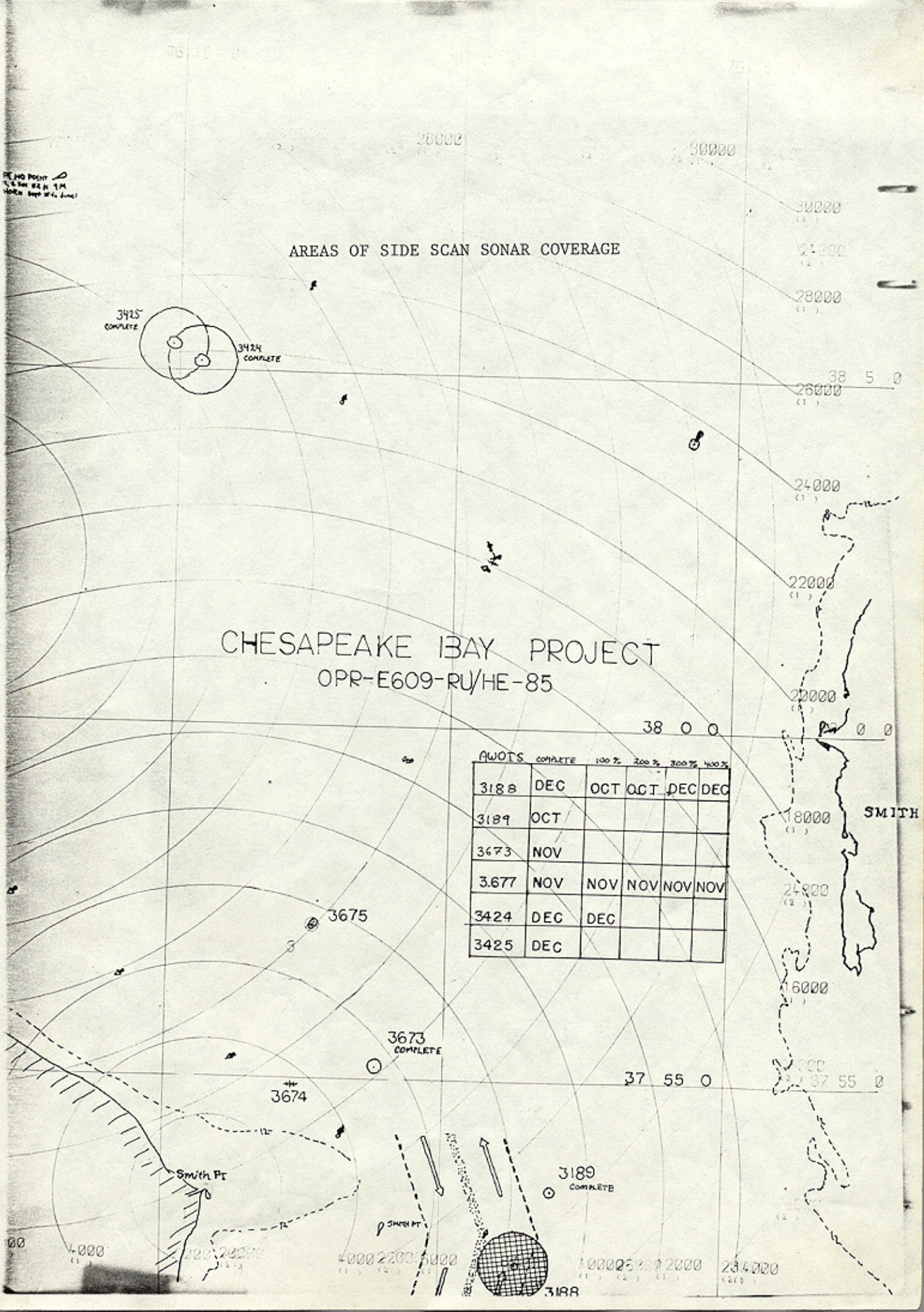
OPR-E609-RU/HE-85

* ~~DATA~~ ITEMS REMOVED FROM DESCRIPTIVE REPORT.


Cove Pt.
76 20 0
76 15 0
CHESAPEAKE BAY PROJECT
AREA OF SIDE SCAN SONAR COVERAGE
38 20 0
38 20 0
AWOIS # 3677
400% COMPLETE
OPR E609 RU/HE 85
Cedar Pt.
HOOPER ISLAND
76 25 0
38 15 0
76 20 0
76 15 0

AREAS OF SIDE SCAN SONAR COVERAGE



CHESAPEAKE BAY PROJECT

OPR-E609-RU/HE-85

AWOTS	COMPLETE	100 %	200 %	300 %	400 %
3188	DEC	OCT	OCT	DEC	DEC
3189	OCT				
3673	NOV				
3677	NOV	NOV	NOV	NOV	NOV
3424	DEC	DEC			
3425	DEC				

OPR-E609-RU/HE-85
FIELD SHEET # R/H 20-1-85, R/H 20-2-85
R/H 20-3-85, R/H 20-4-85, R/H 20-6-85
SCALE 1:20,000
NOAA SHIPS RUDE and HECK
LCDR ROBERT K NORRIS, CMDG

A) PROJECT AUTHORITY

This project was conducted in accordance with Hydrographic Project Instructions OPR-E609-RU/HE-85, Chesapeake Bay, Maryland, dated ~~November~~ September 30, 1984. There were two changes to the project instructions, Change No. 1 was dated October 3, 1985, and Change No. 2 was dated November 1, 1985. Change No. 2 was made in response to a letter from James C. Irwin, RADM USCG, dated October 25,1985.

B) AREA SURVEYED

The area surveyed during this project was located within the Chesapeake Bay, bounded on the South by Latitude 37° 51.0'N, and on the North by Latitude 38° 21.0'N. The exact areas surveyed were described in the Automated Wreck and Obstruction Information System (AWOIS) listing as follows:

FIELD SHEET #	AWOIS	LAT/LONG	SEARCH RADIUS
R/H 20-1-85	3188	LAT: 37° 52' 24.0" N LONG: 076° 08' 36.0" W	0.5 nm
R/H 20-2-85	3189	LAT: 37° 53' 25.2" N LONG: 076° 07' 58.8" W	250 meters
R/H 20-3-85	3673	LAT: 37° 55' 11.4" N LONG: 076° 11' 13.2" W	250 meters
R/H 20-4-85	3424	LAT: 38° 05' 09.0" N LONG: 076° 14' 34.0" W	0.5 nm
	3425	LAT: 38° 05' 23.0" N LONG: 076° 15' 06.0" W	0.5 nm
R/H 20-6-85	3677	LAT: 38° 18' 35.5" N LONG: 076° 18' 47.2" W	1000 meters

The inclusive dates of survey were:

FIELD SHEET *	BEGINNING DATE		COMPLETION DATE
R/H 20-1-85	OCT 18 (DOY 291)	-	DEC 5 (DOY 339)
R/H 20-2-85	OCT 17 (DOY 290)	-	OCT 24 (DOY 297)
R/H 20-3-85	OCT 22 (DOY 295)	-	NOV 26 (DOY 330)
R/H 20-4-85	DEC 5 (DOY 339)	-	DEC 11 (DOY 345)
R/H 20-6-85	NOV 14 (DOY 318)	-	NOV 25 (DOY 329)

* SURVEY REGISTERED UNDER R/H 20-1-85.

C) SOUNDING VESSELS

Two sounding vessels were used to collect data during this survey. The vessel's numbers and the inclusive operational days of the year (DOY) follow:

EDP #	VESSEL	HULL #	DOY
9040	NOAA ship RUDE	S-590	290-345
9140	NOAA ship HECK	S-591	290-345

The NOAA ships RUDE & HECK are sister ships designed for wire drag surveys. This project consisted of side scan sonar (SSS) operations and diver investigations. The side scan towfish was deployed using a new hydraulic winch located on the centerline just aft of the exhaust stack on each ship. The SSS cable was lead through a block hung on an A-frame over the stern. There were no unusual problems encountered with this system of SSS towfish deployment.

D) SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO-SOUNDING

Both ships were equipped with a Raytheon DSF-6000N echo sounder and a Klein Hydroscan system consisting of a model 521T side scan sonar recorder, a 100 KHz towfish with a k-wing depressor and a towcable. All diver least depth determinations were accomplished using a ~~pneumofathometer~~. The serial numbers and dates of use were as follows: ↑ pneumatic depth gauge

INSTRUMENT	SERIAL NUMBER	DOY USED
9040 NOAA ship RUDE		
Raytheon DSF 6000N	A116 N	290 - 345
Klein Hydroscan	249	290 - 345
Klein Towfish	417 M	290 - 345
Pneumofathometer	784996	290 - 345
9140 NOAA ship HECK		
Raytheon DSF 6000N	B051 N	290 - 345
Klein Hydroscan	088	290 - 345
Klein Towfish	349 M	290 - 345

The general depths in which soundings were taken were from 30 to 100 feet. It is presumed by the hydrographer that the sounding data will be used only as reconnaissance data. No hydrographic data was digitized during on-line data acquisition or off-line processing. Selected soundings were hand plotted on the rough plots for prior survey and chart comparisons. *Rough plots not forwarded to Rockville*

On several occasions during the project, the field unit experienced sounding equipment problems including interference on SSS records and DSF 6000N fathograms, broken helixes on the side scan recorders, and false bottom traces on the DSF 6000N echo sounders. The interference problem and the broken helixes, were fixed without significantly affecting field operations. However, the DSF 6000N problem with false bottom traces was never isolated or corrected. The existence of this problem did not influence any of the charting recommendations and would only effect the reconnaissance hydrographic data.

Throughout the entire project area, schools of fish showed up on both the SSS trace and the DSF trace. In most cases false bottoms and targets could be distinguished from actual bottoms and targets by close examination of the DSF trace in conjunction with the SSS trace. Any problems associated with the individual sheets will be dealt with in the discussion of the sheets located in Appendix XII.

Due to the nature of this survey, no velocity of sound through water or direct comparison correctors were determined. Using the DSF 6000N echo sounder, variations in the instrument initial, and other instrument corrections are not applicable.

Settlement and Squat correctors were determined on January 25, 1983 by AMC and ships personnel at Port Norfolk Reach Channel. A copy of the results is in Appendix IV of this report.* No settlement and squat correctors were applied to any data collected during this project. * *Removed from report and placed with field records.*

A draft corrector was developed for each ship by using ships plans and stationary measurements. The ships plans were used to measure the distance from the transducer in use to the main deck. Using this as a constant, measurements were taken from the main deck to the water level using a weighted steel tape. Subtracting the second from the first, a corrector of 7.7 feet was obtained for both ships.

Side scan sonar confidence checks were made whenever there was a known target located near the survey area. Special attention was given to these checks early in the project due to the inexperience of the various operators. All confidence checks were labeled clearly, as well as targets that were visible on the surface, such as buoys and current meter arrays. Once operators gained experience in tuning the

SSS, the scours that ran over the bottom served as confidence checks. Using these confidence checks, the SSS instruments were tuned to maintain the collection of high quality data. Do not concur
SEE also SECTION 4.e. of the EVALUATION REPORT.

Survey records were scanned by survey department personnel and Commissioned Officers and were checked by the Field Operations Officer. Side scan sonar targets were entered in the SSS target abstract, and all SSS contacts were listed in the SSS Target List. Contacts requiring further development and the results of these developments are explained in the narrative for each item in Appendix XII. All contacts not investigated further are so labeled.

This survey was conducted without using predicted tides on-line. Tide data was applied only to the ~~pneumofathometer~~ pneumatic depth gauge depth readings when least depths were determined. An exception to this procedure was field sheet R/H 20-4-85. See the item description for details. No tide gages were installed during the project. Smooth tides were requested from Chief, Tides and Water Levels Branch (N/OMS12) in a letter dated February 19, 1986. A copy of this letter is in Appendix II. Removed from Des. Report and placed with field records.

Hydrographic Guideline # 47 deals with ~~pneumofathometers~~ and there use in a hydrographic survey. It lists two types of gauges that are currently acceptable to NOS, and their operational requirements. During the past several years, the NOAA Ships RUDE & HECK have used a 0-240 ft. gauge and calibrated it using a system similar to the system check described in the guideline. This was done at the beginning of the project with the correctors applied throughout the survey. Due to the existing equipment and the change to the guidelines being received after the project had started, the following procedure was used to calibrate the ~~pneumofathometer~~. On the day that the dives were to occur, the orifice was lowered over the side, and the procedure described in the Hydrographic Survey Guideline #47 was followed. No initial calibration was conducted before the project began, or after the project was completed. All correctors applied were determined using the system check method.

