

H10547

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

Type of Survey **HYDROGRAPHIC/  
SIDE SCAN SONAR**  
Field No. **WH-10-5-94**  
Registry No. **H-10547**

### LOCALITY

State **MASSACHUSETTS**  
General Locality **NANTUCKET SOUND**  
Sublocality **ELDRIDGE SHOAL  
AND VICINITY**

19 94

### CHIEF OF PARTY

**CDR J. D. WILDER, NOAA**

### LIBRARY & ARCHIVES

DATE **APR 23 1996**

**HYDROGRAPHIC TITLE SHEET**

H-10547

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

FIELD NO.

WH-10-5-94

State Massachusetts

General locality Nantucket Sound

Locality Eldridge Shoal and Vicinity

Scale 1:10,000 Date of Survey June 08 - August 24, 1994

Instructions dated February 23, 1994 Project No. OPR-B616-RU/WH

Vessel NOAA Ship WHITING S-329 EDP#2930

Chief of Party CDR John D. Wilder  
CDR J.D. Wilder, LCDR S.R. Barnum, LT J. Verlaque, LT W.G. Kitt, LTJG J. Riley, LTJG E.W. Berkowitz, LTJG J.C. George, ENS K. Pavelle,

Surveyed by F.R. Cruz, J. Gaskin, M. Cisternelli, B.C. Detrich

Soundings taken by echo sounder DSF-6000N

Graphic record scaled by WHITING Survey Personnel

Graphic record checked by WHITING Survey Personnel

Protracted by N/A Automated plot by ENCAD NOVAJET III (AHB)  
HP 7959B, BRUNING (FIELD)

Verification by ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in MLLW Datum and Depths in units of METERS  
Smooth sheet plotted in Feet

REMARKS: Time Zone used, 0(UTC)  
200% Side Scan Coverage

NOTES IN THE D.R. WERE MADE IN RED INK DURING OFFICE PROCESSING.

APR 23 1996 *Se*

*Awois and SURF ✓ 5/96 RWD*

**DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY  
OPR-B616-RU/WH  
WH-10-5-94  
1994  
H-10547**

**NOAA SHIP WHITING  
CDR John D. Wilder, NOAA  
Commanding Officer**

**A. PROJECT**

Project OPR-B616-RU/WH is a multi-year project encompassing Buzzards Bay, Nantucket Sound, and Vineyard Sound, Massachusetts. WHITING is conducting basic hydrographic surveys along a corridor in Nantucket and Vineyard Sounds, with 200 percent side scan sonar (SSS) bottom coverage to the five-meter depth curve and continued echosounder coverage to the two-meter depth curve.

Project OPR-B616-RU/WH is divided into thirteen survey sheets. The survey described in this report was designated "J" Sheet, Eldridge Shoal and Vicinity, and assigned field sheet number WH-10-5-94 and registry number H-10547.

Survey operations were conducted in accordance with Hydrographic Project Instructions OPR-B616-RU/WH, Buzzards Bay, Nantucket and Vineyard Sounds, Massachusetts, dated February 23, 1994, Change NO. 1 dated March 9, 1994. Survey H-10547 is registered as a 1:10,000-scale survey and all data acquired meet the accuracy requirements for a 1:10,000-scale survey.

**B. AREA SURVEYED**

Hydrographic survey H-10547 covers the area from Eldridge Shoal southward to 1 nm north of Cape Poge. Survey operations began on June 08, 1994 (DN 159) and ended on August 24, 1994 (DN 236).

**C. SURVEY VESSEL**

NOAA launch 1014 (VESNO 2932), launch 1015 (VESNO 2931), and NOAA Ship WHITING (VESNO 2930) were used for side scan sonar and sounding-data acquisition. The SeaArk (VESNO 590) was used for bottom samples and ATONS.

Launch 1015 was equipped with a custom-built bowsprit to tow the SSS towfish from the bow in shallow water. No other unusual vessel configurations were used.

D. AUTOMATED DATA ACQUISITION AND PROCESSING - SEE ALSO EVALUATION REPORT

Survey data acquisition and processing were accomplished using the HDAPS system with the software listed:

<u>Program</u>	<u>Version</u>	<u>HDAPS Date</u>
BACKUP	2.00	27-Oct-93
BASELINE	1.14	07-Apr-93
BIGABST	2.07	01-Oct-93
BIGAUTOST	3.01	01-Feb-93
BLKEDIT	2.02	11-Mar-93
CARTO	2.13	29-Mar-94
CLASSIFY	1.05	22-Nov-93
CONTACT	2.34	29-Mar-94
CONVERT	3.62	09-Dec-93
DAS_SURV	6.70	01-Apr-94
DIAGNOSE	3.04	16-Mar-94
DISC_UTIL	1.00	01-Feb-93
DP	2.14	07-Apr-93
DPCONVERT	1.01	07-Jun-94
EXCESS	4.21	03-Feb-94
FILESYS	3.24	01-Apr-94
GRAFEDIT	1.06	16-Nov-93
HIPSTIC	1.01	28-Jul-93
HPRAZ	1.26	22-May-93
INVERSE	2.01	07-Apr-93
LISTDATA	1.02	19-Apr-93
LOADNEW	2.10	18-Feb-94
LSTAWOIS	3.07	29-Mar-94
MAINMENU	1.20	02-Nov-93
MAN_DATA	2.01	07-Apr-93
NEWPOST	6.01	07-Apr-93
PLOTALL	2.27	29-Mar-94
POINT	2.10	24-Sep-93
PREDICT	2.01	07-Apr-93
PRESURV	7.08	29-Mar-94
PRINTOUT	4.03	19-Apr-93
QUICK	2.05	01-Apr-94
RAMSAVER	1.02	07-Apr-93
REAPPLY	2.10	12-Oct-93
RECOMP	1.02	01-Feb-93
SCANNER	1.00	10-Jul-93
SELPRINT	2.04	12-Oct-93
SYMBOLS		01-Feb-93
VERSIONS	1.00	24-Nov-93
ZOOMEDIT	2.24	04-Apr-94

Program SHIPDIM (version 1.2) was used for DGPS performance checks. Sound velocity corrections were determined using programs CAT (version 2.00) and VELOCITY (version 2.10).

There were no nonstandard automated acquisition or processing methods used.

#### E. SIDE SCAN SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder and an EG&G 272-T dual-channel, single-frequency towfish. The towfish was operated on the 100-kHz frequency and was configured with a 20° beam depression. Serial numbers (S/N) for the side scan sonar equipment used throughout the survey are listed below:

<u>Vessel</u>	<u>SSS Towfish S/N</u>	<u>260 Recorder S/N</u>
WHITING (2930)	016699	016670
Launch 1014 (2932)	016630	016671
Launch 1015 (2931)	016835	016942

On WHITING, the SSS towfish was deployed from a Reuland winch (model number 8377-XF5461A, S/N 814861A-1) using armored cabling in conjunction with an A-frame on the stern. The armored cable was connected to the SSS recorder via a slip-ring assembly.

On launches 1014 and 1015, the SSS towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the stern of each launch. In shallow water, the towfish was deployed from launch 1015 using the Superwinch Model W115 in conjunction with a custom-built bowsprit. The SSS towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder via a slip ring assembly.