E) HYDROGRAPHIC SHEETS (FIELD SHEETS)

All field sheets were made aboard the NOAA ship RUDE using the PDP-11/34 computer. Trackline data is presented on one or two sheets for each AWOIS item. The number of sheets was determined by the amount of coverage required to resolve the item. When two sheets were used, R1 arcs are represented on one sheet and R2 arcs on the other. This was done to improve legibility. On the final field sheets, all overlapping lines and unnecessary development lines have been removed. All field records and tapes were forwarded to the Atlantic Marine Center for verification and Smooth Plotting.

F) CONTROL STATIONS

Throughout the entire survey existing control was used. No new horizontal control stations were established by ships personnel. The stations used and their positions follow:

STATION NUMBER	STATION NAME
001	Little Wicomico River Lt. 1 (1955) Lat: 37 53 22.347 Long: 076 14 10.249
002	Point Lookout Lighthouse (1846) Lat: 38 02 19.108 Long: 076 19 20.517
003	Smith Point Lighthouse (1849) Lat: 37 52 47.090 Long: 076 11 02.732
010	Patuxent River Drum Pt Lt 2 (1985) Lat: 38 19 07.805 Long: 076 25 16.691
011	Hooper Island Lighthouse (1902) Lat: 38 15 22.143 Long: 076 15 00.418
012	Cedar Point Lighthouse (1897) Lat: 38 17 57.397 Long: 076 22 04.924
013	USN Air Sta Tall Elev Tk (1943) Lat: 38 16 16.013 Long: 076 27 02.375
014	Cove Point Lighthouse (1848) Lat: 38 23 10.009 Long: 076 22 55.543
032	Point No Point LH (1905) Lat: 38 07 40.626 Long: 076 17 26.322

All stations are of Third-order, Class I control accuracy, or better. The station positions are based upon the North American Datum of 1927.

G) HYDROGRAPHIC POSITION CONTROL

Hydrographic position control for the entire survey was a range-range system using Del Norte electronic positioning equipment. For survey sheets R/H 20-1-85, R/H 20-2-85, R/H 20-3-85 and R/H 20-4-85, control shore stations were set up at Little Wicomico River Lt 1 (1955) and Point Lookout (1846)(signal numbers 001 and 002). System checks were performed by circling Smith Point Lighthouse (1898). Survey sheet R/H 20-4-85 was run with the electronic control shore stations 001 and 002, but the system checks conducted by circling Pt No Point LH (1905), which was located closer to the survey area.

Survey sheet R/H 20-6-85 was located too far north for the established hydrographic control, therefore two new Del Norte control stations were installed. Control stations were set up on Patuxent River Drum Pt Lt 2, and Cove Point Lighthouse (1848). System checks were performed by sextant fixes using control stations; 010, 011, 012, 014, 015. Due to problems encountered during sextant checks, ie. mis-identification of objects, and low visibility, it was deemed quicker to circle Hooper ~~Pt~~ Island Lighthouse for the system check.

Vessel positioning for all work was accomplished using the Del Norte 520 series electronic positioning equipment, operating at a frequency of 9400 MHz in a range-range mode. A listing of Del Norte distance measuring unit (DMU) and Master units used by the vessels during this survey follow:

VESNO	DMU	MASTER	DATES IN USE
9040	135	2889	entire project
9140	145	3014	DOY 290 - 322
	142	3014	DOY 322 - 012

The following is a list of remote units installed on each Horizontal Control Station:

STATION #	DATES IN USE (DOY)	SERIAL NUMBERS
001	281 - 310	2986
	310 - 311	2897
	311 - 312	3003
	330 - 345	3003
002	281 - 312	3004
	330 - 345	3004
010	316 - 325	3003
	326 - 329	3004
014	316 - 325	3004
	326 - 329	3003

Four baseline calibrations were performed during this survey. All baseline calibrations took place on the Patuxent River between the United States Naval Recreation Center Pier (USNRC Pier), and Solomons Pier; a restaurant located on Solomons Island. A baseline distance was calculated to be 1724.98 meters using a H P DMU borrowed from Hydrographic Field Party 4 . The following is a list of dates and serial numbers of DMU units, master and remote trisponders calibrated:

DMU	MASTER	REMOTES	CODES
OCTOBER 8, 1985 (YEAR DAY 281)			
135	2889	3003	84
		2986	78
		2897	72
		3004	76
142	3033	same as above	
145	3014	same as above	
NOVEMBER 12, 1985 (YEAR DAY 316)			
135	2889	3004	76
		3003	84
142	3014	same as above	
145	3014	same as above	
NOVEMBER 21, 1985 (YEAR DAY 325)			
142	3014	3004	76
		3003	84
135	2889	same as above	
145	rates unsteady, unit returned to factory		
DECEMBER 12, 1985 (YEAR DAY 346)			
135	2889	3004	76
		3003	84
142	3014	same as above	

On several occasions the Del Norte equipment failed. DMU 145, master 3033, remotes 2986 and 2897 were returned to the factory for repair, but were not needed for the completion of the project.

The daily system checks were computed by hand for the circle calibration or were computed using a HP 9815 computer for the sextant checks. All daily system checks were within accuracy tolerances for a survey of this scale, with the following exception:

VESNO 9040

DOY 338 open and closed

It is requested that the baseline calibration data be applied to the raw position data during the final processing except for the above mentioned day. For this date the system check data should be compared to the mean of the system checks obtained in the area, and a new corrector be determined, and applied.

There were many positioning problems on all sheets during the project. A reoccurring problem was that one Del Norte rate would be lost and no fix could be obtained. During post processing many missed fixes were reconstructed using the "dead reckoning" method. However, the fix interval specifications in the Hydrographic Manual was not met during these occurrences.

Due to the nature of the survey, the Hydrographer-In-Charge felt that the DR positions were adequate for the following reasons.

1) The navigational data used to control the survey lines were range arcs from one station. Vessel position was fixed on the arc by a second range. Consequently, if the range from the intersecting arc was lost at the time of the fix, but the ship remained on-line at a constant speed, the DR position between the previous and following fixes would be accurate.

2) The nature of a side scan sonar survey is not to determine the exact position of the contacts, but to locate targets for later positioning using the DSF 6000N echo sounder or diver placed buoys. The real importance of positioning during side scan sonar operations is to insure that adequate coverage has been obtained. Considering the survey conditions of 100 meter line spacing and the side scan set to 100 meter range, there would be sufficient overlap to insure that the coverage was maintained as long as the navigation arc was not absent for an extended period of time. In addition the loss of the intersecting LOP would not affect the coverage except at the start or end of the line.

In a few instances the navigational arc was lost at the time of the fix. This does not mean that the arc was lost the entire time between sequential fixes, but the signal was lost at the time of the fix. In these instances the Hydrogapher-In-Charge deemed the survey lines suitable for use in the coverage abstract. Problems concerning the individual AWOIS items are discussed in Appendix XII.

H) SHORELINE

No shoreline exists within the limits of this survey.

I) CROSSLINES

Cross lines do not apply.

J) JUNCTIONS

Junctions do not apply.

K) COMPARISON WITH PRIOR SURVEYS SEE also SECTION 6. of the EVALUATION REPORT.

Due to the limitations of shipboard equipment, no automated plotting of hydrographic data was possible. Hydrographic data (SOUNDINGS) collected during this survey is meant to be of reconnaissance value only.

Selected soundings were hand plotted on the rough plot using the final positions. The only correction added to the echo soundings was the draft corrector.

The AWOIS item descriptions in Appendix XII contain specific information concerning the individual sheets.

L) COMPARISON WITH THE CHART SEE also SECTION 7.a. of the EVALUATION REPORT.

Charted soundings were transferred onto the boat sheets before any sounding data was obtained. All charted features and soundings came from the largest scale chart of the area. This procedure allowed for direct chart comparison while the vessels were conducting operations. The actual chart or charts used in the comparison are listed in the individual item report located in Appendix XII.

No chart markups were supplied for this survey, therefore the exact source of the charted data is unknown. Comparing the charted data with the prior surveys, it was apparent that the prior surveys were the source of most of the charted data. This being the case, the discussions of the individual items and their associated hydrography will be primarily contained in the Comparison with Prior Surveys.

No Danger to Navigation Reports were submitted during this project.

M) ADEQUACY

It is not the intent or purpose of this Field ~~Investigation~~ Examination to supersede charted hydrography. Only the item location or its removal from the chart, and a least depth are recommended to supersede previously obtained data.

N) AIDS TO NAVIGATION SEE also SECTION 7.b. of the EVALUATION REPORT.

Two floating aids to navigation were located in the project area. Smith Point Fairway Lighted Bell Buoy "SP" and the Patuxent River buoy "PR".

BUOY	CHARTED POSITION	DETERMINED POSITION	AGREE WITHIN
"SP"	Lat: 37 52 47.90 Long: 076 09 09.02 (Chart 12228)	Lat: 37 52 48.38 Long: 076 09 06.50	4.0 mm
"PR"	Lat: 38 18 39.72 Long: 076 18 42.06 (Chart 12264)	Lat: 38 18 38.69 Long: 076 18 41.40	0.5 mm

The buoy "SP" is considered adequate for its intended purpose, and should be maintained on the chart. The light characteristics are correct as charted, but its position has changed. ~~It is recommended that this buoy be charted at the newly determined position listed above, and no change to its light characteristics be made.~~ APPROPIATE ACTION DEFERRED TO THE CHART COMPILER.

The project area was shifted north to the area off the Patuxent River by request of the United States Coast Guard in a letter dated October 25, 1985 (Appendix XII). It was requested that we determine the existence of a reported wreck marked by the buoy "PR". After completion of the investigation, the Hydrographic Surveys Branch, Rockville and AMC were notified that no wreck was found and the obstruction buoy "PR" was no longer necessary at the site.

There were no bridges, overhead cables, overhead pipelines, submarine cables, pipelines, or ferry routes located in the survey area.

O) STATISTICS

VESNO: 9040 (RUDE)

SHEET NUMBER	LINEAR MILES RUN (NM)	SQUARE MILES RUN	TOTAL POSITION NUMBERS
20-1-85	76.63	19.51	338
20-3-85	0.0	0.0	1 DP
20-4-85	26.3	1.11	137
20-6-85	67.27	5.22	299

VESNO: 9140 (HECK)

20-1-85	27.44	1.27	151
20-2-85	1.9	0.70	55
20-3-85	7.62	1.80	42
20-4-85	14.8	0.64	100
20-6-85	58.9	3.85	318

P) MISCELLANEOUS

Section 7.14.1.2 of the Project Instructions requested that the position (Third-Order, Class I) of various navigational aids be obtained. The time required to accomplish this task was unavailable during the project. No sec. 7.14.1.2 contained in OPR E609-RU/HE-85 or changes 1 & 2.

Currents were calculated throughout the project area, whenever diving operations were planned. The times of slack water, both ebb and flood, were calculated in order to facilitate these operations. Predicted current conditions compared favorably with those observed. There were no anomalous currents observed in the project area. No information was obtained from interviews with local persons.

The NOAA Ships RUDE & HECK are not equipped to gather LORAN-C data on-line. The LORAN-C values observed at the locations of the various AWOIS items is included in the Sounding Volumes. Loran-C data incomplete in sounding volumes.

A user evaluation was conducted during operations on this project to solicit the comments of NOAA product users concerning the existing chart layout, scale, format color, etc, and to inform the public of NOAA's many products and services.

Mr. Julian Rhoden, U.S. Power Squadron, National Committee and Mr. John Burrough, U.S. Coast Guard Auxiliary, were contacted via telephone. An invitation to visit the ships and discuss operations and NOAA user requirements was extended to both groups. On October 20, 1985, Mr. Julian Rhoden of the Power Squadron toured the ships and was given a presentation detailing the ships current operations. In addition, the Chesapeake Bay suite of charts were discussed with him. The following general comments were made during these discussions:

1) His group felt that small craft chart coverage should be expanded to other rivers entering the Chesapeake Bay, such as the Patuxent River.

2) He expressed his desire for book charts of the Chesapeake Bay.

3) He expressed the need for more small craft type information, such as marina and service tabulations, on conventional charts of the Chesapeake Bay.

4) The Coast Pilot information of the area was considered helpful and up to date.

5) He voiced his concern for the rising price of charts.

6) In general, with the exceptions mentioned above, his group felt that the existing suite of Chesapeake Bay charts was adequate for there boating needs.

Q) RECOMMENDATIONS

Individual item recommendations are included in AWOIS

descriptions (Appendix XII). No construction or dredging is planned within the project areas.

R) AUTOMATED DATA PROCESSING

PROGRAM NAME

GULP - Grid, Control Station, Lattice Plot
LEDIT - Lattice File Editor
PARC - Parameter File Editor
PEDIT - Position File Editor
POLIST - Position File Listing
@PRTD - Predicted Tide Corrector Generator
SEDIT - Station File Editor
@SMDUMP - Side Scan Sonar and Launch Drag Data Dump
SSCOM - Side Scan Sonar Data Position Computation
SSPLOT - Side Scan Sonar Data Plot
SSPOOL - Side Scan Sonar Position File Generator
STACR - Station and Lattice File Initialization
@WDGINT - Wire Drag Data Disc Initialization

S) REFERRAL TO REPORTS

The following reports have been sent to the Atlantic Marine Center. Please refer to them for any questions pertaining to their contents.

REPORT	DATE SUBMITTED
HORIZONTAL CONTROL REPORT	February 26, 1986
ELECTRONIC CORRECTORS	February 28, 1986
COAST PILOT	February 21, 1986

STATION NUMBER	STATION NAME	LAT/LONG	ELEV	CARTO CODE
001	Little Wicomico River Lt. 1 (1955)	Lat: 37 53 22.347 Long: 076 14 10.249	5 m	139
002	Point Lookout Lighthouse (1846)	Lat: 38 02 19.108 Long: 076 19 20.517	17 m	139
003	Smith Point Lighthouse (1848)	Lat: 37 52 47.090 Long: 076 11 02.732		252
010	Patuxent River Drum Pt Lt 2 (1985)	Lat: 38 19 07.805 Long: 076 25 16.691	3 m	139/252
011	Hooper Island Lighthouse (1902)	Lat: 38 15 22.143 Long: 076 15 00.418		252
012	Cedar Point Lighthouse (1897)	Lat: 38 17 57.397 Long: 076 22 04.924		252
013	USN Air Sta Tall Elev Tk (1943)	Lat: 38 16 16.013 Long: 076 27 02.375		252
014	Cove Point Lighthouse (1848)	Lat: 38 23 10.009 Long: 076 22 55.543	12 m	139/252
032	Point No Point LH (1905)	Lat: 38 07 40.626 Long: 076 17 26.322		252

* ALL ELECTRONIC TRANSMITTING FREQUENCIES WERE 9400 MHz.

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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 GRP.
- ☐ COAST PILOT BRANCH

(See reverse for responsible personnel)

☐ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ships Rude & Heck	Virginia/Maryland	Chesapeake Bay	

The following objects HAVE ☐ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-E609 Ru/He	85		

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	POSITION LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	POSITION LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	METHOD AND DATE OF LOCATION FIELD	CHARTS AFFECTED
	NEGATIVE REPORT							

06

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD		☐ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED		FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S. GOVE PRINTING OFFICE: 1974-665-073/1030 Region 6

(XI) DANGERS TO NAVIGATION

NEGATIVE REPORT

(XII) SUPPLEMENTAL INFORMATION

AWOIS # 3188 SHEET # R/H 20-1-85

1) EXPECTED FEATURE

AWOIS Item 3188 is a reported obstruction approximately 20 ft. off the bottom in 65 ft. depths. The item is charted as an obstruction reported PA 45 ft. at Lat: 37° 52' 24" N, Long. 076° 08' 36" W.

2) AREA SURVEYED

The AWOIS listing called for a 0.5 nm radius search area centered at the charted position. Four hundred percent side scan sonar or wire drag with a 3 ft bottom clearance was required for item disapproval.

This investigation was conducted in two parts. The first part was an initial 200% side scan coverage, during which one target was located outside the search area. Divers were used to investigate the contact and determined that this target was not AWOIS # 3188. The second part of the investigation was the completion of 400% SSS coverage which took place after a shift to a higher priority area.

A few holidays in the 400% SSS coverage were identified during the final processing of the sheet. These holidays were not immediately identified due to a data processing backlog resulting from failure to the ships PDP11 computer. The lack of personnel experienced in the collection and processing of SSS data also contributed to the excessive data processing backlog.

The most significant holiday was a pair of narrow strips of 300% SSS coverage formed by positions 6102-6104 and positions 6092-6094. The following analysis of this holiday was made:

Maximum Track Space Adjacent Lines	Minimum Side Scan Coverage	Difference
107 m	100 m	7 m

Dividing the difference by two, a lane of 300% SSS coverage, 3.5m wide exists under the lines formed by positions 6102 - 6104, and positions 6092 - 6094. The wide beam on the DSF 6000N echo sounder does cover some of this area, however, this does not negate the requirement for 400% SSS coverage for item disapproval.

The other discrepancies in 400% SSS coverage on this sheet were much less significant. Although the lines defined by positions 0562, 0613, 0597 and 6188 either started slightly late or ended slightly early, the overall integrity of SSS coverage should not be degraded. In all instances, the survey vessel was on-line and recording SSS data prior to and after the position fix. CONCUR

3) COMPARISON WITH PRIOR SURVEY

Soundings were transferred from prior survey number H-8280 (April-Sept., 1955, 1:20,000) and a comparison was made from selected soundings. All of the hand plotted data obtained on this project was in good agreement with the prior survey in accordance with the Hydrographic Manual, Section 1.1.2 Part B.II.1. SEE ALSO SECTION 7.a.1) of the EVALUATION REPORT.

4) COMPARISON WITH CHART

The chart comparison for this survey was accomplished using NOS Chart ~~12233 and~~ 12228. During on-line data acquisition no discrepancies were noted. Agreement between the charted data and the hand plotted data was good.

5) DIVE REPORT

Description of Item

One dive was made on the SSS contact outside the search area to locate and investigate the item. The target consisted of decomposed wooden timbers and debris scattered over the bottom.

Search Technique

The target was found and marked with a buoy deployed from the vessel. Divers descended down the float line and the buoy anchor was located in the middle of a broken up wreck. The visibility on the bottom was 3-4 ft. horizontally and 4-5 ft. vertically. The search consisted of swimming NW until no debris was visible. From this point, a circle was made with the search line held taut. All snags were investigated, and identified as bolts imbedded in wooden timbers or edges of small steel plates. No debris protruded more than 12 inches off the bottom. An attempt was made to follow the perimeter of the wreck, but due to the advanced stage of decomposition, this was not possible. Considering the debris small rise off the bottom, the divers did not use the pneumofathometer to obtain a least depth. It was determined that this target was not AWOIS item # 3188. CONCUR

6) RECOMMENDATIONS

Chart a sunken wreck, with a not dangerous to surface navigation symbol, as per Section 0.16 in NOS Chart No 1, Eight Edition, November 1984 at Lat: 37° 52' ~~54.09~~ 54.06" N, Long: 076° 08' ~~26.91~~ 26.62" W. This wreck is not considered to be AWOIS # 3188. CONCUR

AWOIS# 3188 is considered disproved by 400% SSS coverage search investigation, except for the previously mentioned coverage discrepancies. The item is considered disproved in these areas by 300% side scan sonar coverage, and supplemented by wide beam DSF 6000N echo soundings. The Obstruction Reported PA (45 ft. Rep) at lat: 37° 52' 24.0" N, Long 076° 08' 36.0" W on charts 12225 and 12230 should be removed from future editions. SEE also SECTION 7.9.1) of the EVALUATION REPORT.

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3188

FIELD SHEET: R/H 20-1-85

STATE/COUNTY: VIRGINIA

SUB-LOCALITY: Smith Pt light

DATE: Nov 27, 1985 JD: 331

SHIP/LAUNCH: 25

DIVEMASTER: Tim Clancy

DIVERS: Tim Clancy
John Lowell

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	0937			
UNDER WATER	0937			
ON SURFACE	1001			
IN BOAT	1004			
DIVE DURATION	26 min			
MAXIMUM DEPTH	75'			

POSITION (negative report, center of search area)

LAT: 37° 52' ~~54.09~~ 5.16" LONG: 076° 08' ~~26.91~~ 5.62"

POSITION NO. 6999 VISIBILITY HOR. 4' VERT. 5'
CURRENT: 0.25 kts

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. NO LEAST DEPTH TAKEN
2.
3.

PNEUMO DEPTH FT.
PNEUMO CORR. FT.
FT.

PNEUMO S/N: 784996

TIDE CORR. FT.

TARGET FEATURE: Decomposed wreck

LEAST DEPTH: MLLW

REMARKS

SEE ALSO SECTION 7.9.1) of the EVALUATION REPORT.

DIVE 1) Anchor landed in center of very decomposed wooden wreck. Standard circle search conducted, no debris projected off bottom more than 12".

AWOIS # 3189 SHEET # R/H 20-2-85

1) EXPECTED FEATURE

AWOIS Item # 3189 is a C. G. Willis barge, 190 ft. in length, 40 ft. beam, of steel construction. The item is charted as a wreck covered 49 ft. at Lat. 37° 53' 25.2" N, Long. 076° 07' 58.7" W

2) AREA SURVEYED

The AWOIS listing called for a 250 meter radius search area centered at the charted location. Four hundred percent side scan sonar or wire drag with a 3 ft bottom clearance was required for item disproval.

After some initial problems with tuning the side scan sonar, the wreck was located near its charted position. Several more SSS passes were made to pinpoint its location, obtain a DSF trace, and deploy a marker buoy. On DOY 298 divers were sent to obtain a least depth and the detached position.

3) COMPARISON WITH PRIOR SURVEY

Soundings were transferred from prior survey number H-8435 (June-July, 1956, 1:20,000) and the comparison was made with the selected soundings. The hand plotted data obtained on this project was in good agreement with the prior survey in accordance with the Hydrographic Manual, Section 1.1.2 Part B.II.1. Due to the small amount of hydrographic data obtained, no realistic comparison or determination can be made. See also Section 6.b. of the Evaluation Report.

4) COMPARISON WITH CHART

The chart comparison for this survey was accomplished using NOS Chart 12228. During on-line data acquisition no discrepancies were noted. Agreement between the charted and hand plotted data was good.

5) DIVE REPORT

Description of Item

Four dives were made on this item to investigate, search, and determine the least depth. The item was located on the first dive and identified as a large barge. The barge was in one piece with two holds separated by a bulkhead and crosswalk (see side scan record). It sat upright on the bottom. The least depth was determined to be metal uprights welded to the deck to protect the anchor windless.

Search Technique

The barge was found and marked with a buoy deployed from the vessel. Divers descended the float line, and a compass course was

run to the expected position. Once the divers located the barge they repositioned the floatline on the obstruction and attached a search line. The divers then proceeded to swim the perimeter of the barge, keeping the search line taut in order to sweep the hold areas. Depths were taken with a wrist depth gauge to determine the highest point on the barge. Due to the size of the barge, three dives were required to search for the highest point. The visibility on the barge was 4-5 ft horizontally and 5-6 ft vertically. All sweep line snags were investigated and the entire deck area of the barge was visually searched. After sweeping both holds and swimming down the crosswalk, the search was considered complete and the float line was moved to the barge's highest point. The least depth over the barge was determined by using a pneumofathometer on the last dive.

6) RECOMMENDATIONS

Remove the 49 ft. charted depth on "wreck over which depth is known". Chart a "wreck over which depth is known" symbol, as per Section 0.15 in NOS Chart 1, Eighth Edition, November 1985 at Lat: 37° 53' 25.~~47~~60"N, Long: 076° 07' 59.~~50~~29"W, with a least depth of 5~~4~~3 ft. with corrected ~~for predicted~~ tides at MLLW Concur

SEE also SECTION 6.b. of the EVALUATION REPORT.

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3189

FIELD SHEET: R/H 20-2-85

STATE/COUNTY:

SUB-LOCALITY: Smith Point Light

DATE: Oct. 24, 1985 JD: 297

SHIP/LAUNCH: HECK/Launch

DIVEMASTER: John Navaro

DIVERS: John Navaro
John Lowell

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1233	1337		
UNDER WATER	1234	1340		
ON SURFACE	1302	1404		
IN BOAT	1304	1407		
DIVE DURATION	29	27		
MAXIMUM DEPTH	75'	55'		

POSITION (If negitive report, center of search area)
See Dive report, DOY 298
LAT: LONG:

POSITION NO. 0060 VISIBILITY HOR. 5' VERT. 6'
CURRENT: None

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. See dive report DOY 298 PNEUMO DEPTH FT.
2. PNEUMO CORR. FT.
3. FT.

PNEUMO S/N: 784996 TIDE CORR. FT.

TARGET FEATURE: Barge LEAST DEPTH: MLLW

REMARKS

DIVE 1) Locate barge, and start least depth search.

DIVE 2) Sweep after hold of barge.

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3189

FIELD SHEET: R/H 20-2-85

STATE/COUNTY: Virginia

SUB-LOCALITY: Smith Point Light

DATE: Oct. 25, 1985 JD: 298

SHIP/LAUNCH: RUDE/launch

DIVEMASTER: John Navaro

DIVERS: John Navaro
John Lowell

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1000	1035		
UNDER WATER	1001	1035		
ON SURFACE	1034	1040		
IN BOAT	1037	1044		
DIVE DURATION	33	5		
MAXIMUM DEPTH	55'	55'		

POSITION (If negative report, center of search area)

LAT: 37° 53' 25.~~47~~60"N LONG: 076° 07' 59.~~5~~29"W

POSITION NO. 0060 VISIBILITY HOR. 5' VERT. 7'
CURRENT: light

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. 1437 / 53.5
2.
3.