Side scan sonar data were collected utilizing the 50, 75 and 100-meter range scales. In order to acquire the required 200% SSS coverage, main-scheme lines were run at a spacing of 40, 60, and 75 meters. Adequate coverage was determined by producing an 'A' and 'B' swath plot and ensuring 100% coverage on each plot. Main scheme lines were split or re-run in all areas where 200% coverage was questionable due to a degraded sonargram. Degraded sonargrams were usually caused by surface noise or propeller wash in shallow water areas.

The SSS towfish was maintained at a height off the bottom of 8 to 20 percent of the range scale in use. SSS operations were limited to a speed-over-ground of 4.5 knots on the 50-meter and 5.5 knots on the 75 and 100-meter range scales.

Confidence checks were performed on a routine basis, primarily by noting changes in bottom texture on the outer edges of the sonargram. Confidence checks were also taken on buoys or contacts when convenient.

All significant contacts were measured off the sonargrams and entered into an HDAPS contact table. WHITING hydrographers determined contact heights, positions, and cross-reference correlations using the HDAPS Contact Utility Program. The items were then further examined by diver or echosounder investigation. Refer to Section N and Separate V for more information. DATA APPENDED TO THIS REPORT.

#### F. SOUNDING EQUIPMENT

Raytheon Digital Survey Fathometer (DSF) 6000N echo sounders were used to measure bottom depths during the survey. The DSF 6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) bottom depths. Digital depths from the high frequency and low frequency beams were recorded by the HDAPS acquisition system. High frequency depths were selected as the primary depths and are shown on the sounding plots. Echograms were carefully reviewed for significant features along the track line. Any features on the graphic record that were not selected as primary soundings were manually inserted.

Electronic technicians performed accuracy checks and preventive maintenance on all of the DSF-6000N echosounders used. Major work on the echosounders involved the changing out of cards. As a result, the echosounder on WHITING (S/N A112N), launch 1014 (S/N C076), and launch 1015 (S/N A105N) operated throughout the survey period with minimal problems.

Diver determined least depths were measured with a pneumatic depth gauge (S/N 138921-30). The annual calibration for pneumatic gauge 138921-30 was performed on November 29, 1993. The pneumogauge was used in accordance with Hydrographic Guideline No. 55 and a system check was performed on each dive day to ensure the gauge was working properly.

#### G. CORRECTIONS TO SOUNDINGS

Sound velocity profiles of the water column were determined using a Seacat Conductivity, Temperature and Depth (CTD) profiler (model SBE-19, S/N 286). The CTD's annual calibration was performed on December 17, 1993.

A Data Quality Assurance (DQA) test was performed during each CTD cast by using a hydrometer and a thermometer to measure the density and temperature of a surface water sample. Program CAT compared these values to the Seacat's surface values to confirm that the velocity probe was working properly.

After each CTD cast, programs CAT (version 2.00) and VELOCITY (version 2.10) were used to process the data, to select significant data points, and to create a corrector table for each

vessel. The velocity correctors were manually entered into each HDAPS velocity table. Velocity profile data are in the Separates submitted with this survey. Nine velocity casts were conducted for H-10547:

<u>DN</u>	<u>Vel.Table#</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth</u>
156	6,7	41° 32' 33.00"N	070° 23' 11.00"W	39.4 m
165	10,11	41° 32' 18.00"N	070° 23' 42.00"W	37.4 m
173	14,15	41° 32' 30.00"N	070° 23' 12.00"W	41.2 m
187	16,17	41° 32' 07.00"N	070° 23' 30.00"W	43.2 m
192	18,19	41° 32' 06.00"N	070° 23' 48.00"W	41.3 m
200	22,23	41° 32' 06.00"N	070° 23' 48.00"W	37.0 m
206	26,27	41° 32' 20.00"N	070° 23' 41.00"W	41.0 m
215	28,29	41° 31' 59.00"N	070° 23' 49.00"W	34.3 m
228	34,35	41° 29' 21.00"N	070° 26' 46.00"W	25.9 m

All sounding corrections were applied to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams.

Bar checks were performed on launch 1014 and launch 1015 in accordance with the requirements stated in the Field Procedures Manual (FPM). No corrections to soundings were applied based on bar check data.

Leadlines were made on April 10, 1993. Calibrations were performed on March 17, 1994 and the leadline error was negligible. A leadline comparison was performed on WHITING on June 26, 1994 (DN 177) and again on July 20, 1994 (DN 201). On average, the leadline readings were less than 0.1 meters deeper than the high frequency digitized reading and less than 0.2 meters shoaler than the low frequency digitized reading. No corrections for the differences were applied to the survey data.

The correction for the static draft for launches 1014 and 1015 is 0.55 meters, as measured on July 28, 1993. The correction for WHITING's static draft is 3.2 meters, a historical value that WHITING divers confirmed by pneumatic depth gauge on May 20, 1993.

Settlement and squat measurements for launch 1014 (Offset Table 2) and launch 1015 (Offset Tables 1 & 3) were conducted and correctors determined on April 4, 1994. The correctors were applied in real time throughout the survey. Settlement and squat measurements for WHITING (Offset Table 9) were conducted and correctors determined on November 10, 1993. The settlement and squat correctors were applied to the sounding data in real time on each survey platform. Settlement and squat corrector tables are in Separate IV.\*

For data acquired by WHITING, the HDAPS data acquisition computer logged heave data from a Datawell b/v heave, roll, and pitch sensor (HIPPY, S/N 19109-C). Heave correctors were applied in

\* DATA FILED WITH FIELD RECORDS.

post-processing. Heave correctors were applied during post processing for launches 1014 and 1015 by manually scanning the echograms.

The tidal datum for this project is Mean Lower Low Water. The operating tide station at Nantucket, Massachusetts (844-9130) served as the reference station for predicted tides. Time and height correctors for the project were as follows:

	<u>Time Correction</u>	<u>Height Ratio</u>
High Water:	-0 hr 10 min	x0.71
Low Water:	-0 hr 10 min	x0.71

Tidal data used during data acquisition were taken from table 2 of the East Coast of North and South America Tide Tables and were applied to the digital data during acquisition by HDAPS. Digital tidal data were received on floppy disk from N/CG24, Hydrographic Surveys Branch.