PNEUMO S/N: 784996

TARGET FEATURE: barge

PNEUMO DEPTH	53.5	FT.
PNEUMO CORR.	+1.5	FT.
	55.0	FT.
TIDE CORR.	-1.~~2~~8	FT.
LEAST DEPTH:	53.~~8~~2	MLLW

REMARKS

DIVE 1) Completed search of barge, located ~~higest~~ highest point.

DIVE 2) Used ~~pneumofathometer~~ pneumatic depth gauge to determine least depth.

PNEUMATIC DEPTH GAUGE SYSTEM CHECK
OPR-E609-RU/HE-85

SHEET# R/H 20-2-85 VESNO: 9140 DOY 297

POSITION NUMBERS: 0060

PNEUMATIC GAUGE S/N: 784996

TAPE DEPTH	GAUGE DEPTH DOWN	UP	TAPE ANGLE
0 ft	0.0	0.0	0
5 ft	4.9	5.0	0
10 ft	9.8	9.9	0
15 ft	15.0	14.9	0
20 ft	19.9	19.5	0
25 ft	25.0	24.5	0
30 ft	29.8	29.3	0
35 ft	34.3	34.3	0
40 ft	39.5	39.0	0
45 ft	44.4	43.5	0
50 ft	48.5	48.3	0
55 ft	53.5	53.0	0
60 ft	58.5	58.5	0

AWOIS # 3673 SHEET R/H 20-3-85

1) EXPECTED FEATURE

AWOIS Item # 3673 is a 197 ft. LSM type vessel, with a previous diver report describing it as a steel barge with an open well, on an even keel. It is charted as a wreck swept clear at 44 ft. in position Lat: 37° 55.2' N, Long: 076° 11.2' W.

2) AREA SURVEYED

The AWOIS listing called for a 250 meter radius search area centered at the charted position. Four hundred percent side scan sonar or wire drag with a 3 ft bottom clearance was required for item disproval.

The side scan tune was acceptable with the target found near its charted position. Several more side scan sonar passes were made to pinpoint the wreck's location, obtain a DSF trace, and deploy a marker buoy. The final position on the least depth was taken on DOY 330 due to the ship shifting to a higher priority work area.

3) COMPARISON WITH PRIOR SURVEY

Soundings were transferred from prior survey number H-8283 (Oct. 1955 - June 1956, 1:20,000) and the comparison was made with selected soundings. All of the hand plotted data obtained on this project was in good agreement with the prior survey in accordance with the Hydrographic Manual, Section 1.1.2 Part B.II.1. Due to the small amount of hydrographic data obtained, no realistic comparison or determination can be made. SEE ALSO SECTION 6.b. of the EVALUATION REPORT.

4) COMPARISON WITH CHART

The chart comparison for this survey was accomplished using NOS Charts 12233 and 12238. During on-line data acquisition no discrepancies were noted. The quality of agreement between the charted and hand plotted data was good.

5) DIVE REPORT

Description of Item

Three dives were made on this item to locate, investigate, and determine the least depth. The item was located on the first dive. It consisted of one large barge, upright on the bottom, with no detached wreckage (see side scan record). The highest point was found to be a set of bollards, located mid-ship on the starboard side.

Search Technique

The barge was initially marked with a buoy deployed from the vessel. Divers descended the float line and a compass course was run to the expected position. Once positioned on the barge the divers relocated the floatline to a cleat. This dive was conducted on DOY 303, but due to problems with the search line, no least depth search was conducted. The ship returned to this item on DOY 330 and the divers began a least depth search from the existing buoy. The divers proceeded to swim the perimeter of the barge, keeping the search line taut in order to sweep the hold areas. Depths were taken with a wrist depth gauge to determine the highest point on the barge. The divers swam over and visually searched the entire deck area, and line swept over the entire hold area. All snags were investigated and the highest point was determined to be a set of bollards located mid-ship on the starboard side. On the last dive the pneumofathometer was used to determine the least depth. Visibility was 3-4 feet on all dives, with no suspended silt to obstruct the divers vision.

6) RECOMMENDATIONS

Remove the 44 ft. cleared depth over the wreck currently charted. Chart a wreck over which depth is known symbol, as per Section 0.15 in NOS Chart 1, Eighth Edition, November 1985 at Lat: 37° 55' 12.~~70~~78N, Long: 076° 11' 11.~~9~~4" W, with a least depth of 49 ft. corrected for predicted tides. 7

CONCUR

SEE also SECTION 6.b. of the EVALUATION REPORT.

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3673

FIELD SHEET: R/H 20-3-85

STATE/COUNTY: Virginia

SUB-LOCALITY: Smith Point Light

DATE: Oct. 10, 1985 JD: 303

SHIP/LAUNCH: RUDE/launch

DIVEMASTER: John Navaro

DIVERS: John Navaro
John Lowell

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	0940			
UNDER WATER	0944			
ON SURFACE	1022			
IN BOAT	1029			
DIVE DURATION	38			
MAXIMUM DEPTH	70			

POSITION (If negative report, center of search area)

LAT: 37° 55' 11.67" LONG: 076° 11' 12.70"

POSITION NO. none VISIBILITY HOR. 3' VERT. 5'
CURRENT 0.25 kts

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. No least depth taken
2.
3.

PNEUMO DEPTH FT.
PNEUMO CORR. FT.
FT.

PNEUMO S/N: 784996

TIDE CORR. FT.

TARGET FEATURE: barge

LEAST DEPTH: MLLW

REMARKS

DIVE 1) Tied off buoy to wreck, but the divers were unable to conduct least depth search due to search line tangle.

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3673

FIELD SHEET: R/H 20-3-85

STATE/COUNTY: Virginia

SUB-LOCALITY: Smith Point Light

DATE: Nov. 26, 1986 JD: 330

SHIP/LAUNCH: RUDE/launch

DIVEMASTER: Tim Clancy

DIVERS: Tim Clancy
John Lowell

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1423	1450		
UNDER WATER	1423	1450		
ON SURFACE	1449	1458		
IN BOAT		1500		
DIVE DURATION	36	8		
MAXIMUM DEPTH	55'	50'		

POSITION (If negative report, center of search area)

LAT: 37° 55' 12.~~70~~48" LONG: 076° 11' 11.~~0~~74"

POSITION NO. 3501 VISIBILITY HOR. 3' VERT. 4"
CURRENT: light

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. 1453 / 48.0
2. 1454 / 48.0
3. 1455 / 48.0

PNEUMO DEPTH	48.0	FT.
PNEUMO CORR.	+1.9	FT.
	49.9	FT.
TIDE CORR.	-1.0	FT.
LEAST DEPTH:	48.9 Ft. MLLW	

PNEUMO S/N: 784996

TARGET FEATURE: barge

REMARKS

DIVE 1) Completed least depth search.

DIVE 2) Used ~~pneumofathometer~~ to obtain least depth.
pneumatic depth gauge

PNEUMATIC DEPTH GAUGE SYSTEM CHECK
OPR-E609-RU/HE-85

SHEET# R/H 20-3-85 VESNO: 9040 DOY: 330

POSITION NUMBERS: 3501

PNEUMATIC GAUGE S/N: 784996

TAPE DEPTH	GAUGE DEPTH DOWN	UP	TAPE ANGLE
0 ft			
5 ft	NOT MARKED		
10 ft	10.0	10.0	0
15 ft	14.5	15.1	0
20 ft	19.5	19.9	0
25 ft	24.2	24.9	0
30 ft	29.1	29.0	0
35 ft	34.3	34.5	0
40 ft	39.1	39.1	0
45 ft	44.0	43.8	0
50 ft	48.9	48.9	0
55 ft	53.9	54.0	0
60 ft	58.9	58.5	0

AWOIS # 3424 SHEET # R/H 20-4-85

1) EXPECTED FEATURE

~~AWOIS item # 3424 is listed as a submerged object dangerous to navigation located at Lat: 38° 17' 00"N Long: 076° 14' 50"W.~~ ~~Additional~~ information in the listing gave the expected position at Lat: 38° 05' 09"N Long: 076° 14' 34"W.

Position not shown on listing dated 4/21/87

2) AREA SURVEYED

The AWOIS listing called for a 0.5 nm radius search area centered at the charted position. Four hundred percent side scan sonar coverage or a bottom drag was required for item disproval.

The item was located near its charted position. Several more SSS passes were made to pinpoint its location, obtain a DSF trace, and deploy a marker buoy. On DOY 343, divers were sent to obtain a least depth. The detached position was determined by passing over the item using the DSF 6000N echo sounder to mark the position.

The proximity of AWOIS # 3424 with AWOIS # 3425 caused concern that there might be other wreckage located nearby. After both items had been thoroughly investigated, an attempt to cover the search area with 100% side scan sonar coverage was made. The entire search area for AWOIS # 3424 was completed, and approximately 80% of the search area for AWOIS #3425 was completed. Some debris was discovered close to the AWOIS item 3424, but this was determined to be insignificant. No other targets were noted during on-line or off-line processing.

3. COMPARISON WITH PRIOR SURVEYS

Soundings were transferred from prior survey number H-8283 (June-July, 1956, 1:20,000) and comparison was made with selected soundings. None of the hand plotted data obtained on this investigation was in agreement with the prior survey. In an attempt to determine why such a discrepancy existed, Mr. James R. Hubbard of the Sea and Lake Levels Branch in Rockville MD was contacted. He supplied us with the high and low water hourly heights for tide station 857-7330, Solomons Island MD, and tide station 863-5750, Lewisetta, VA for the period of December 4 - December 12, 1985. He also included a plot of observed versus predicted heights for both tide stations.

Although we could not develop actual tide correctors from the data supplied, it became apparent that the actual tide at both stations was much higher than normal. It is believed that once smooth tide correctors have been applied, the agreement will be within acceptable limits. Please see appendix II for the above mentioned data.

4. COMPARISON WITH THE CHART

The chart comparison for this survey was accomplished using NOS Chart 12233. During on-line data acquisition no discrepancies were noted. Agreement between the hand plotted and charted data was poor. However, for the reasons previously stated in the Comparison with Prior Surveys section, this data should ultimately be considered acceptable.

5. DIVE REPORT

a)Description of Item

Three dives were made on this item due to the poor water visibility. The Item was located on the 1st dive and was identified as a metallic vessel approximately 10 meters in length. The vessel was badly decomposed and buried in sediment. The highest point of the vessel appeared to be the bow, although positive identification was impossible due to the state of decomposition and burial.

b) Search Technique

The divers descended to the bottom by following the marker buoy's anchor line. Visibility in the water near the bottom was 2 - 3 Feet horizontally. The item was not found upon reaching the bottom and a standard circle search was initiated. A line was attached to the marker buoy anchor and a circle search pattern was conducted with the divers starting at approximately 3 meters from the anchor and adding 3 - 4 meters to the search radius per circle. The wreckage was discovered by hanging the search line on a bolt protruding from the wreckage. Once the wreckage was located, the marker buoy's anchor was moved to the wreckage and another circle search was performed. The second search resulted in locating the highest point of the wreck. The high point was verified by placing the buoy anchor on the portion of the vessel with the highest apparent relief and conducting a 30 meter circle search around this point using a seawater depth gauge to control the depth of the search. During this search no hangs were experienced and it was concluded that the highest point of the wreck had been located. Due to it's advanced state of decomposition and burial, it was not possible to follow the perimeter of the wreck . The least depth over the wreckage was determined utilizing a pneumofathometer.

6. RECOMMENDATIONS

Remove the ~~37~~ 9 ft. cleared depth over wreck that is presently charted. Chart a wreck over which depth is known symbol, as per section 0.15 in NOS Chart No. 1, Eighth Edition, November 1984 at Lat: 38° 05' 08.~~69~~"N Long: 076° 14' 33.~~94~~"W with a least depth of 40.2 feet, ~~corrected for predicted~~ with 25 50 tides.

Concur

SEE also SECTION 6.a. and 6.b. of the EVALUATION REPORT.

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3424

FIELD SHEET: R/H 20-4-85

STATE/COUNTY: Maryland

SUB-LOCALITY: Point No Point

DATE: Dec. 9, 1985 JD: 343

SHIP/LAUNCH: HECK/launch

DIVEMASTER: Tim Clancy

DIVERS: Tim Clancy
Joe Talbott

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1328	1428		
UNDER WATER	1334	1429	1445	
ON SURFACE	1351	1444	1500	
IN BOAT	1357		1505	
DIVE DURATION	15	15	15	
MAXIMUM DEPTH	50'	50'	50'	

POSITION (If negative report, center of search area)

LAT: 38° 05' 08.~~69~~ 25"N LONG: 076° 14' 33.~~94~~ 50"W

POSITION NO. 4525 VISIBILITY HOR. 3' VERT. 7'
CURRENT: 0.25 kts

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. 1852 / 40.0
2. 1853 / 40.2
3. 1854 / 40.2

PNEUMO DEPTH 40.2 FT.
PNEUMO CORR. +1.0 FT.
41.2 FT.

PNEUMO S/N: 784996

TIDE CORR. -1.~~0~~ 4 FT.

TARGET FEATURE: Wreck

LEAST DEPTH: ~~40.2~~ 39.8 Ft. MLLW

REMARKS

DIVE 1) Small target on 3425. No least depth taken. Position
Lat: 38° 05' 24.~~58~~ 48" Long: 076° 15' 04.~~92~~ 5.18" Pos# 4562

DIVE 2) Least depth search for item 3424.

DIVE 3) Used ~~pneumofathometer~~ pneumatic depth gauge to determine least depth.

PNEUMATIC DEPTH GAUGE SYSTEM CHECK
OPR-E609-RU/HE-85

SHEET# R/H 20-4-85 VESNO: 9140 DOY: 343

POSITION NUMBERS: 4525

PNEUMATIC GAUGE S/N: 784996

TAPE DEPTH	GAUGE DEPTH DOWN	UP	TAPE ANGLE
0 ft	0.0	0.0	0
5 ft	5.1	5.0	0
10 ft	9.9	9.9	0
15 ft	15.2	15.1	0
20 ft	19.8	19.5	0
25 ft	24.8	24.8	0
30 ft	29.2	29.2	0
35 ft	34.2	34.5	0
40 ft	39.1	39.0	0
45 ft	44.0	44.0	0
50 ft	HIT BOTTOM		
55 ft			
60 ft			

AWOIS # 3425 SHEET # R/H 20-4-85

1. EXPECTED FEATURE

Position not shown on listing, dated, 4/21/87.

~~AWOIS item 3425 is listed as a submerged object, dangerous to navigation, located at Lat: 38° 17' 00"N Long: 076° 17' 25"W, PA, from HM 41 of 1946.~~ ~~Additional~~ information in the AWOIS listing gave two positions where wire drag hangs had been reported. These positions are Lat: 38° 05' 23"N Long: 076° 15' 06"W, and Lat: 38° 05' 21"N Long: 076° 15' 08"W from FE-10ZWD (1960)

2. AREA SURVEYED

The AWOIS listing called for a 0.5 nm radius search area, centered at Lat: 38° 05' 23"N Long: 076° 15' 06"W, the location of the wire drag hang. Four hundred percent side scan sonar coverage or a wire drag investigation was required for disproval.

Both targets were located close to there charted position. Marker buoys were deployed for subsequent diver investigation (see AWOIS 3424 for further details).

On DOY 344 the NOAA Ship HECK collected SSS data for the purpose of assisting divers in their search and identification of the AWOIS item # 3425. This was accomplished by running lines around a marker buoy. No position data was recorded. The sonargrams are included in the data for this report, but the targets have not been entered into the target abstracts.

3. COMPARISON WITH PRIOR SURVEYS

Soundings were transferred from prior survey number H-8283 (1955-56) (~~June-July 1956;~~ 1:20,000) and the comparison was made with the selected soundings. The hand plotted data obtained on this project was not in agreement with the prior survey. In an attempt to determine why there was such a discrepancy, Mr. James R. Hubbard of the Sea and Lake Levels Branch in Rockville,MD was contacted. He supplied us with the high and low water hourly heights for tide station 857-7330, Solomons Island,MD, and tide station 863-5750, Lewisetta, VA for the period of December 4 - December 12, 1985. He also included a plot of observed versus predicted heights for both tide stations.

Although we could not develop actual tide correctors from the data supplied, it became apparent that the actual tide at the stations was much higher than normal. We believe that once smooth tide correctors have been applied the agreement will be of acceptable quality. Please see appendix II for the above mentioned data.

4. COMPARISON WITH THE CHART

The chart comparison for this survey was accomplished using NOS Chart 12233. During on-line data acquisition no discrepancies were noted. Agreement between the hand plotted data and the charted data

was poor. However for the reasons stated in the section on comparison with survey, this data should ultimately be considered acceptable.

5. DIVE REPORT

a)Description of Item

This AWOIS item consisted of two separate targets. The first of which was investigated on DOY 343 and the second on DOY 344. The first target was identified as a badly decomposed wooden wreck, on which no least depth was taken. The second target was identified as a small badly decomposed wooden vessel with a prominent bow section. This vessel was approximately 5 meters in length, covered by marine growth and buried in sediment. Positive identification of the vessel was not possible due to the state of decomposition and burial.

Search Technique

The first target was marked with a buoy deployed from the vessel. The divers descended to the bottom following the marker buoy anchor line, and commenced a 20m circle search. Little wreckage was encountered and due to the state of decomposition, no least depth was taken.

In a manner similar to the first target, divers descended to the second item. Visibility in the water column near the bottom was on the order of 2 - 3 Feet horizontaly. The item was not found upon reaching the bottom and a standard circle search pattern was initiated. A line was attached to the marker buoy anchor and a circle search pattern was conducted with the divers starting at approximately 3 meters from the anchor and adding 3 - 4 meters to the search radius per circle. The wreckage was discovered by hanging the search line on a portion of the vessel's hull framing, which projected approximately 0.5 meter above the bottom. Once the wreckage was located, the marker buoy anchor was moved to the site and another circle search was performed. The second search resulted in locating the highest point on the wreck. The highest point was verified by attaching the buoy anchor line to the bow section and conducting a 30 meter circle search around this point using a seawater depth gage to control the depth of the search. During this search no hangs were experienced and it was concluded that the highest point of the wreck had been located. The divers conducted a hand-over-hand investigation of the wreckage perimeter but this proved to be inconclusive due to the wreck's advanced state of decomposition and burial. The least depth over the wreckage was measured by using a pneumofathometer on the last dive.

6. RECOMMENDATIONS

Remove the 37 ft. cleared depth over the presently charted ~~wreck~~ obstr. ~~Dngst~~ CONCUR. Chart a wreck over which depth is known symbol, as per section 0.15 in NOS Chart No. 1, Eighth Edition, November 1984 at Lat: 38° 05' 20.27/8"N Long: 076° 15' 02.54"W with a least depth of ~~40.7~~ 42 feet, corrected ~~for predicted~~ tides. Due to the close proximity of the two targets, it is recommended that the small target not be charted. SEE also SECTION 6.a. and 6.b. of the EVALUATION REPORT.

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3425 FIELD SHEET: R/H 20-4-85

STATE/COUNTY: Maryland SUB-LOCALITY: Point No Point

DATE: Dec. 10, 1985 JD: 344 SHIP/LAUNCH: HECK/launch

DIVEMASTER: Tim Clancy DIVERS: Tim Clancy
Joe Talbott

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	0948	1018		
UNDER WATER	0949	1019	1029	
ON SURFACE	1007	1025	1042	
IN BOAT	1009		1045	
DIVE DURATION	21	6	13	
MAXIMUM DEPTH	50'	50'	50'	

POSITION (If negative report, center of search area)

LAT: 38° 05' 20.27" LONG: 076° 15' 02.54"

POSITION NO. 4557 VISIBILITY HOR. 3' VERT. 5'
CURRENT: 0.25 kts

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. 1433 / 40.2
2. 1434 / 40.2
3. 1435 / 40.2

PNEUMO DEPTH	40.2 FT.
PNEUMO CORR.	+1.0 FT.
	41.2 FT.
TIDE CORR.	-0.5 FT.
LEAST DEPTH:	40.7 Ft. MLLW

PNEUMO S/N: 784996

TARGET FEATURE: Wreck

REMARKS

SEE also SECTION 6a. + 6.b. of the EVALUATION REPORT.

DIVE 1) Locate and conduct least depth search on item 3425.

DIVE 2) Aborted least depth determination with ~~pneumofathometer~~. pneumatic depth gauge

DIVE 3) Used ~~pneumofathometer~~ pneumatic depth gauge to determine least depth.

PNEUMATIC DEPTH GAUGE SYSTEM CHECK
OPR-E609-RU/HE-85

SHEET# R/H 20-4-85 VESNO: 9140 DOY: 344

POSITION NUMBERS: 4557

PNEUMATIC GAUGE S/N: 784996

TAPE DEPTH	GAUGE DEPTH DOWN	UP	TAPE ANGLE
0 ft	0.2	0.0	0
5 ft	4.8	5.0	0
10 ft	10.0	10.0	0
15 ft	14.9	14.9	0
20 ft	19.7	19.8	0
25 ft	24.5	24.6	0
30 ft	29.2	29.4	0
35 ft	34.0	34.2	0
40 ft	39.0	39.0	0
42 ft	41.0	41.0	0
50 ft	HIT BOTTOM		
55 ft			
60 ft			

AWOIS # 3677 SHEET # R/H 20-6-85

1) EXPECTED FEATURE

AWOIS Item 3677 is a 30 ft. work boat, reported sunk in Chesapeake Channel in 60 ft. of water. The item is charted at Lat. 37° 18' 35.5" N, Long. 076° 18' 47.2" W

2) AREA SURVEYED

The AWOIS listing required a 1000 meter radius search area centered at the charted location. Four hundred percent side scan sonar search or wire sweep investigation was required for item disproval.

The investigation of this wreck was given highest priority as the result of a United States Coast Guard (USCG) request. The USCG was investigating the possibility of discontinuing the obstruction buoy marking the wreck site.

Although the lines beginning at positions 6218,6231 and 6275 plotted slightly inside the perimeter of the search area, the integrity of the SSS coverage should not be degraded. In all three instances, the survey vessel was on line and recording SSS data prior to taking the positions.

The SSS tune was good throughout the investigation. Any minor problems were immediately corrected.

The only questionable SSS trace obtained was in the vicinity of the "PR" buoy. There was no wreckage on the sonargram but there was some indication of change in bottom composition. In addition, a question remained as to why scour around the anchor and the anchor itself were not observed on the sonargram. These questions were answered on DOY 325, when divers descended the anchor chain to investigate these occurrences (see Dive Report).

3) COMPARISON WITH PRIOR SURVEY

Soundings were transferred from prior survey number H-7094 (Nov. 1945-Oct. 1946, 1:20,000) and the comparison was made with the selected soundings. The hand plotted data obtained on this project was in good agreement with the prior survey in accordance with the Hydrographic Manual, Section 1.1.2 Part B.II.1. Any slight discrepancy should be corrected with the application of smooth tides.

4) COMPARISON WITH CHART

The chart comparison for this survey was accomplished using NOS Chart 12264. During on-line data acquisition no discrepancies were noted. In general, agreement between the charted data and the hand plotted data was good.

5) DIVE REPORT

Description of Item

One dive was made on this item to investigate the bottom composition and search for the "PR" buoy anchor. No obstruction was found.

Search Technique

The divers descended the "PR" buoy's anchor chain to the bottom. Once on the bottom, the chain was observed to continue down into the bottom mud. The divers attempted to follow the chain by reaching into the mud, but at arms length the chain continued to descend. Unable to follow the chain to the anchor, the divers attached the search line to the chain and conducted a 30 m circle search. No wreckage, obstructions or buoy anchor were found. During the circle search, the divers did observe several scours along the bottom, and some change in bottom composition. The two types of bottom compositions observed were mud and silt. The mud bottom was consolidated to a much higher degree than the light silt bottom. The visibility was 3-4 ft horizontaly on the mud bottom and reduced to 1-2 ft over the silt bottom.

The following conclusions resulted from the dive:

1) The buoy anchor was completely submerged in the bottom mud. thus obscured from SSS detection.

2) There was a change in the bottom composition that accounts for the SSS trace obtained around the "PR" buoy.

6) RECOMMENDATIONS

The AWOIS item 3677 is considered disproved by 400% side scan sonar search investigation in a 1000 meter radius. No significant side scan sonar contacts were found in the area.

The dangerous wreck symbol at Lat. 38° 18' 35.5"N, Long. 076° 18' 47.2"W on charts 12264 and 12230 should be removed. It is further recommended that the Chesapeake Channel Obstruction Lighted Buoy "PR" be discontinued. CONCUR

with the NOTATION "PA"

N/C 12225 OFF CHART

DIVER'S ITEM INVESTIGATION REPORT
OPR-E609-RU/HE-85

ITEM: 3677 FIELD SHEET: R/H 20-6-85

STATE/COUNTY: Maryland SUB-LOCALITY: Point No Point

DATE: Nov. 21, 1985 JD: 325 SHIP/LAUNCH: RUDE/launch

DIVEMASTER: Tim Clancy DIVERS: Tim Clancy
Joe Talbott

TIME (local)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1005			
UNDER WATER	1007			
ON SURFACE	1030			
IN BOAT	1031			
DIVE DURATION	23			
MAXIMUM DEPTH	60'			

POSITION (If negative report, center of search area)

LAT: 38° 18' 38.69" LONG: 076° 18' 41.40"

POSITION NO. 6313 VISIBILITY HOR. 4' VERT. 6'
CURRENT: slack

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH

1. No least depth taken PNEUMO DEPTH FT.
2. PNEUMO CORR. FT.
3. FT.

PNEUMO S/N: 784996 TIDE CORR. FT.