WHITING installed and leveled two ADR tide gauges for datum control on H-10547: one at the Hyannis Port Pier, Hyannis Port, MA (844-7605) and one at the Steamship Authority Pier, Oak Bluffs, MA (844-8208). Opening levels were run on the tide station at Hyannis Port on May 17, 1994. Opening levels were run on the tide station at Oak Bluffs on May 19, 1994. Closing levels were run on the tide station at Hyannis Port on August 25, 1994 and at Oak Bluffs on September 07, 1994. These level runs also tied in the SUTRON 8200 sensors with the corresponding tide staffs. The tide note is on file at AHS. *\* DATA FILED WITH FIELD RECORDS.*

The request for smooth tides was submitted to the Product and Services Branch, N/OES231, Datums Section, on September 07, 1994. *APPROVED TIDES AND ZONING WERE APPLIED DURING <sup>OFFICE</sup> PROCESSING.*

**H. CONTROL STATIONS - SEE ALSO EVALUATION REPORT**

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). Two B-order horizontal control stations were used as DGPS reference stations for this survey: Montauk Point, New York and Portsmouth Harbor, New Hampshire. The adjusted NAD 83 positions, computed by GPS methods are as follows:

	<u>Latitude</u>	<u>Longitude</u>	<u>Frequency</u>
Montauk <del>Point</del>	41°04'02.088"N	071°51'38.484"W	293 kHz
Portsmouth <del>Harbor</del>	43°04'15.066"N	070°42'36.804"W	288 kHz

**I. HYDROGRAPHIC POSITION CONTROL**

A Differential Global Positioning System (DGPS) was used as the navigation system for this survey. WHITING used two Ashtech Sensor GPS receivers with two Communications Systems



International, Inc. (CSI) model MBX1 differential radio receivers supplying correctors for DGPS navigation. Launches 1014 and 1015 used a similar system, but with only one Ashtech/CSI set each. Ashtech receivers were initialized by HDAPS and CSI receivers were initialized with CSI firmware via controls on the front of each unit. On board WHITING, only one DGPS receiver drawer sent navigational output to HDAPS; the secondary drawer was used in conjunction with the primary drawer for DGPS performance checks.

DGPS positioning was accomplished in accordance with the FPM, section 3.4. Horizontal Dilution of Precision (HDOP) limits were computed as required in section 3.4.2 of the FPM. The HDOP limits for a 1:10,000 scale survey for the Montauk Point and Portsmouth Harbor beacons were 3.4 and 2.6, respectively. Occasionally, changes in the number of satellites in view would cause DGPS position jumps. These sporadic, high-HDOP position flyers were smoothed in post-processing using HDAPS Graphic Edit.

A storm that crossed Long Island on August 06, 1994 (DN 218) caused an outage of the Montauk station. As a result, the station showed a strong signal strength and high SNR but did not send out correctors. The Coast Guard patched the system by temporarily sending the correctors through a remote line from Groton, CT. The system was again fully operational on August 17, 1994 (DN 229). During the first five days when the system was down completely, the station at Portsmouth, NH served as our reference station and performed well thus minimizing any downtime due to control degradation.

The serial numbers of the Ashtech Sensor and MBX1 receivers used are as follows:

	<u>Device</u>	<u>Serial Number</u>
WHITING (Primary)	Ashtech Sensor CSI MBX1	700417B1193 1081
WHITING (Secondary)	Ashtech Sensor CSI MBX1	700417B1194 1079
Launch 1014	Ashtech Sensor CSI MBX1	700417B1203 1078
Launch 1015	Ashtech Sensor CSI MBX1	700417B1191 1080

DGPS performance checks for WHITING were conducted weekly using the program SHIPDIM. SHIPDIM uses the two reference station method as described in the FPM, section 3.4.5. All DGPS performance checks confirmed that WHITING's DGPS positioning systems were operating properly. A summary of the DGPS performance checks is in Separate III. DATA FILED WITH FIELD RECORDS.

Performance checks for each launch's DGPS positioning system were conducted with each launch secured in WHITING's davits. Simultaneous HDAPS positions were compared between WHITING and each launch; an offset in distance and azimuth was then calculated between the ship and each launch system.

DGPS antenna offsets and laybacks were measured on March 19, 1993 for WHITING, and on July 28, 1993 for launches 1014 and 1015. Offsets and laybacks were measured using the 100 kHz (high frequency) echosounder transducer as the reference. Antenna heights were also measured on the same respective dates shown above, using the waterline as the reference. The offsets and laybacks were applied by HDAPS on-line. A minimum of four satellites were used during survey H-10547, providing altitude unconstrained positioning.

Offsets and laybacks for WHITING's SSS towfish A-frame were measured on July 27, 1992 using the forward 100 kHz (high frequency) transducer as the reference. The A-frame height was measured from the water line on the same date.

Offset, layback, and height corrections for each launch's SSS aft towing boom were measured on July 28, 1993, and verified on April 5, 1994. The corrections for launch 1015's SSS bowsprit were measured on June 18, 1994.

All offset, layback, and height data were applied by HDAPS on-line. These data are on file at AHS.\* Correctors from offset table 1 were applied to all data acquired from launch 1015's stern mount. Correctors from offset table 2 were applied to all data acquired from launch 1014's stern mount. Correctors from offset table 3 were applied to all data acquired from launch 1015's bow mount. Correctors from offset table 9 were applied to all data acquired from WHITING. \* DATA FILED WITH FIELD RECORDS.

#### J. SHORELINE

There was no shoreline within the survey limits of H-10547.

#### K. CROSSLINES

A total of 37 nautical miles of crosslines were run on H-10547 during survey operations. This amounted to 11-percent of the total linear nautical miles of main-scheme lines needed for 100 percent coverage.

Crosslines and main-scheme agreement was adequate. The average difference showed crossline soundings  $\pm 0.2$  meters than main-scheme soundings.

L. JUNCTIONS - SEE ALSO EVALUATION REPORT

Survey H-10547 (WH-10-5-94) junctions with contemporary surveys H-10498 (WH-10-2-93) to the northeast and H-10504 (WH-10-1-93) to the west. The junction agreement between surveys was adequate.

M. COMPARISONS WITH PRIOR SURVEYS - SEE ALSO EVALUATION REPORT

Prior surveys H-6350, H-6533, H-8821, and H-8824 are applicable to survey H-10547. The following table summarizes the sounding comparisons:

<u>Registry #</u>	<u>Scale</u>	<u>Year</u>	<u>Current Soundings</u>
H-6350	1:20,000	1938, 1942	No significant difference
H-6533	1:20,000	1939	See Section M.1
H-8821	1:10,000	1964	See Section M.2
H-8824	1:12,500	1963	Agree $\pm$ 0.5 meters

M.1 Survey H-6533 covers the area around but not including Eldridge Shoal. Soundings agree within  $\pm$  0.5 meters, except in the immediate vicinity of the shoal. In areas around the shoal, especially to the north, H-10547 soundings are deeper than those found on H-6533. However, in the shallowest areas on the shoal, the present survey soundings are shoaler than the prior soundings. The shoal has migrated southward and is more compact.

CONCUR

M.2 Survey H-8821 covers the southern most area of the present survey. In this area, the shoaler areas have migrated south-southwest. In general, soundings agree within 0.5 meters with the present survey, with the present survey depths deeper than the previous survey. In the extreme southern portion, the shallow areas of the present survey show depths shoaler than the previous survey.