TARGET FEATURE: mud LEAST DEPTH: MLLW

REMARKS

DIVE 1) Dive to investigate buoy anchor and bottom composition. No debris observed, circle search.

APPROVAL SHEET

OPR-E609-RU/HE-85

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 field sheets have been closely reviewed and are considered complete and adequate for charting.

Robert K Norris, LCDR, NOAA
Commanding Officer
NOAA Ships RUDE & HECK

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

DATE: March 5, 1986

Marine Center: Atlantic

OPR: E609

Hydrographic Sheet: R/H 20-1-85 to R/H 20-4-85, R/H 20-6-85: FE-275 SS

Locality: Chesapeake Bay

Time Period: October 17 - December 11, 1985

Tide Station Used: 857 7330 Solomons, MD
863 5750 Lewisetta, VA

Plane of Reference (Mean Lower Low Water): 857 7730 = 3.47 ft.
863 5750 = 4.51 ft.

Height of Mean High Water Above Plane of Reference: 857 7730 = 1.4 ft.
863 5750 = 1.4 ft.

Remarks: Recommended Zoning:

1. For Survey R/H 20-01-85 AWOIS # 3188
   R/H 20-02-85 AWOIS # 3189
   R/H 20-03-85 AWOIS # 3673
   Zone on Lewisetta, VA and apply -20 minute time correction and x0.95 range ratio to all heights.
2. For Survey R/H 20-04-85 AWOIS # 3424 + 3425 zone on Lewisetta, VA, and apply +10 minute time correction and x1.03 range ratio to all heights.
3. For Survey R/H 20-06-85 AWOIS #3677 zone on Solomons, MD and apply -10 minute time correction and x1.10 range ratio to all heights.

for Brian K. Cain
Chief, Tidal Datum Quality Assurance Section

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-275

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 RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
CEDAR POINT (title)										1
CHESAPEAKE BAY (title)										2
MARYLAND (title)										3
SMITH POINT (title)										4
VIRGINIA (title)										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
					Approved:					18
										19
					Charles E. Harrington					20
					Chief Geographer					21
					JUL 8 1986					22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.
MOA 23-78-86

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY *(Check)*:

☐ ORDINARY MAIL ☐ AIR MAIL
☑ REGISTERED MAIL ☐ EXPRESS
☐ GBL *(Give number)* _____

TO:

CHIEF, DATA CONTROL SECTION
HYDROGRAPHIC SURVEYS BRANCH, N/CG243
NATIONAL OCEAN SERVICE, NOAA
ROCKVILLE, MD 20852

DATE FORWARDED
23 JULY 86

NUMBER OF PACKAGES
1 ENVELOPE

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-27588 R/H 20-1-85

1 ORIGINAL DESCRIPTIVE REPORT
(PLEASE FORWARD TO N/CG 241)

ADDITIONAL DATA TO FOLLOW

FROM: *(Signature)* Norris A. Wike
NORRIS A. WIKE

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

ATLANTIC MARINE CENTER
HYDROGRAPHIC SURVEYS BRANCH (N/MOA23)
439 W. YORK STREET
NORFOLK, VIRGINIA 23510

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED. ☆U.S.GPO:1980-0-665-115/1005

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: FE-275 SS

Number of positions	8
Number of soundings	8
Number of control stations	9

	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	33	5/21/1986
Verification of Field Data		
Quality Control Checks		
Evaluation and Analysis	121	7/11/1986
Final Inspection	20	6/26/1986 ?
TOTAL TIME	174	
Marine Center Approval		~~6/30/1986~~ 7/14/86 (See Insp. Rept)

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: FE-275 SS FIELD NO.: R/H 20-1-85

Virginia--Maryland, Chesapeake Bay, Smith Point to Cedar Point

SURVEYED: 17 October through 11 December 1985

SCALE: 1:20,000 PROJECT NO.: OPR-E609
RU/HE-85

SOUNDINGS: RAYTHEON DSF-6000N Fathometer,
Klein Side Scan Sonar,
Pneumatic Depth Gauge

CONTROL: Del Norte (Range-Range)

Chief of Party.....R. K. Norris

Surveyed by.....J. C. Talbott
.....J. E. Lowell

1. INTRODUCTION

a. This is a side scan sonar survey. A Raytheon DSF-6000N fathometer was operated concurrently with the side scan sonar; however, the soundings are of reconnaissance value only because necessary sounding correctors were not determined until office processing. Only reconnaissance hydrography was required. No wire drag was accomplished during this survey.

b. Three smooth sheets were generated during office processing and are attached to this report. The three sheets show only the items found by this survey. The final field sheets adequately display the lines run and the area covered by this survey.

c. Notes in Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F., G., and S. of the Descriptive Report.

b. There is no shoreline within the limits of this survey.

3. HYDROGRAPHY

The hydrography (soundings) collected on this survey during side scan operations is considered of reconnaissance

value only and was not verified. This does not pertain to the depths shown on the smooth plots included in this report. Least depths were not determined on all obstructions found by the hydrographer. In several cases as shown on the smooth plots the depth shown on obstructions is considered reported. These depths were determined by side scan analysis computations, and a depth on a wreck located by the field in Latitude 37°52'55.16"N, Longitude 76°08'25.62"W had velocities added to determine a more accurate depth. See also section 7.a.2) of the EVALUATION REPORT.

4. CONDITION OF SURVEY

The final field sheets, survey records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL with the following exceptions:

a. The field unit due to inexperienced, new personnel did not submit accurate field forms. The electronic corrector abstract was incorrect. Improper baseline calibration procedures were used causing erroneous correctors to be used during the survey. The proper baseline calibration procedures are discussed in AMC OPORDER #79, 25 January 1983. A closing baseline calibration was not done for code 78 which was used for 80% of the survey. During office processing it was determined that the daily correctors should be used since correctors did agree with the opening calibration taken on code 78. Because this is a side scan sonar survey the problem discussed above did not significantly degrade the overall quality of the survey.

b. Abstract of Positions forms submitted by the field unit were not filled out correctly. Each Abstract of Positions form listed only stations numbers 001 and 002 for vessel positioning. During office processing it was discovered that stations numbers 010 and 014 were also used for vessel positioning. No evidence was shown on the Abstract of Positions forms to support the use of the second pair of control stations. As a direct result additional time was required to process the survey.

c. The hydrographer failed to appropriately cross reference the field data with the Descriptive Report. Information annotations in the field records contradict statements written in the Descriptive Report. Notes between sounding volumes and field records do not agree. Field records and Descriptive Report should be synonymous and any differences explained.

d. The hydrographer did not submit a side-scan sonar contact overlay as required by section 7.11.4.2. of the Project Instructions. As a result additional time was required to process the survey.

e. Only eight (8) confidence checks were taken during the operation of this survey. The Provisional Side Scan Sonar Manual, dated 6 April 1983 provides guidance for confidence checks and also states, "At least two checks shall be made daily."

f. The field unit failed to determine sounding correctors for the vessel's echo sounder. This does not meet requirements as stated in section 1.5.4. and 4.9.1. of the HYDROGRAPHIC MANUAL. Correctors had to be produced during office processing. The velocity correctors were determined by using data from survey H-10193 (1985). The instrument error used in determining depth, although not determined was not considered significant. As a result additional time was required to process the survey.

* H-10193 in vicinity of Cedar Point.

5. JUNCTIONS

There are no contemporary junctional surveys, and there are no junctional requirements in the Project Instructions.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

FE-267 (1984) 1:20,000
H-7094 (1946) 1:20,000
H-8280 (1955) 1:20,000
H-8283 (1955-56) 1:20,000
H-8435 (1956) 1:20,000

Prior survey FE-267 (1984) covers the search area of Automated Wreck and Obstruction Information System (AWOIS) ITEMS #3424 and #3425 of the present survey. The charted dangerous submerged obstructions were found by the prior survey and present survey.

AWOIS ITEM #3424 a charted dangerous submerged obstruction with a depth of 39 feet cleared by wire drag, in Latitude 38°05'09"N, Longitude 76°14'34"W, originates with Notice to Mariners 41 of 1946 (NM 41/46). Prior survey FE-267 (1984) located the obstruction in Latitude 38°05'08.60"N, Longitude 76°14'33.14"W with an echo sounder least depth of forty-one (41) feet. The present survey located the obstruction in Latitude 38°05'08.25"N, Longitude 76°14'33.50"W with an pneumatic depth gauge least depth of forty (40) feet in general depths of 42 to 45 feet. The present survey position is 14 meters southwest of the position on FE-267 (1984). A dive on the obstruction found this item to be a wreck. It is recommended the charted dangerous submerged obstruction with a depth of 39 feet cleared by wire drag (AWOIS ITEM #3424) be deleted and a wreck with a known depth of 40 feet and a danger curve be charted as located on the present survey. Prior survey

Concur

FE-267 (1984) relative to this item is considered to be superseded by the present survey.

An uncharted obstruction was located during office processing in Latitude 38°05'12.25"N, Longitude 76°14'37.00"W in the search area of AWOIS ITEM #3424. Through side scan analysis computations the obstruction was determined to be 43 feet in depths of 45 feet found on prior survey H-8280 (1955-56). It is recommended that a dangerous submerged obstruction with a depth of (43 ft rep) be charted as located by present survey. Concur

AWOIS ITEM #3425, a charted dangerous submerged obstruction with a depth of 37 feet cleared by wire drag in Latitude 38°05'23"N, Longitude 76°15'06"W, originates with Notice to Mariners 41 of 1946 (NM 41/46). The item consisted of two (2) distinct obstructions and is plotted as a single obstruction on the chart. The prior survey FE-267 (1984) locations are Latitude 38°05'19.92"N, Longitude 76°15'01.72"W with an echo sounder least depth of forty (40) feet and Latitude 38°05'24.00"N, Longitude 76°15'03.76"W with a echo sounder least depth of forty-three (43) feet. The first obstruction located by the present survey is in Latitude 38°05'20.28"N, Longitude 76°15'02.01"W with a pneumatic depth gauge least depth of forty-one (41) feet. A dive on the obstruction found it to be a wreck. The second obstruction is in Latitude 38°05'24.48"N, Longitude 76°15'05.18"W. The second item is an apparent obstruction as determined by office processing. The item was not investigated by the field unit. Through side scan analysis computations the obstruction was determined to be forty-two (42) feet in prior survey FE-267 (1984) depths of forty-four (44) feet. The present survey positions are 13 and 37 meters, respectively, west of the positions on survey FE-267 (1984). It is recommended that the charted dangerous submerged obstruction with a depth of 37 feet cleared by wire drag (AWOIS ITEM #3425) be deleted. Concur It is also recommended that a wreck with a known depth of 41 feet and a danger curve, and a dangerous submerged obstruction with a depth of (42 feet rep) be charted as located by present survey. Concur

Prior survey H-7094 (1945-1946) has depths of 50 to 65 feet common to the search area of AWOIS ITEM #3677. The prior survey H-7094 (~~1946~~) depths are one (1) to three (3) feet shoaler than present survey reconnaissance hydrography depths of 51 to 68 feet. There were no distinctive features in the area of the side scan records common to the prior survey.

Prior survey H-8280 (1955-~~56~~) has depths of 64 to 71 feet common to the search area of AWOIS ITEM #3188. The prior survey H-8280 (1955-~~56~~) depths are one (1) to two (2)

feet shoaler than present survey reconnaissance hydrography depths of 65 to 73 feet.

Prior survey H-8283 (1955-56) has depths of 40 to 49 feet common to the search area of AWOIS ITEM #3424 and 3425. The prior survey depths are two (2) to four (4) feet shoaler than present survey reconnaissance hydrography depths of 42 to 52 feet. Prior survey H-8283 (1955-56) has depths of 58 to 610 feet common to the area where AWOIS ITEM #3673 was located. The prior survey depths are one (1) to two (2) feet shoaler than present survey reconnaissance hydrography depths of 57 to 65 feet.

Prior survey H-8435 (1956) has depths of 50 to 66 feet common to the search area of AWOIS ITEM #3189. The prior survey depths are one (1) to three (3) feet shoaler than present survey reconnaissance hydrography depths of 52 to 67 feet.

Due to the erratic trace of the DSF-6000N echo sounder echograms in some areas, the comparison of the previously discussed prior surveys depths and the present survey reconnaissance hydrography depths may not have adequate validity.

b. Wire Drag

FE-102WD (1950) 1:40,000 (formerly FE No. 11, 1951)
FE-220WD (1979) 1:20,000 (unprocessed)
FE-222WD (1978) 1:20,000 (unprocessed)

Prior survey FE-102WD (1950) covers the search area of AWOIS ITEMS #3424 and #3425. The charted submerged obstructions were found by the prior and present surveys.

AWOIS ITEM #3424, is a charted dangerous submerged obstruction in Latitude 38°05'09"N, Longitude 76°14"34"W. The prior survey, FE-102WD (1950), found the obstruction in Latitude 38°05'09"N, Longitude 76°14'34"W with a cleared effective depth of thirty-nine (39) feet and a hang depth of forty (40) feet. A thirty-nine (39) foot echo sounding was obtained by the prior survey. The present survey found the charted obstruction in Latitude 38°05'08.25"N, Longitude 76°14'33.50"W. A dive on this obstruction found the item to be a wreck. See section 6.a., of this report for recommendation on this item.

AWOIS ITEM #3425 is a charted dangerous submerged obstruction with a depth of 37 feet cleared by wire drag in Latitude 38°05'23"N, Longitude 76°15"06"W and was found during the prior survey FE-102WD (1950) by two (2) hangs. The first in Latitude 38°05'23"N, Longitude 76°15'08"W, hung at thirty-~~nine~~ eight (38) feet with an echo sounding of 38 feet, and the second in Latitude 38°05'23"N, Longitude 76°15'06"W,

hung at 38 to 40.5 feet with an echo sounding depth of 38 feet. The item which is two (2) obstructions was charted as a single obstruction with a cleared depth of 37 feet. The present survey locations are in Latitude 38°05"20.28"N, Longitude 76°15'02.01"W and in Latitude 38°05'24.48"N, Longitude 76°15'05.18"W. The present survey positions are 168 and 49 meters, respectively, east of the positions on FE-102WD (1951). A dive investigation on the first obstruction found the item to be a wreck. The second item was not investigated. During office processing the second item was determined to be an apparent obstruction. See section 6.a., of this report for recommendations on these items.

Prior survey FE-220WD (1979) covers the area of AWOIS ITEM #3189. AWOIS ITEM #3189, a charted wreck with a least depth of 49 feet and a danger curve, identified as "C. G. WILLIS BARGE",in Latitude 37°53'25.20"N, Longitude 76°07'58.70"W, originates with Notice to Mariners 2 of 1961 (NM 2/61) and survey FE-220WD (1979). The prior survey FE-220WD (1979) located the wreck in Latitude 37°53'25.2"N, Longitude 76°07'58.7"W with no clearance depth determined. The present survey located the wreck in Latitude 37°53'25.60"N, Longitude 76°07'59.29"W with a pneumatic depth gauge least depth of fifty-three (53) feet in prior survey H-8435 (1956) depths of 63 to 66 feet. The present survey position is 17 meters west of the position on FE-220WD (1979). It is recommended that a wreck over which a depth of 53 feet is known with a danger curve be charted as located by the present survey. Prior survey FE-220WD (1979) relative to this item is considered superseded by the present survey. concur

Prior survey FE-222WD (1978) covers the required search area of AWOIS ITEM #3673. AWOIS ITEM #3673, a charted wreck with a depth of 49 feet cleared by wire drag in Latitude 37°55'11.40"N, Longitude 76°11'13.20"W, originates with Notice to Mariners 48 of 1957 (NM 48/57). The prior survey location is a hang in Latitude 37°55'11.40"N, Longitude 76°11'13.20"W with an unverified (predicted tides applied) effective clearance depth of 44 feet. The present survey location is in Latitude 37°55'12.48"N, Longitude 76°11'11.74"W with a pneumatic depth gauge least depth of forty-nine (49) feet in prior survey H-8283 (1955-56) depths of 58 to 60 feet. The present survey position is 48 meters east of the position on FE-222WD (1978). It is recommended that the wreck be charted as a wreck over which a depth of 49 feet is known with a danger curve. Prior survey FE-222WD (1978) relative to this item is considered superseded by the present survey. concur

7. COMPARISON WITH CHART 12225 (43rd. Edition, ~~Sept.~~ Dec. 17/83)
12228 (22nd. Edition, ~~Dec.~~ Sep. 8/84)
12230 (43rd. Edition, Apr. 21/84)

12233 (28th. Edition, Nov. 3/84)
12264 (22nd. Edition, May 28/83)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys. The hydrographer made adequate chart comparisons in section L. and Appendix XII of the Descriptive Report. The following should be noted:

1) Automated Wreck and Obstruction Information System (AWOIS) Item #3188 a charted obstruction, rep PA, (45 ft rep), in Latitude 37°52'24"N, Longitude 76°08'36"W, originates with Local Notice to Mariners 1 of 1980 (LNM 1/80). As described on pages 96-97 of the present surveys Descriptive Report the obstruction was not found. Further examination of the sonargrams during office processing revealed that there is a contact on an apparent obstruction in the search area. The approximate position for the contact was determined in Latitude 37°52"21.20"N, Longitude 76°08'18.80"W and added to the present survey data. Through side scan analysis computations the contact was determined to be 63 feet in prior survey H-8280 (1955) depths of 66 feet. It is recommended that the charted obstruction, rep PA, (45 ft rep), be deleted from the charted. The contact found during office processing should be charted as a submerged obstruction with a (63 ft rep) depth as located by the present survey. Concur Concur

2) The hydrographer discovered and subsequently investigated an uncharted wreck, in Latitude 37°52'55.16"N, Longitude 76°08'25.62"W during the investigation on AWOIS ITEM #3188. The present survey found a wreck with an echo sounder least depth of 71 feet in prior surveys H-8280 (1955) and H-8435 (1956) depths of 66 to 70 feet. During a dive investigation the wreck was observed to be wreckage. It is recommended that a wreck over which a depth of 71 feet (71Wk) is known without a danger curve be charted as located by the present survey. Do not chart

b. Aids to Navigation

Aids to navigation common to the surveyed area are adequately discussed in section N. of the Descriptive Report.

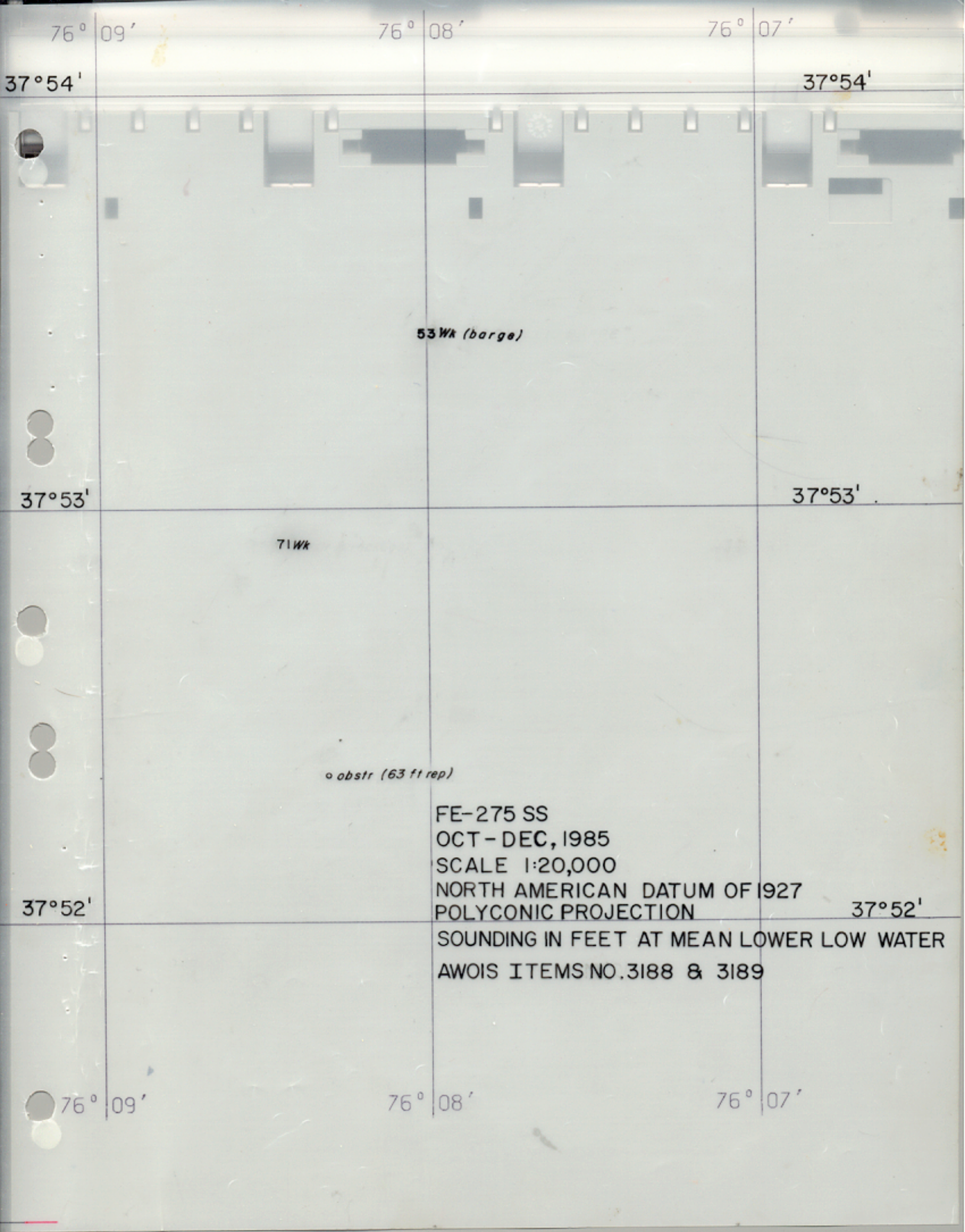
8. COMPLIANCE WITH INSTRUCTIONS

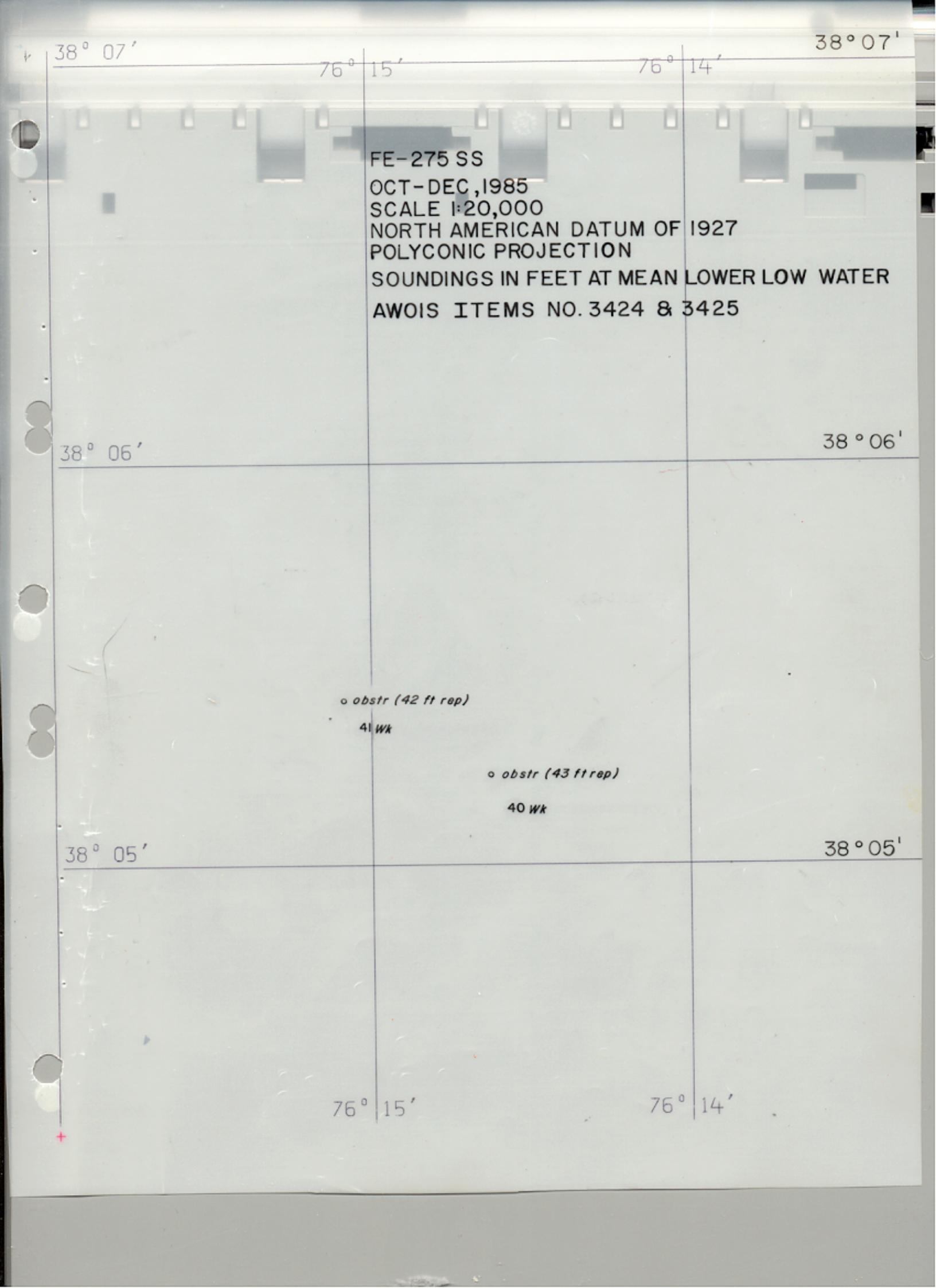
This survey adequately complies with the Project Instructions except as noted in this report.