CONCUR

N. ITEM INVESTIGATIONS -

The following SSS contacts represent the most significant item found within a 200-meter grid overlay of the survey area or were investigations specifically assigned this survey and were further investigated by WHITING:

N.1	AWOIS 8149	Diver least depth acquired
N.2	6581.28S	Diver least depth acquired
N.3	7178.00S	Diver least depth acquired
N.4	AWOIS 6860	Diver least depth acquired
N.5	AWOIS 8150	Diver least depth acquired
N.6	1572.19S	Diver least depth acquired
N.7	AWOIS 8294	Diver least depth acquired
N.8	6641.54P	Diver least depth acquired

N.9	776.43S	Echosounder least depth acquired
N.10	8045.15P	Echosounder least depth acquired
N.11	8059.56P	Echosounder least depth acquired
N.12	8139.53S	Echosounder least depth acquired
N.13	8180.09P	Echosounder least depth acquired
N.14	8249.13P	Echosounder least depth acquired
N.15	8036.56P	Echosounder least depth acquired
N.16	8225.43P	Echosounder least depth acquired
N.17	697.22P	Echosounder least depth acquired
N.18	711.00S	Echosounder least depth acquired
N.19	7784.09S	Echosounder least depth acquired
N.20	7524.16S	Echosounder least depth acquired
N.21	7045.56S	Echosounder least depth acquired
N.22	3373.02S	Echosounder least depth acquired
N.23	6960.46S	Echosounder least depth acquired
N.24	1274.27P	Echosounder least depth acquired
N.25	6771.04S	Echosounder least depth acquired
N.26	1235.11P	Echosounder least depth acquired
N.27	1224.44P	Echosounder least depth acquired
N.28	6707.14P	Echosounder least depth acquired
N.29	6438.08S	Echosounder least depth acquired
N.30	6439.16P	Echosounder least depth acquired
N.31	6510.56P	Echosounder least depth acquired
N.32	557.16P	Echosounder least depth acquired
N.33	614.49S	Echosounder least depth acquired
N.34	596.57S	Echosounder least depth acquired
N.35	428.46P	Echosounder least depth acquired
N.36	408.59S	Echosounder least depth acquired

**N1. Contact #7661.10S (AWOIS 8149)**

Reported Latitude: 41° 27' 42.40" N  
 Reported Longitude: 070° 26' 26.10" W  
 Source: ~~H8824/64~~ LNM 42/90 (10/17/90) 1ST CGD  
 Name: DARNOC  
 Datum: NAD 83  
 Reported Depth: None

AWOIS 8149 is described as a dangerous submerged wreck with surrounding depth of 53-61 feet of water. The wreck is charted with position approximate and is marked by buoy 20WR. The search radius for the wreck was 150 meters.

WHITING covered the search radius of AWOIS 8149 with 200 percent side scan sonar with no results. However, while running mainscheme lines, a wreck was found approximately 460 meters to the east of the item's given position. Divers descended on the item (DN 208) and found a wreck with hull number 615656. The wreck is 15' x 80' long orientated NE-SW and is lying on its port side with the bow at the SW end. The hull is wooden, painted blue. Divers report the

wreck is a trawler with least depth, (<sup>APPROVED TIDES</sup>~~predicted tides~~), taken on a yardarm being 4<sup>1</sup>/<sub>2</sub> feet (12.5<sup>3</sup> meters), (DP# 3472).

WHITING recommends charting the wreck at 41° 27' 40.660" N, 070° 26' 06.443" W, with the final reduced least depth. CONCUR

\* OF 12.3m (40 FT.) CHART 40 WK

N2. Contact #6581.28S

Latitude: 41° 29' 54.286<sup>9</sup>" N  
Longitude: 070° 27' 23.821" W  
Cross Reference: 6554.59S

Item 6581.28S was found by side scan sonar during 200% main scheme \$\$\$ operations. WHITING conducted a diver investigation on the item.

Echosounding was used to pinpoint the divers drop position on the item. Divers located two rocks and acquired a least depth on the most significant rock. Least depth, (<sup>APPROVED</sup>~~predicted tides~~), by pneumatic depth gauge was 5<sup>0</sup>/<sub>8</sub> feet (17.8 meters) in 6<sup>1</sup>/<sub>2</sub> feet (19.2 meters) of water, (DP #3473, DN 208). 17.5

WHITING does not recommend charting the item as surrounding depths in the area are shoaler than the least depth of the item. CONCUR

N3. Contact #7178.00S

Latitude: 41° 28' 27.828<sup>3</sup>" N  
Longitude: 070° 22' 50.893" W  
Cross Reference: 7179.07S

Item 7178.00S was found by side scan sonar during 200% main scheme \$\$\$ operations. WHITING conducted a diver investigation on the item.

Echosounding was used to pinpoint the divers drop position on the item. Divers located a group of boulders in an area of 25' x 30' and acquired a least depth on the most significant rock. Least depth, (<sup>APPROVED</sup>~~predicted tides~~), by pneumatic depth gauge was 32<sup>2</sup>/<sub>8</sub> feet (9.8 meters) in 38<sup>4</sup>/<sub>1</sub> feet (11.7 meters) of water, (DP #3766, DN 222). 9.8m (32 FT.)

WHITING recommends that a rock with a least depth known be charted at position latitude 41° 28' 27.828" N, 070° 22' 50.893" W. CONCUR

CHART 32 WK  
RK

\* IT IS ALSO RECOMMENDED THAT THE CHARTED WK, PA BE DELETED

N4. Contact #7197.39S (AWOIS 6860)

Reported Latitude: 41° 28' 24.40" N  
Reported Longitude: 070° 26' 58.09" W  
Source: ~~H6532/39~~ LNM 42/78 (9/27/78) 1ST CGD  
Name: DOLPHIN  
Datum: NAD ~~27~~ 83  
Reported Depth: 40 feet

AWOIS 6860 is described as a 45-foot fishing vessel sunk in 40 feet of water. The submerged wreck is charted as PA. The search radius for the wreck was 1000 meters.

WHITING covered the area of AWOIS 6860 with 200 percent side scan sonar and a wreck was found near the charted position. Divers descended on the item (DN 222) and found partially buried wreckage, mostly wood, with block and tackle gear and netting. Divers report the wreck is a fishing vessel with least depth, (<sup>APPROVED</sup> predicted tides), being 37.8<sup>7</sup> feet (11.5<sup>0</sup> meters), (DP# 3767), in 42.7 feet, (13.0 meters) of water.

WHITING recommends that a wreck with a least depth known, be charted at 41° 28' 27.826" N, 070° 26' 58.422" W. CONCUR

11.5m (37 FT) ✓  
CHART 37 WK

DELETE THE CHARTED DANGEROUS SUNKEN WRECK, PA.

N5. Contact 3840.44S (AWOIS 8150)

Reported Latitude: 41° 26' 59.51" N  
Reported Longitude: 070° 25' 58.09" W  
Source: ~~H8824/64~~ LNM 33/89 (8/16/89) 1ST CGD  
Name: Unknown  
Datum: NAD ~~27~~ 83  
Reported Depth: 36-40 feet

AWOIS 8150 is described as a 38-foot survey vessel sunk in 36-40 feet of water with 3-5 feet of mast uncovered. The wreck is charted as masts, PA. The search radius for the wreck was 750 meters.

WHITING covered the area of AWOIS 8150 with 200 percent side scan sonar and an item was found near the charted position. Divers descended on the item (DN 236) and found a rock and an anchor with 80 feet of chain. The anchor was 6' x 10' and attached to a chain with 1.5"-diameter, 10"-long links. Least depth measured, (<sup>APPROVED</sup> predicted tides), was 42.6<sup>4</sup> feet (13.0<sup>6</sup> meters), (DP# 4218), in 45.0 feet (13.7<sup>1</sup> meters) of water.

WHITING recommends that an <sup>PK</sup> obstruction with a least depth known be charted at 41° 27' 01.240" N, 070° 26' 13.507" W.

DELETE THE CHARTED DANGEROUS SUNKEN WRECK, MASTS, PA.