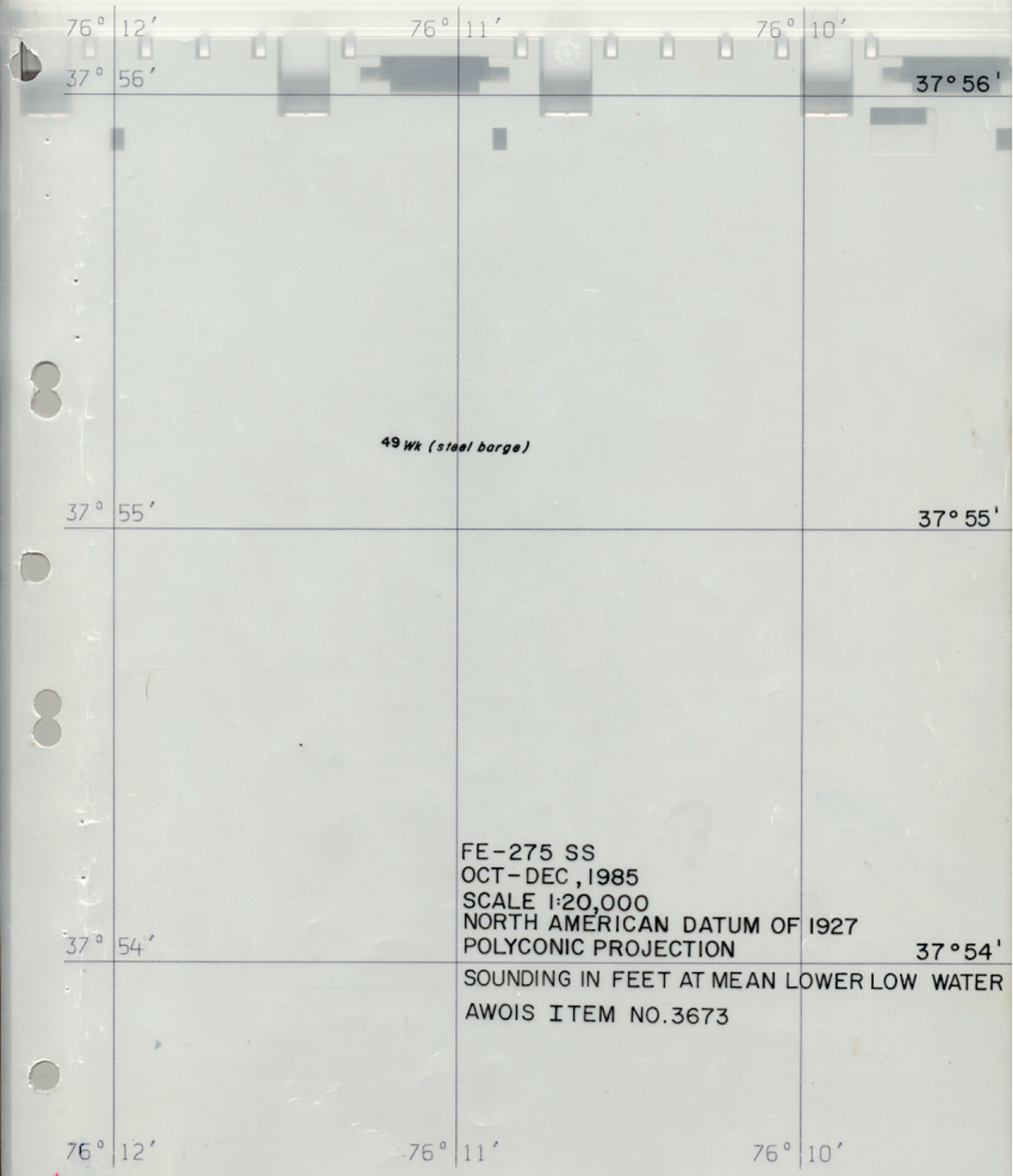
9. ADDITIONAL FIELD WORK

This is a adequate side-scan sonar survey which serves its intended purpose.

Norris A. Wike
Cartographer
Evaluation and Analysis


76° 09'
76° 08'
76° 07'
37°54'
37°54'
53 Wk (borge)
37°53'
37°53'
71 Wk
o obstr (63 ft rep)
FE-275 SS
OCT - DEC, 1985
SCALE 1:20,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
37°52'
37°52'
SOUNDING IN FEET AT MEAN LOWER LOW WATER
AWOIS ITEMS NO. 3188 & 3189
76° 09'
76° 08'
76° 07'


38° 07'
76° 15'
76° 14'
38° 07'
FE-275 SS
OCT-DEC, 1985
SCALE 1:20,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
SOUNDINGS IN FEET AT MEAN LOWER LOW WATER
AWOIS ITEMS NO. 3424 & 3425
38° 06'
38° 06'
o obstr (42 ft rep)
41 Wk
o obstr (43 ft rep)
40 Wk
38° 05'
38° 05'
76° 15'
76° 14'


76° 12′
76° 11′
76° 10′
37° 56′
37° 56'
49 Wk (steel barge)
37° 55′
37° 55'
37° 54′
37° 54'
FE-275 SS
OCT-DEC, 1985
SCALE 1:20,000
NORTH AMERICAN DATUM OF 1927
POLYCONIC PROJECTION
SOUNDING IN FEET AT MEAN LOWER LOW WATER
AWOIS ITEM NO. 3673
76° 12′
76° 11′
76° 10′

INSPECTION REPORT
FE-275SS

The data that make up this Side Scan Sonar survey have been inspected to gain insight into its overall completeness regarding survey coverage, presentation of survey results, and the verification or disproval of charted data. This survey, except as noted in the Evaluation Report, is considered complete and adequate to meet National Ocean Service standards. However, the following field procedures are recommended on future side scan sonar surveys:

a. Search areas up to 1½ nautical miles in radius should be plotted at 1:10,000 scale. This should include the side scan coverage plot and the contact plot irrespective of proposed survey scale.

b. The location of prior survey items and other reported items to be investigated should be plotted on the contact plots.

These recommendations are made so clearer plots will be provided and to provide a correlation between contact targets and charted and prior survey items. Processing of this survey is considered complete. The survey records comply with NOS requirements except as noted in the Evaluation Report.

Inspection

R. D. Sanocki
Chief, Hydrographic Surveys
Processing Section
Hydrographic Surveys Branch

David B. MacFarland, Jr., LCDR, NOAA
Chief, Hydrographic Surveys Branch

Approved: 14 July 1986

Wesley V. Hull, 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

August 22, 1988

TO: N/CG24 - Russell C. Arnold *Per for*

FROM: N/CG242 - George K. Myers, Jr. *George K. Myers, Jr.*

SUBJECT: Examination of Hydrographic Survey FE-275 (1985) SS, Virginia--Maryland, Chesapeake Bay, Smith Point to Cedar Point

Chief of Party	R. K. Norris
Field Unit	NOAA Ships RUDE and HECK
Processed by	Atlantic Marine Center
Examined by	G. K. Myers

An examination of side scan sonar survey FE-275 (1985) SS was accomplished to monitor the survey with respect to data acquisition, conformance with applicable project instructions, determination of least depths, navigational hazards, smooth plotting, decisions made and actions taken by the evaluator, 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 Evaluation Report and as follows:

1. The legend shown on each individual smooth plot in the Descriptive Report omitted the title (locality) and plot number, while the type of projection and horizontal datum are unnecessarily given. (See Hydrographic Survey Guideline No. 45.)

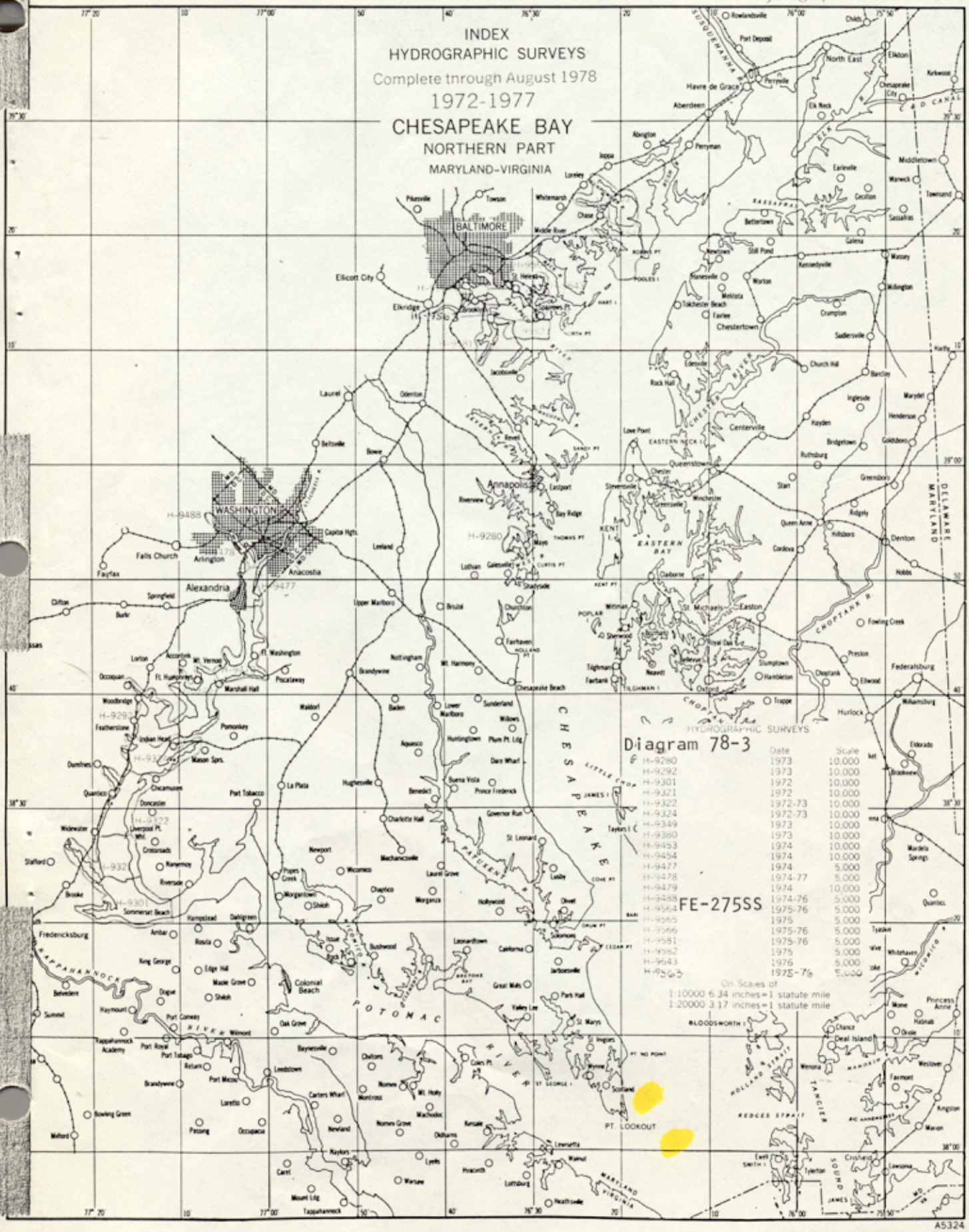
2. A transmittal letter of survey records was not included in the Descriptive Report as specified on the statistical sheet for the survey.

3. Position numbers for items found during the survey were not shown on the smooth plot.

4. Loran-C values at locations of wrecks and obstructions observed during the survey are not included in the Descriptive Report as specified in section 8.3 of the project instructions.

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

Hydrographic Index No. 68 J



A5324

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-275SS

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
12285[A]	6-2-87	Barbara Loretz	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. #28 Fully applied
12230	7/10/87	[illegible]	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. #74 Fully Applied
12264	4/14/88	Ernest Pignatiello	
			Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. #42 Examined No Correction
12220	10/18/90	Lin Ackerman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. #53 Fully Applied
12225	10-24-90	Tracy Sanford	Full Part ~~Before After~~ Marine Center Approval Signed Via
			Drawing No. 70
12228	1-30-91	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 31 Fully appl'd
12260	3-14-91	Len Arkenau	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 46, Thru 12220
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.