DO NOT CONCUR - DO NOT CHART - SHOALER SOUNDING

Chart 40RK as shown IN VICINITY/ ✓  
on smooth sheet

N6. Contact #1572.19S

Latitude: 41° 26' 49.835" N  
Longitude: 070° 25' 45.675" W  
Cross Reference: 1537.03P

Item 1572.19S was found by side scan sonar during 200% main scheme SSS operations. WHITING conducted a diver investigation on the item.

Echosounding was used to pinpoint the divers drop position on the item. Divers found a rock, 6' x 8', 3' high. Least depth, <sup>APPROVED</sup> (predicted tides), by pneumatic depth gauge was ~~23.5~~<sup>23.9</sup> feet (~~7.1~~<sup>7.4</sup> meters) in 28 feet (8.5 meters) of water, (DP #4220, DN 236).

WHITING recommends that a rock with least depth known <sup>6.6m (21 FT.)</sup> at position latitude 41° 26' 49.835" N, 070° 25' 45.675" W. CONCUR

CHART 21 RK ✓

N7. Contact 1394.50P (AWOIS 8294)

Reported Latitude: 41° 30' 50.40" N  
Reported Longitude: 070° 22' 20.08" W  
Source: ~~H824/64~~  
Name: JOHN PAUL  
Datum: NAD ~~27~~ 83  
Reported Depth: 63-65 feet

AWOIS 8294 is described as a 137-foot wood 3-masted schooner, carrying stone cargo sunk in 1914 during a storm. The wreck is uncharted. The search radius for the wreck was 750 meters.

WHITING covered the area of AWOIS 8294 with 200 percent side scan sonar and an item was found near the position given in the description. Divers descended on the item (DN 235) and found brick blocks scattered over a 75-foot radius. The least depth item was 4 feet high. The debris was located on top of a large sand wave. Least depth measured, <sup>APPROVED</sup> (predicted tides), was ~~51.2~~<sup>50.2</sup> feet (15.6<sup>7</sup> meters) in ~~62.3~~<sup>62.9</sup> feet (19.0 meters) of water. The position of the item (DP #4223) is 41° 26' 51.831" N, 070° 23' 10.072" W.

WHITING recommends the item be charted as an obstruction with least depth known <sup>18.2 (60 FT.)</sup> at 41° 26' 51.831" N, 070° 23' 10.072" W. CONCUR

15.3 (50.2)

CHART 50 OBSTN ✓

N8. Contact #6641.54P

Latitude: 41° 29' 39.032" N  
Longitude: 070° 24' 17.323" W  
Cross Reference: 6712.35P

Item 6641.54P was found by side scan sonar during 200% main scheme SSS operations. WHITING conducted a diver investigation on the item.

Echosounding was used to pinpoint the divers drop position on the item. Divers found a rock, 4' x 5', 3' high. Least depth, (predicted tides), by pneumatic depth gauge was ~~39~~<sup>38</sup> feet (11.8 meters) in 42 feet (12.8 meters) of water, (DP #4229, DN 236).

WHITING recommends that a rock with least depth known be charted at position latitude 41° 29' 39.032" N, 070° 24' 17.323" W. CONCUR  
CHART 38 RK ✓

Items N.9 through N.36 were investigated by running echosounder investigation lines centered over each contact's average SSS position. The lines were run at a speed of 2.5 knots or slower, often times with the launch at idle, adrift over the contact. The table on the following page summarizes the results of these investigations. These contacts should be charted at the discretion of the chart compiler.

	Contact#	Cross Reference	Position	Least Depth	Bottom Depth	DP	DN	
N.9	776.43S	795.37S 585.01S	41° 31' 00.779"N 070° 26' 15.999"W	9.6m 5	10.5m (31 FT.)	3768	222	CONCUR CHART 31 RK ✓
N.10	8045.15P	8061.42P	41° 30' 53.549"N 070° 26' 14.382"W	10.9m 8	11.1m (35 FT.)	3772	222	CHART 35 ✓
N.11	8059.56P	8047.09P	41° 30' 52.906"N 070° 26' 39.966"W	10.8m 9	13.0m (34 FT.)	3775	222	CONCUR CHART 36 RK ✓
N.12	8139.53S	8154.59S	41° 30' 40.455"N 070° 26' 39.226"W	14.2m 0	15.0m (44 FT.)	3776	222	CONCUR CHART 46 RK ✓
N.13	8180.09P	8187.59P	41° 30' 34.200"N 070° 27' 02.304"W	15.8m 3	16.0m (52 FT.) *	3779	222	CONCUR DO NOT CHART *
N.14	8249.13P	8036.20P	41° 30' 22.012"N 070° 26' 58.426"W	15.5m 3	15.5m (50 FT.) *	3781	222	DO NOT CHART *
N.15	8036.56P	8248.35P	41° 30' 22.883"N 070° 27' 06.771"W	15.6m 4	15.7m (50 FT.) *	3785	222	DO NOT CHART *

\* SHOALER SOUNDINGS IN VICINITY.



N.16	8225.43P	8230.31P	41°30'27.143"N 070°27'22.076"W	15.8 <sup>6</sup> m	16.3m	3789	222	(51 FT) * DO NOT CHART ✓
N.17	697.22P	690.25S	41°30'31.394"N 070°28'00.104"W	14.7 <sup>5</sup> m	15.4m	3791	222	(47 FT) CHART 47 RK ✓
N.18	711.00S	8136.05P	41°30'41.670"N 070°27'34.642"W	14.6 <sup>15.1</sup> m	16.4m	3792	222	(49 FT) CHART 49 RK ✓
N.19	7784.09S	7787.00S	41°27'27.257"N 070°23'02.891"W	18.8 <sup>7</sup> m	19.9m	4174	233	(61 FT) * DO NOT CHART ✓
N.20	7524.16S	7528.16S	41°27'53.434"N 070°23'08.729"W	16.8 <sup>5</sup> m	18.0m	4175	233	(54 FT) * DO NOT CHART ✓
N.21	7045.56S	7024.59P 7048.49S	41°28'47.717"N 070°23'32.755"W	13.9 <sup>7</sup> m	14.7m	4178	233	(45 FT) * DO NOT CHART ✓
N.22	3373.02S	3365.57S	41°29'05.147"N 070°23'14.435"W	8.9 <sup>8</sup> m	9.5m	4179	233	(29 FT) * DO NOT CHART ✓
N.23	6960.46S	6923.09P	41°29'02.161"N 070°23'45.983"W	13.7 <sup>5</sup> m	14.3m	4183	233	(44 FT) * DO NOT CHART ✓
N.24	1274.27P	1293.29P 1276.01P	41°29'14.310"N 070°23'43.595"W	11.8 <sup>7</sup> m	12.6m	4185	233	(38 FT) CHART 38 RK ✓
N.25	6771.04S	6751.52P	41°29'25.290"N 070°24'08.563"W	12.1 <sup>11.7</sup> m	13.3m	4188	233	(38 FT) CHART 38 RK ✓
N.26	1235.11P	1244.22S 1223.27S	41°29'31.450"N 070°23'47.708"W	9.6 <sup>4</sup> m	11.4m	4190	233	(31 FT) CHART 31 RK ✓
N.27	1224.44P	no xref	41°29'33.929"N 070°23'33.208"W	9.0 <sup>8.9</sup> m	9.5m	4195	233	(29 FT) CHART 29 RK ✓
N.28	6707.14P	6670.41P	41°29'37.424"N 070°25'38.583"W	22.0 <sup>21.6</sup> m	22.1m	4197	234	(71 FT) * DO NOT CHART ✓
N.29	6438.08S	6405.08S	41°30'11.633"N 070°26'05.920"W	13.1 <sup>12.8</sup> m	13.8m	4204	234	(42 FT) * DO NOT CHART ✓
N.30	6439.16P	6491.24P	41°30'11.016"N 070°26'21.086"W	12.1 <sup>11.9</sup> m	12.7m	4208	234	(39 FT) CHART 39 RK ✓
N.31	6510.56P	6475.56S	41°30'03.819"N 070°26'51.966"W	14.0 <sup>1</sup> m	14.8m	4216	234	(46 FT) * DO NOT CHART ✓
N.32	557.16P	574.13P	41°32'10.722"N 070°25'37.649"W	8.2 <sup>2</sup> m	9.5m	4231	236	(27 FT) CHART 27 RK

\* SHOALER SOUNDINGS IN VICINITY  
15

N.33	614.49S	611.48S	41°32'08.029"N 070°25'25.116"W	<sup>8.0</sup> <del>7.9</del> m	9.7m	4232	236	(26 FT) CHART 26 RK
N.34	596.57S	no xref	41°31'54.253"N 070°25'38.407"W	<sup>9</sup> 9.8m	10.5m	4235	236	(32 FT) CHART 32 RK
N.35	428.46P	437.02S	41°31'36.796"N 070°26'44.906"W	<sup>5</sup> 12.4m	14.8m	4241	236	(41 FT) CHART 41 RK
N.36	408.59S	402.43P	41°31'22.945"N 070°27'04.390"W	<sup>7</sup> 12.5m	13.6m	4243	236	(41 FT) CHART 41 RK

**O. COMPARISON WITH THE CHART - SEE ALSO EVALUATION REPORT**

<u>Chart#</u>	<u>Scale</u>	<u>Edition #</u>	<u>Date</u>
13233	1:40,000	14	November 28, 1992
13237	1:80,000	34	October 26, 1991
13238	1:20,000	13	June 27, 1992

There is good agreement between survey H-10547 soundings and the charted soundings, contours, and features, except where discussed in Section M. Charted soundings originate from the prior surveys, discussed in Section M.

**P. ADEQUACY OF SURVEY - SEE ALSO EVALUATION REPORT**

This survey is considered complete, and the data acquired are adequate to supersede all prior surveys of the common area.

**Q. AIDS TO NAVIGATION**

The aids to navigation located within survey area H-10504 were observed during survey operations in 1993. Characteristics and positions of charted aids (from charts 13233, 13237, and 13238) agree well with the surveyed observations. THESE AIDS APPEAR ADEQUATE TO SERVE THEIR INTENDED PURPOSES.

**R. STATISTICS**

Number of Positions.....	5967
Main-scheme Sounding Lines (Nautical Miles).....	336
Crosslines (Nautical Miles).....	37
Square Nautical Miles Surveyed.....	25
Days of Production.....	37
Detached Positions.....	60
Bottom Samples.....	17
Tide Stations Installed.....	2
Current Stations.....	0
Number of CTD Casts.....	9
Magnetic Stations.....	0

**S. MISCELLANEOUS** - SEE ALSO EVALUATION REPORT

As specified in the Project Instructions, bottom samples were taken on an approximate grid spacing of 1000 meters square. Oceanographic log sheets for H-10547 are on file at AHS. Bottom samples were not submitted to the Smithsonian Institution.

No anomalies in either tide or current and/or unusual magnetic variations were encountered in the survey area.

**T. RECOMMENDATIONS** - SEE ALSO SECTION P. OF THE EVALUATION REPORT

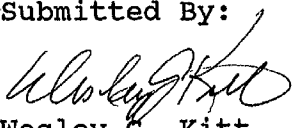
Recommendations concerning specific items are located in section N of this report.

**U. REFERRAL TO OTHER REPORTS**

The following reports will be submitted to N/CG244 and forwarded to N/CG243 as part of OPR-B616-WH-94:

Water Clarity Observations  
Current Studies  
Coast Pilot Report  
Chart Inspection Report  
User Evaluation Report

Submitted By:

  
Wesley G. Kitt  
Lieutenant, NOAA





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**Office of NOAA Corps Operations**  
**NOAA Ship WHITING S-329**  
**439 W. York Street**  
**Norfolk, VA 23510-1114**

September 16, 1994

Commander, First Coast Guard District  
 Aids to Navigation Branch  
 408 Atlantic Avenue  
 Boston, MA 02110-3350

**ADVANCE  
 INFORMATION**

Dear Sir:

While conducting hydrographic survey operations in Nantucket Sound, three uncharted rocks and six uncharted obstructions were discovered. Attached are reports on these features and a chartlet indicating their locations. The following table is a summary of our findings:

<u>Feature</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth (ft)</u>
Rock	41°28'27.828"N	070°22'50.893"W	32
Rock	41°26'49.835"N	070°25'45.675"W	23
Rock	41°29'39.032"N	070°24'17.323"W	39
Obstruction	41°31'00.779"N	070°26'15.999"W	31
Obstruction	41°29'05.147"N	070°23'14.435"W	29
Obstruction	41°29'31.450"N	070°23'47.708"W	31
Obstruction	41°32'10.722"N	070°25'37.649"W	27
Obstruction	41°32'08.029"N	070°25'25.116"W	26
Obstruction	41°31'54.253"N	070°25'38.407"W	32

Differential GPS was used to determine the items' positions. Positions are referenced to NAD-83. All depths are referenced to MLLW using predicted tides. Chart 13238 is the largest scale chart affected.

A copy of this letter and attachments have been forwarded to the following offices:

Chief, Nautical Charting Division, NOAA  
 Chief, AMC Operations Division, NOAA  
 Director, Defense Mapping Agency  
 Hydrographic/Topographic Center  
 Chief, Atlantic Hydrographic Section

Sincerely,

John D. Wilder  
 Commander, NOAA  
 Commanding Officer

Attachments  
 cc: AMC1  
 N/CG2  
 N/CG244  
 DMAHTC



REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar. Divers located a group of boulders in an area of 25' x 30' and acquired a least depth on the most significant rock.

**Covers:**

Divers used a pneumatic depth gauge to determine the least depth. Their findings indicate a least depth of 9.9 meters (32.5 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting a rock with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Reported Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Latitude</u>	<u>Geographic Longitude</u>
13237	34	10/26/91	32.5 ft	NAD83	41°28'27.828"N	070°22'50.893"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar. Divers located a rock 6' x 8' x 3' high and acquired a least depth.

**Covers:**

Diver used a pneumatic depth gauge to determine a least depth of 7.1 meters (23.3 feet) corrected to MLLW using predicted tide correctors. WHITING recommends charting a rock with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	23.3 ft	NAD83	41°26'49.835"N	070°25'45.675"W
13233	14	11/28/92	23.3 ft	NAD83	41°26'49.835"N	070°25'45.675"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar. Divers located a rock 4' x 5' x 3' high and acquired a least depth.

**Covers:**

Divers used a pneumatic depth gauge to determine the least depth. Their findings indicate a least depth of 11.9 meters (39 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting a rock with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	39.0 ft	NAD83	41°29'39.032"N	070°24'17.323"W
13233	14	11/28/92	39.0 ft	NAD83	41°29'39.032"N	070°24'17.323"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.



REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar.

**Covers:**

Echosounder development was run to position and define the height of the obstruction. Least depth was determined to be 9.6 meters (31.5 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting an obstruction with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	31.5 ft	NAD83	41°31'00.779"N	070°26'15.999"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar.

**Covers:**

Echosounder development was run to position and define the height of the obstruction. Least depth was determined to be 8.9 meters (29.2 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting an obstruction with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	29.2 ft	NAD83	41°29'05.147"N	070°23'14.435"W
13233	14	11/28/92	29.2 ft	NAD83	41°29'05.147"N	070°23'14.435"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar.

**Covers:**

Echosounder development was run to position and define the height of the obstruction. Least depth was determined to be 9.6 meters (31.5 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting an obstruction with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Reported Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	31.5 ft	NAD83	41°29'31.450"N	070°23'47.708"W
13233	14	11/28/92	31.5 ft	NAD83	41°29'31.450"N	070°23'47.708"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar.

**Covers:**

Echosounder development was run to position and define the height of the obstruction. Least depth was determined to be 8.1 meters (26.6 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting an obstruction with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	26.6 ft	NAD83	41°32'10.722"N	070°25'37.649"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar.

**Covers:**

Echosounder development was run to position and define the height of the obstruction. Least depth was determined to be 7.9 meters (25.9 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting an obstruction with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	25.9 ft	NAD83	41°32'08.029"N	070°25'25.116"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

ADVANCE  
INFORMATION

Hydrographic Survey Registry Number: H-10547

State: Massachusetts

General Locality: Nantucket Sound

Sublocality: Eldridge Shoal and Vicinity

Project Number: OPR-B616-RU/WH

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

An uncharted obstruction was found with side scan sonar.

**Covers:**

Echosounder development was run to position and define the height of the obstruction. Least depth was determined to be 9.8 meters (32.2 feet) corrected to MLLW with predicted tide correctors. WHITING recommends charting an obstruction with least depth known.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Reported Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
13237	34	10/26/91	32.2 ft	NAD83	41°31'54.253"N	070°25'38.407"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

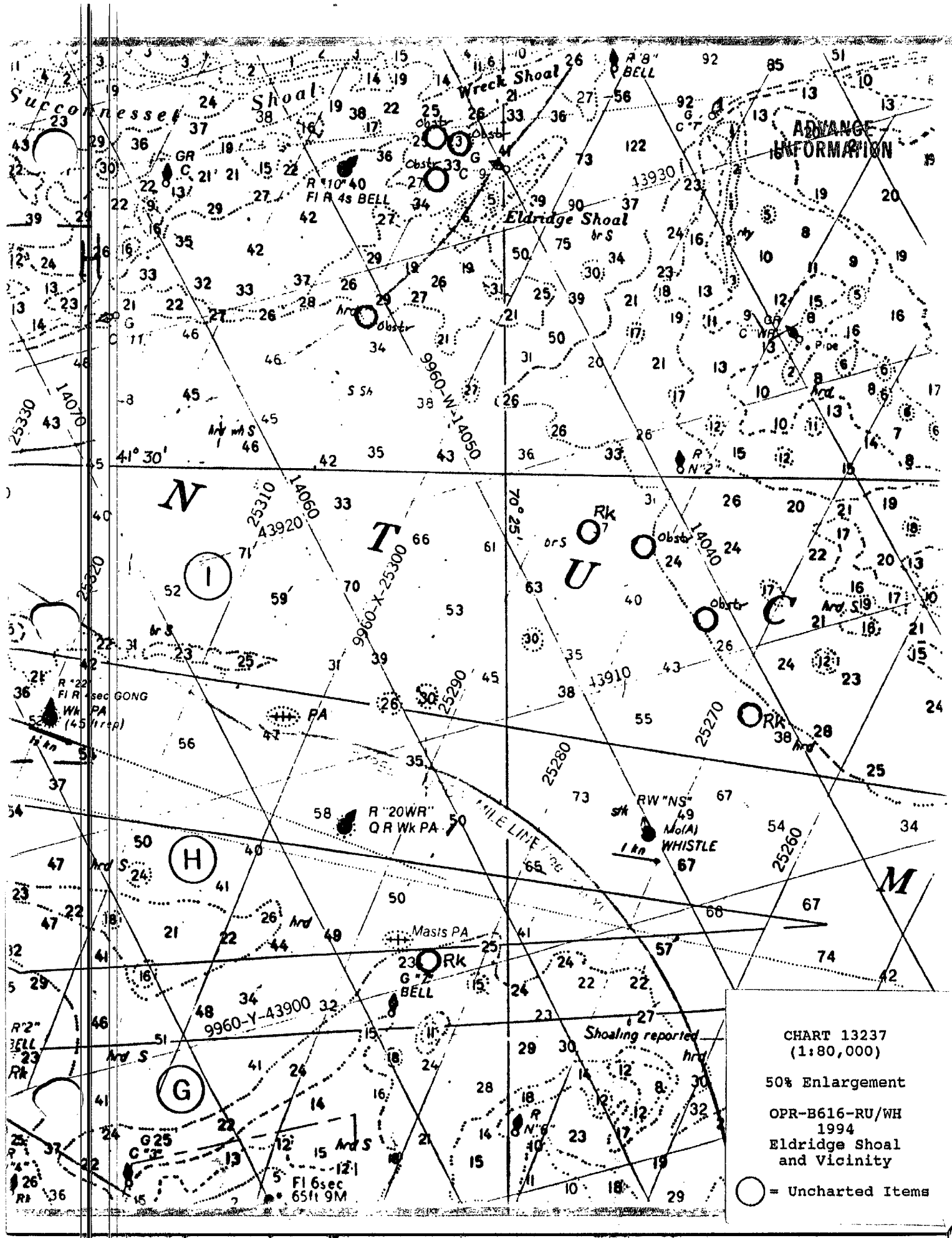


CHART 13237  
(1:80,000)

50% Enlargement

OPR-B616-RU/WH  
1994

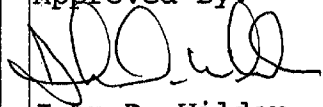
Eldridge Shoal  
and Vicinity

○ = Uncharted Items

APPROVAL SHEET  
FIELD EXAMINATION SURVEY  
OPR-B616-RU/WH  
WH-10-5-94  
1994  
H-10547

The data for this survey were acquired and checked under my daily supervision. Position and sounding accuracy meet the requirements specified in the Hydrographic Manual, the Hydrographic Survey Guidelines, and the Field Procedures Manual for Hydrographic Surveying. This survey is adequate, in the areas fully surveyed, for the intended purpose of delineating bottom topography and determining depths and identifying all potential dangers to navigation.

Approved By:



John D. Wilder  
Commander, NOAA  
Commanding Officer





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Office of Ocean and Earth Sciences  
Silver Spring, Maryland 20810

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 3, 1995

HYDROGRAPHIC SECTION: Atlantic

HYDROGRAPHIC PROJECT: OPR-B616

HYDROGRAPHIC SHEET: H-10547

LOCALITY: Massachusetts, Nantucket Sound, Eldridge Shoal and  
Vicinity

TIME PERIOD: June 8 - August 24, 1994

TIDE STATION USED: 844-7605 Hyannisport, Ma.  
Lat.  $41^{\circ} 37.7'N$  Lon.  $70^{\circ} 18.0'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 12.14 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.5 ft.

TIDE STATION USED: 844-8208 Oak Bluffs, Martha's Vineyard, Ma.  
Lat.  $41^{\circ} 27.5'N$  Lon.  $70^{\circ} 33.2'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 10.87 ft.

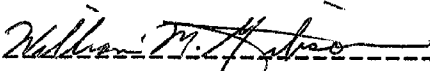
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.1 ft.



**REMARKS: RECOMMENDED ZONING**

1. North of  $41^{\circ} 30.0'N$ , and west of  $70^{\circ} 25.0'W$ , apply a +10 minute correction to times, and a X0.62 range ratio to heights using Hyannisport, Ma. (844-7605).
2. North of  $41^{\circ} 30.0'N$ , and east of  $70^{\circ} 25.0'W$ , times are direct, and apply a X0.78 range ratio to heights using Hyannisport, Ma. (844-7605).
3. South of  $41^{\circ} 30.0'N$ , and east of  $70^{\circ} 25.0'W$ , apply a +10 minute correction to times and a X1.35 range ratio to heights on Oak Bluffs, Martha's Vineyard, Ma. (844-8208).
4. South of  $41^{\circ} 30.0'N$  and west of  $70^{\circ} 25.0'W$ , apply a +10 minute correction to times, and a X1.08 range ratio to heights using Oak Bluffs, Martha's Vineyard, Ma. (844-8208).

Note: Times are tabulated in Greenwich Mean Time.

  
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CHIEF, DATUMS SECTION

GEOGRAPHIC NAMES

Name on Survey	A 1955 SHARE NO. 13235, 13237, 13238 B ON PREVIOUS SURVEY NO.		C ON U.S. QUADRANGLE MAPS		D FROM LOCAL INFORMATION		E ON LOCAL MAPS		F P.O. GUIDE OR MAP		G GRAND MCNALLY ATLAS		H U.S. LIGHT LIST		K	
ELDRIDGE SHOAL (title)	X		X													1
HORSESHOE SHOAL	X		X													2
MASSACHUSETTS (title)	X		X													3
NANTUCKET SOUND	X		X													4
SUCCONNESSET SHOAL	X		X													5
WRECK SHOAL	X		X													6
																7
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Approved

*Chris Clay*

Chief Geographer

APR 20 1995

04/17/96

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: H-10547

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	5967
NUMBER OF SOUNDINGS	35600

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	70	09/20/94
VERIFICATION OF FIELD DATA	251	12/08/95
QUALITY CONTROL CHECKS	21	
EVALUATION AND ANALYSIS	6	
FINAL INSPECTION	11	12/15/95
COMPILATION	95	03/14/96
TOTAL TIME	454	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		12/20/95

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H-10547 (1994)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

**D. AUTOMATED DATA ACQUISITION AND PROCESSING**

The following software was used to process data at the Atlantic Hydrographic Branch:

AUTOCAD, Release 12  
QUICKSURF, version 5.1  
Hydrographic Processing System (HPS)  
Microstation, version 5.0  
NADCON, version 2.10

The smooth sheet was plotted using an ENCAD NovaJet III plotter.

**H. CONTROL STATIONS**

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values.

To place this survey on the NAD 27, move the projection lines 0.408 seconds (12.582 meters or 1.26 mm at the scale of the survey) north in latitude, and 1.910 seconds (44.299 meters or 4.43 mm at the scale of the survey) east in longitude.

**L. JUNCTIONS**

H-10498 (1993-94) to the northeast  
H-10504 (1993-94) to the west

Standard junctions were effected between the present survey and surveys H-10498 (1993-94) and H-10504 (1993-94).

There are no junctional surveys to the north, south, and east. Present survey depths are in harmony with the charted hydrography to the north, south, and east.

**M. COMPARISON WITH PRIOR SURVEYS**

A comparison with prior surveys was not done during office processing. This is in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995.

O.	<u>COMPARISON WITH CHARTS</u>	<u>13229 (24<sup>th</sup> Edition, Oct 5/91)</u>
		<u>13233 (14<sup>th</sup> Edition, Nov 28/92)</u>
		<u>13237 (34<sup>th</sup> Edition, Oct 26/91)</u>
		<u>13238 (13<sup>th</sup> Edition, Jun 27/92)</u>

### Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in sections N. and O. of the Descriptive Report. The following should be noted:

The following uncharted dangerous submerged rocks were located by the hydrographer:

<u>FEATURES (ft)</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
44 Rk	41°28'41.851"	70°23'32.944"
37 Rk	41°30'11.439"	70°26.07.280"

It is recommended that the dangerous submerged rocks be charted as shown on the present survey.

The present survey is adequate to supersede the charted hydrography within the common area.

### Dangers to Navigation

One Danger to Navigation report was submitted to Commander (oan), First Coast Guard District, Boston, Massachusetts for inclusion in the Local Notice to Mariners, and to the Marine Chart Division, N/CS3x1, Silver Spring, Maryland. A copy of the report is appended to the Descriptive Report.

### P. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. No additional work is recommended.

### S. MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland.

**WHITING Processing Team**

*Robert Snow*

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Robert Snow  
Cartographic Technician

*Norris A. Wike*

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Norris A. Wike  
Cartographer

APPROVAL SHEET  
H-10547

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. A final sounding printout of the survey has been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Richard H. Whitfield Date: \_\_\_\_\_  
Richard H. Whitfield  
Cartographer  
Atlantic Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Nicholas E. Perugini Date: 12-20-95  
Nicholas E. Perugini, CDR, NOAA  
Chief, Atlantic Hydrographic Branch

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Final Approval:

Approved: Andrew A. Armstrong Date: 5-16-96  
Andrew A. Armstrong, IJT  
Captain, NOAA  
Chief, Hydrographic Surveys Division



MARINE CHART BRANCH  
**RECORD OF APPLICATION TO CHARTS**

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10547

**INSTRUCTIONS**

1. A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
2. Letter all information.
3. In "Remarks" column cross out words that do not apply.
4. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
13238	1/17/96	<i>O'Neill</i>	<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via <u>FULL APPLICATION</u> Drawing No. <u>OF SNOGS FROM S.S.</u>
13233	2/23/96	<i>O'Neill</i>	<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via <u>FULL APPLICATION</u> Drawing No. <u>OF SNOGS THRU 13238</u>
13229	1/11/96	<i>O'Neill</i>	<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via <u>FULL APPLICATION</u> Drawing No. <u>OF SNOGS THRU 13238</u>
13241	3/7/96	<i>O'Neill</i>	<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via <u>FULL APPLICATION</u> Drawing No. <u>OF SNOGS FROM S.S.</u>
13237	6/19/96	<i>John Bahr</i>	<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via Drawing No. <u>55 Fully app'd</u>
			<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via Drawing No.
			<del>Full Part Before</del> <u>After</u> Marine Center Approval Signed Via Drawing No.
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